

**Flora of India
Series 3**

**FLORA OF SANJAY GANDHI
NATIONAL PARK
BORIVALI - MUMBAI (BOMBAY)**

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and
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**BOTANICAL SURVEY OF INDIA
MINISTRY OF ENVIRONMENT AND FORESTS**

**FLORA OF SANJAY GANDHI NATIONAL PARK,
BORIVALI, MUMBAI (BOMBAY)**

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FOREWORD

As a part of floristic survey and inventory of plant wealth at National, Regional and District levels, Botanical Survey of India has been publishing Flora of India in four series viz. (1) National Flora (2) State Floras (3) District Floras or Flora of botanically rich and interesting regions and (4) Miscellaneous. In four categories mentioned above, the present work on the Flora of Sanjay Gandhi National Park, Borivali, Mumbai covers the category of flora of botanically rich and interesting regions or the botany of protected areas, which include all the National Parks, Sanctuaries and Sacred groves or Deoraies. In fact, it is in tune with priority set by the Ministry of Environment and Forests, Govt. of India, who have awarded a mega project on the Flora of Protected Areas to the Botanical Survey of India.

The introductory chapters are quite informative and will serve as a first hand information. The systematic treatment deals with a total number of 1109 of wild plants from the National Park. The dichotomous keys are provided to differentiate families, genera, species and infraspecific taxa as an aid to identification. Citation of the plant is followed by a short description, phenology, illustrations if any and its distribution. The local names of the plants if available and uses if any are also given. Alphabetical order is followed for easy reference. The flora has been accentuated with many colour photographs, line drawings of the plants and maps.

The authors with their vast experience in the field of taxonomy have done a commendable job in bringing out this flora which had long been awaited, and it was the need of the time. This flora will no doubt be welcome by the Academic institutions, Scientific departments, Forest departments, Planners, NGOs and Conservationists.

Director,
Botanical Survey of India
Kolkata – 700 001.

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Our thanks are also due to the staff members of Botanical Survey of India, Western Circle, Pune whose direct or indirect involvement has helped us to put this work into its present form.

We are grateful to the authorities of Sanjay Gandhi National Park, Borivali, especially Mr. A. R. Bharati, the present Dy. Conservator of Forests, National Park, Borivali and Mr. G. S. Kandey, the then Divisional Manager of the National Park, Borivali for their kind cooperation and help rendered to us during the course of this project.

We are also thankful to the senior officers of Zoological Survey of India, Pune, notably Dr. M. S. Pradhan and Dr. R. M. Sharma for helping us in providing the scientific names of the animals and information about the Fauna of the Park.

We are grateful to Dr. (Mrs.) S. M. Almeida, Ex-Director, Blatter Herbarium, St. Xavier's College, Mumbai for her kind cooperation during our herbarium consultations.

Our thanks are also due to the authorities of the Tribal Research Institute, Pune for supplying relevant data, which has been very useful source of information for the preparation of this flora.

S. G. Pradhan
B. D. Sharma
N. P. Singh

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PREFACE

Botanical Survey of India has been actively engaged in floristic explorations and writing floristic accounts besides revisions and monographic works, with a final goal of preparing a comprehensive floristic account of the country. As a result of this in early 1980's Botanical Survey of India started publication of new Flora of India in four series. (1) National Flora (2) State Floras (3) District Floras and Floras of botanically rich regions and (4) Miscellaneous. Under third category florals of botanically rich regions the present work covers the flora of Sanjay Gandhi National Park, i. e. the botany of protected areas which includes all the National Parks, Sanctuaries and Sacred groves or Deoraies.

The Sanjay Gandhi National Park is one of the five National Parks in Maharashtra and it is situated on the reclaimed island of Salsette. It is a part of the spur of Sahyadri ghat range that shoots off westerly. Due to its proximity to the Arabian sea and altitude upto about 1500 feet from mean sea level (MSL) it forms the transition from typical moist deciduous to semi-evergreen vegetation and to littoral swamp vegetation covering mangroves besides having two fresh water lakes. These factors have added to the botanical diversity.

This flora deals with a total number of 1109 wild taxa of vascular plants belonging to 151 families and 581 genera. Every effort has been made to furnish the information on various introductory chapters like Park management; History & General note; Past & present work; Geology, Geography & Climate; Forest Types; Fauna; Tribals; Plants of Medicinal value, Economic value and Poisonous plants; Plants of Horticultural importance and Rare and Endangered plants etc.

Systematic enumeration includes workable keys to the families, genera, species and infraspecific taxa. Citation of the taxon is followed by a brief description, it's distribution and phenology. Cultivated species have been enumerated at the end of respective families. The nomenclature is made up to date. Many colour photographs and line drawings have been included in the flora.

This is our endeavour to fulfill the long felt need of a comprehensive flora of the National Park and we feel it will be of great use to various academic departments of Universities and Colleges, Research institutes, State Forest Departments, besides environmentalists as a first hand information.

S. G. Pradhan
B. D. Sharma
N. P. Singh

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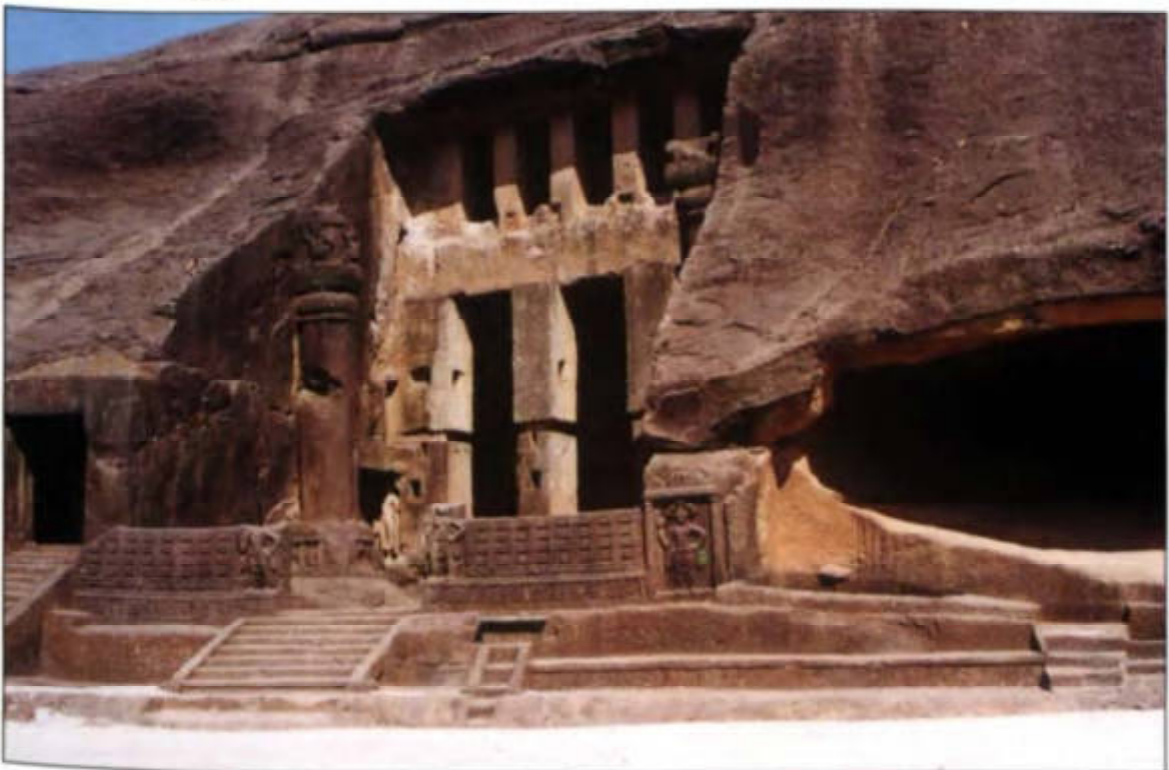
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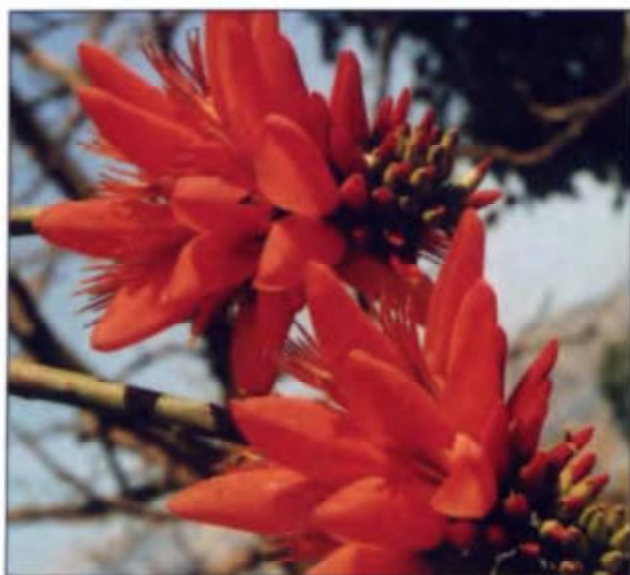
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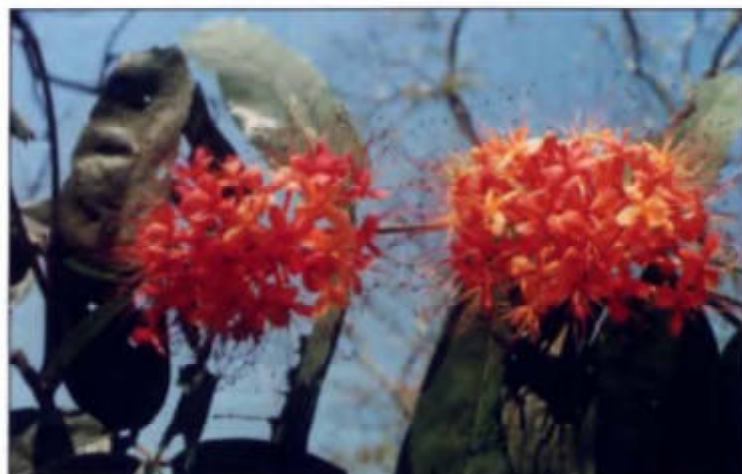
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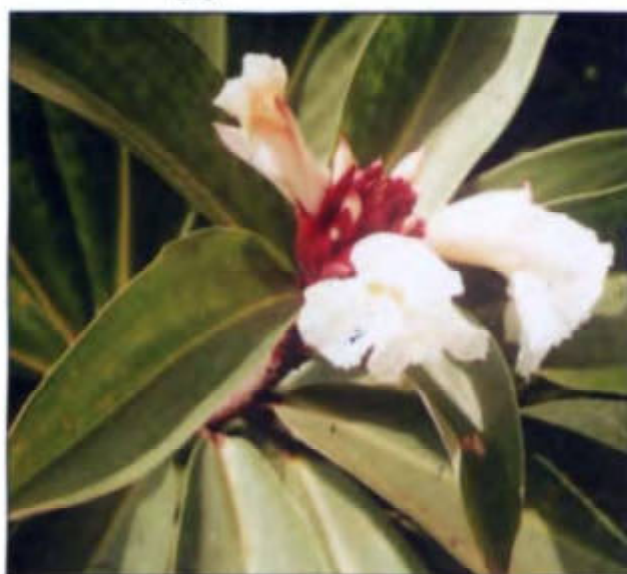
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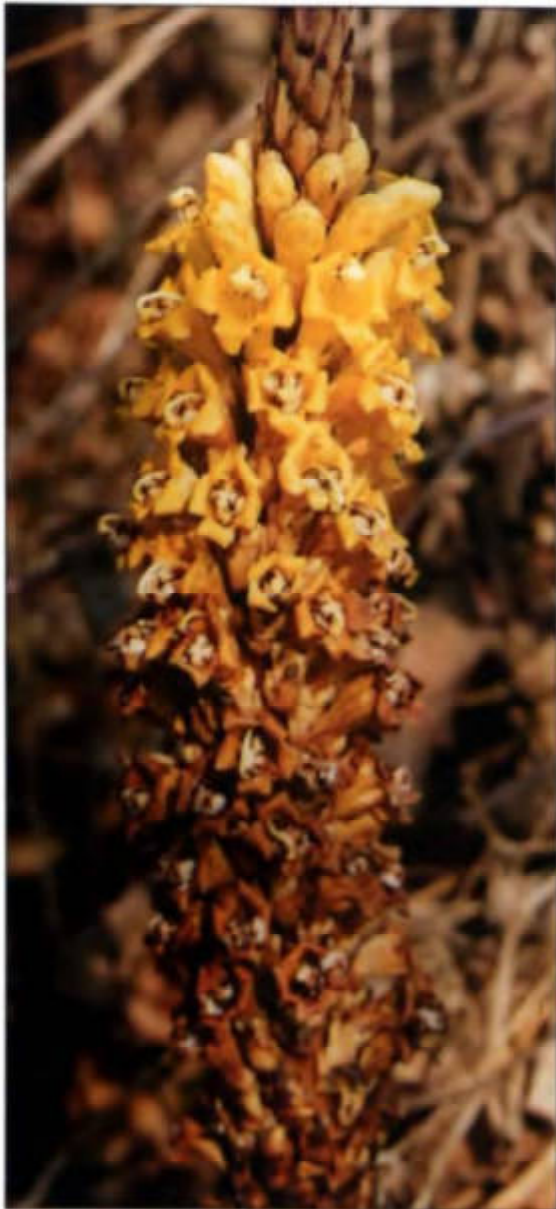
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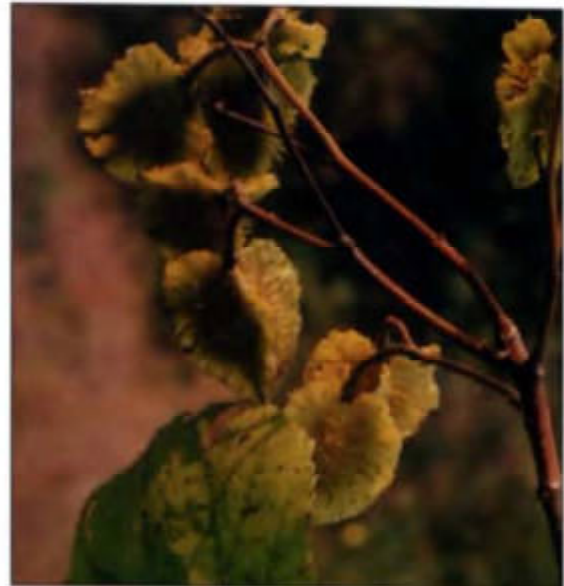
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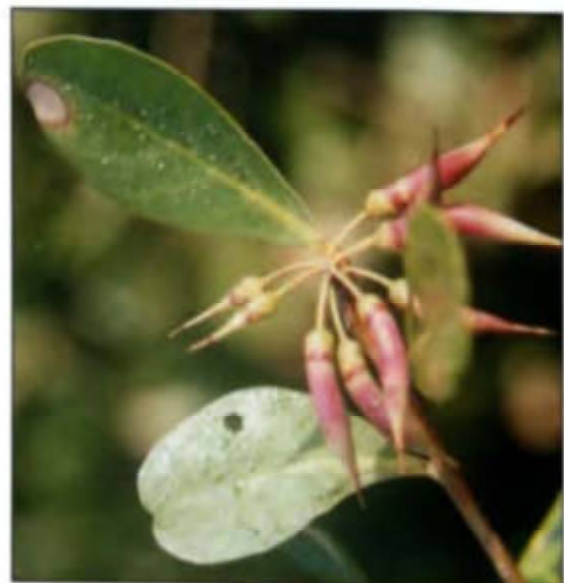
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INTRODUCTION

MANAGEMENT, HISTORY AND GENERAL NOTE

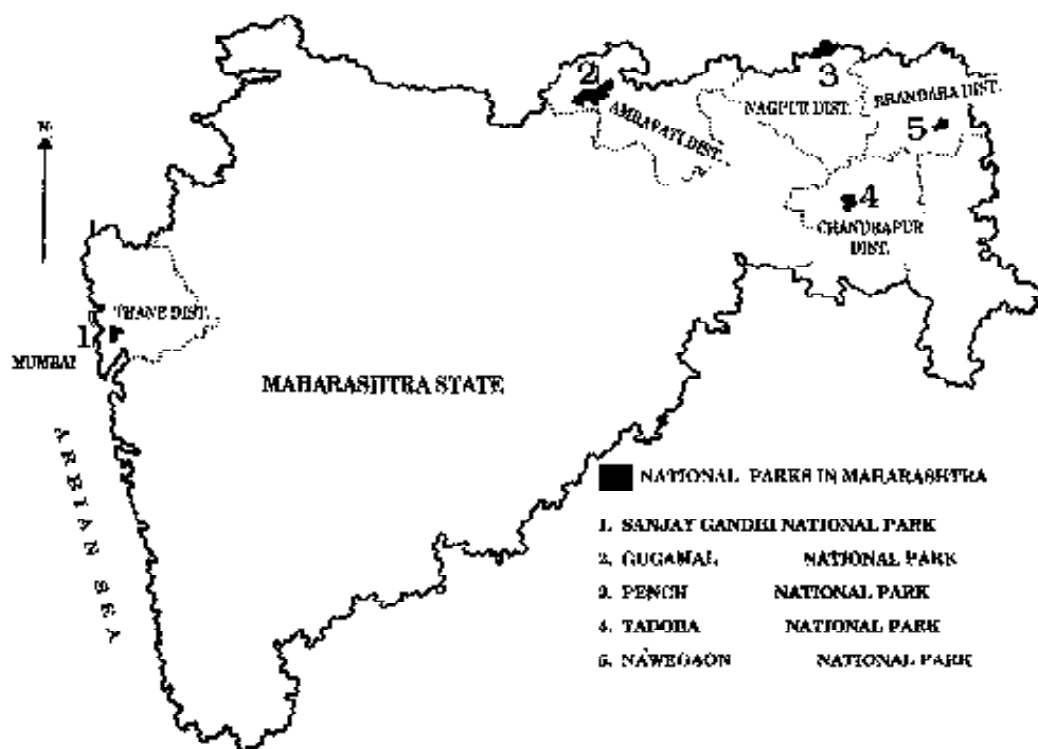
The Sanjay Gandhi National Park, Borivali also spelt as Borivali, Mumbai is one of the five National Parks in Maharashtra State. The other four are Gugamal National Park in Amravati Dist., Navegaon National Park In Bhandara Dist., Pench National Park in Nagpur Dist. and Tadoba National Park in Chandrapur Dist. It lies partly in Mumbai and partly in Thane Dist. and is easily accessible to the visitors as it is about 1 km from Borivali railway station. Mumbai-Ahmedabad National Highway is now the main access route to the National Park. The Santa Cruz air port and Sahar Air Port used by the International airlines lie at a convenient distance from southern end of the park. The area is carved out of the the Salsette Island and the neighbouring areas. The area is also adorned with Arabian sea coast on the west and rugged hilly terrain of varying heights, small top plateaus, numerous water courses, lakes, springs, valleys, a river and nallahs. The location offers an ideal niche for the occurrence of diversified flora and fauna. The ancient human civilization, flora and fauna might have lived in complete harmony with each other in the past. The healthy atmosphere, tranquility and scenic beauty of the area and its surroundings naturally attracted Buddhist monks and hermits for meditation and communication with Almighty for achieving 'Nirwana'.

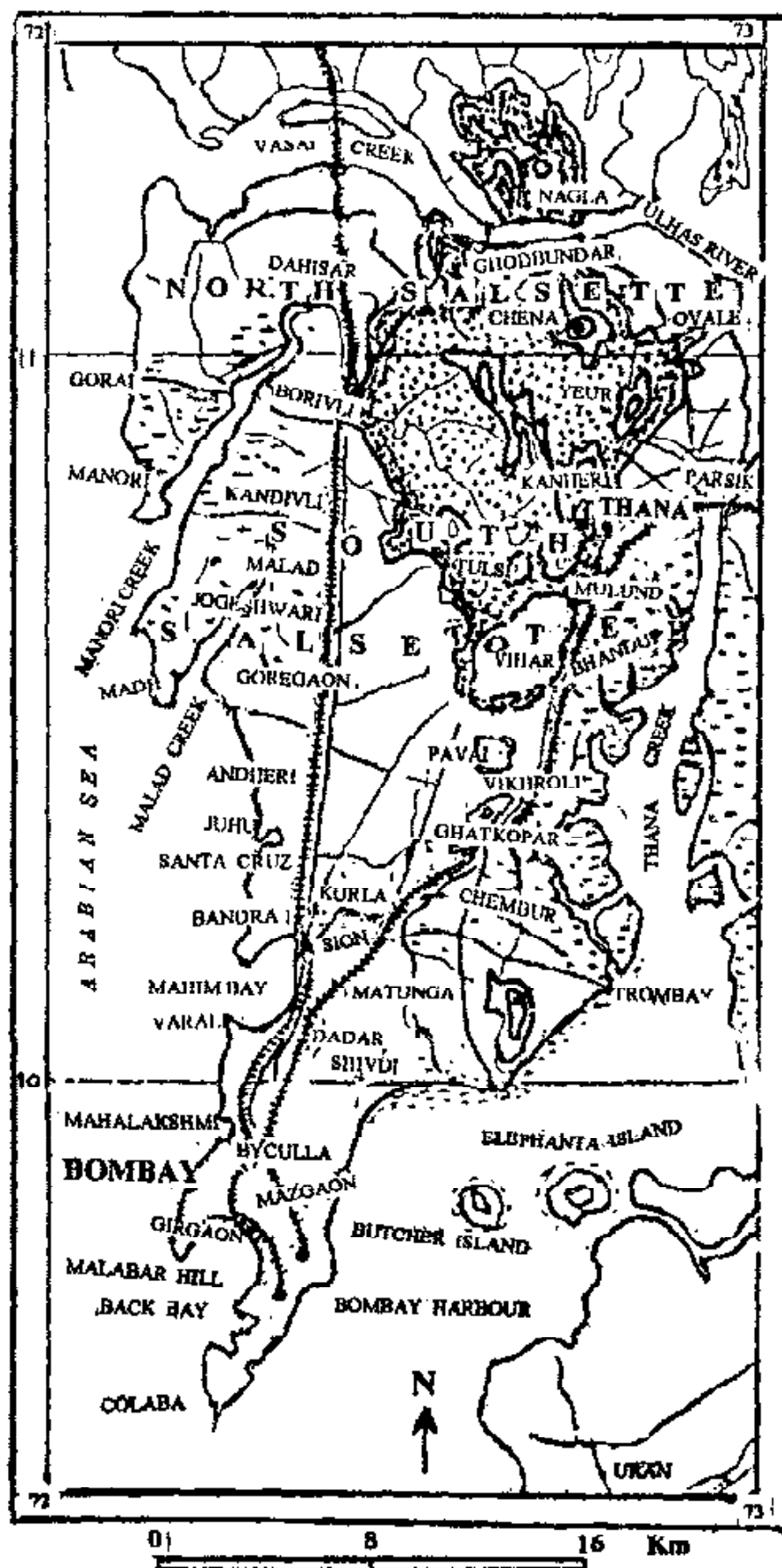
The archaeological citadel—the Kanheri caves of Buddhist period lend testimony to the prevailing prosperity and environ of the era. The Kanheri caves, the name derived from the Sanskrit word 'Krishnagiri', numbering about 109 (small and big) chiselled into the volcanic rocks date back to 1st century B.C. to 9th century A.D., are located in this area. The small chambers called 'Viharas' meant for monks and a few larger and deeper chambers called 'Chaityas' meant for congregational worships were occupied by well organized Buddhist establishments. The statues of Lord Buddha and beautifully carved pillars are the witnesses of architectural marvel, serenity and grandeur of the past. The inscriptions in the caves reveal names of numerous devotees including names of the kings of the bygone days.

The wilderness of this natural sanctuary is also revealed by the abundance of carnivores such as panthers, jungle cats, heynas, marsh crocodiles, wild dogs etc. and herbivores, viz. sambars, 4-horned antelopes, deers, hares, etc. in the near past. They lived in harmony and maintained the ecological balance.

The earlier history of the area falling under present day jurisdiction of the National Park is not clear. In fact the park came into being, virtually through piecing together land of varying ownerships, the last remnant of the verdant hills and dales, the reserve forests of Yeur and Nagla, prior to 1808 constituted the state property of the Maratha regime. A part of these forests was exclusively set aside for the use of State and the rest of its area was opened to the general public for bonafide domestic use. However, the then limited human population and inaccessibility to these difficult areas provided natural barriers and protection to these forests. During the early period of British rule, particularly prior to 1840, there was no scientific management of the forests. The haphazard exploitation of the forest resources continued on payment of nominal custom duty. Though the Forest Department was first organized in 1845. The Tulsi catchment areas were irregularly exploited upto 1883 and its forests were transferred to the forest department in the year 1894. The Vihar forests were acquired much earlier by Bombay Municipal Corporation and the catchment forests were well protected since 1860. Thereafter, the forests were surveyed and brought under systematic scientific management. From 1852 to 1862 the teak reserves and some other selected species were thinned and timber and poles extracted under a system of fee known as 'Vanmakta'. Thereafter, the departmental felling of good quality and valuable teak wood from the interior was introduced. The first systematic plan was introduced in the year 1887 and had been periodically reviewed and revised. The violent cyclones of 1903, 1940 and 1948 took heavy toll of the forest area and its fauna. The '*Krishnagiri Upwan*' belonged to '*Khots*' and was indiscriminately exploited for the commercial gains prior to its acquisition by the State Government between 1947-48. Private forests which belonged to '*Inamdars*' were haphazardly managed for 90 years till 1956. The State owned reserve forest rounds of Yeur, Tulsi, Gundgaon and Ghodbundar fall under the administrative control of Sanjay Gandhi National Park, whereas Nagla block forms part of Thane Forest Division. The first systematic working plan for development and scientific management was introduced during the period 1953-54.

As a consequence of establishment of the National Park in 1968 the entire area was closed to felling and other forestry operations. However, denuded areas were planted with indigenous species to maintain its originality and with a view to preserving the nature's beauty. "The State Government agreed in principal in 1968 for the constitution of a National Park at Borivali which not only would





THE ISLANDS OF MUMBAI (BOMBAY) AND SALSETTE WITH THE ADJOINING MAINLAND SHOWING THE POSITION OF PRESENT SANJAY GANDHI NATIONAL PARK

NATIONAL PARK WITH ITS BOUNDARIES

MUD AND MARSH

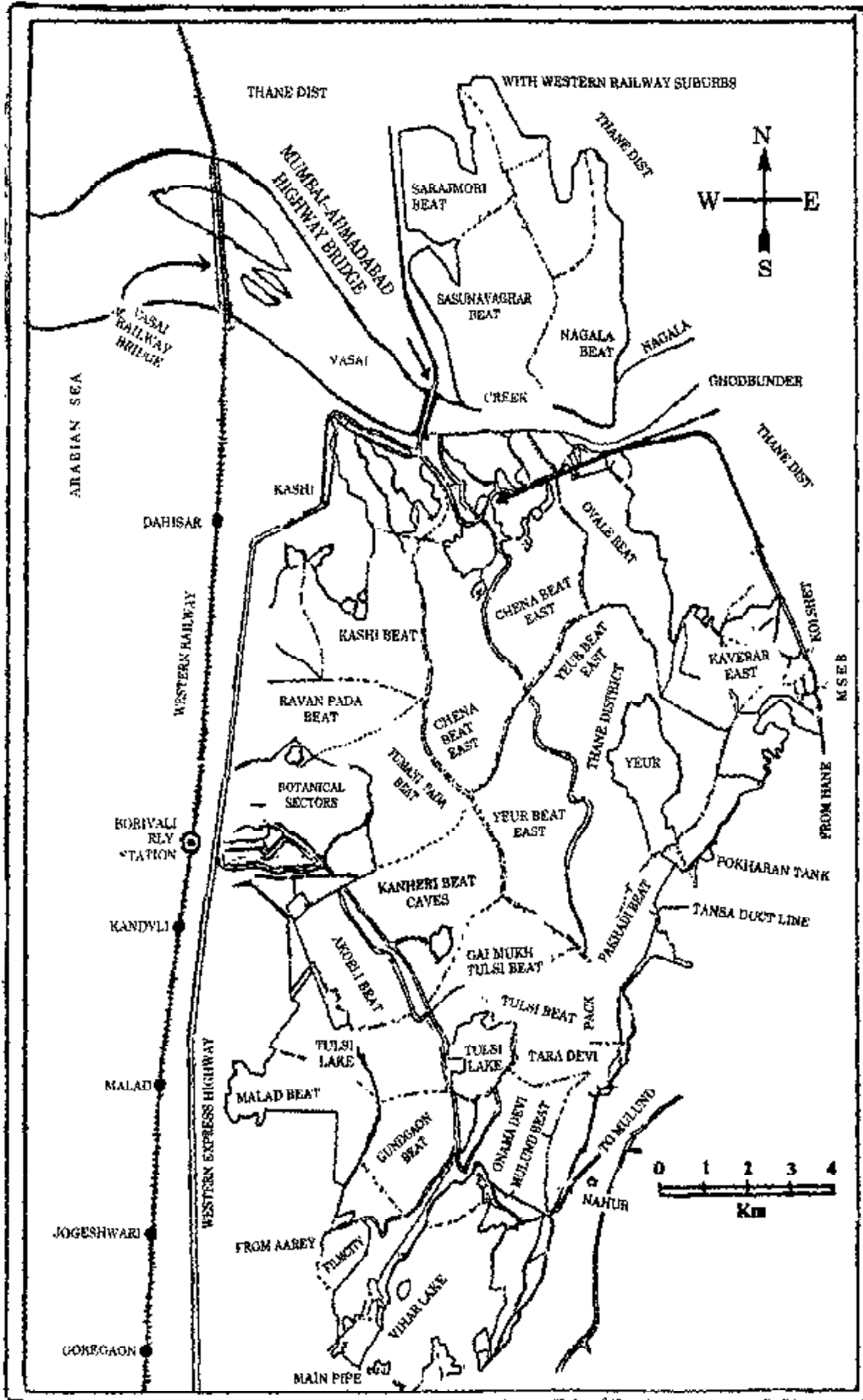


conserve the last vestiges of the beautiful landscape so near to metropolis like Mumbai but also provide the nerve-wreaked, machine-oriented people of Mumbai, a place for relaxation and recreation and scope for the younger generation to explore nature and appreciate it" (B. R. Koppikar, 1974 *ined.*) The State Government of Maharashtra took keen interest in 1970 to draw-up scientific management plan for Borivali National Park.

The National Park authorities have taken timely and appropriate steps by setting aside some of the areas for public convenience, recreation such as mini train, boating facilities, horticultural nurseries, kucha trails for trekkers, watch towers and rest houses, etc. The guided tours to historically famous ancient Kanheri caves, lion safari park and other sight seeing spots are welcome steps taken by the Forest Development Corporation. All these steps taken by the forest department corporation deserve special appreciation. However, the establishment of a small museum highlighting the richness of flora and fauna, actual exhibits and models laying stress on the importance of protection, preservation and conservation of our national heritage will definitely go a long way in educating and awakening the awareness among the general public besides imparting and adding new and invaluable information to the knowledge and sense of appreciation of the nature's gift. This may also help reducing the vandalism indulged in by indiscriminate felling carried out by the local people and the damage done year after year by university and college students by way of collection and removal of plant material especially orchids, ferns and tuberous plants, etc. for submission of herbaria. The participation in nature camps, organized by Bombay Natural History Society and trips organized by other non-governmental agencies must be made compulsory for the biology students. Since the same action needs to be taken in respect of other national parks, sanctuaries, biosphere reserves. A national policy has to be formulated and implemented to protect our national heritage for posterity. The unscrupulous medicinal plant collectors, removal of fruits, seeds and seedlings for commercial gains significantly reduce the chances and process of natural regeneration of forest trees. Judicious exploitation of natural resources and multiplication, propagation and re-introduction of the indigenous species, thus effected, will help maintaining the stability of the forests and ecological balance. Stringent rules and their strict implementation by the Government and non-governmental agencies will definitely help in rejuvenation of the depleting flora.

The living organisms micro and mega and other life sustaining systems completely depend on the forests and green landscape. 'No plants, no oxygen, no precipitation and thus no life' this message should be widely communicated through various publicity media. The deplorable continuous depletion of forest wealth after independence (38% to about 11% to 19.4%) as revealed by the latest statistics presented by the Department of Environment and Forests, Government of India) is an alarming indicator of seriousness and gravity of the situation. If this trend is not reversed with sincere efforts and implementation our planet Earth may turn into irrecoverable desert. Much is talked about the rise in the global temperatures due to increased carbon in the atmosphere. This will ultimately melt the million cubic tones of ice at the polar caps of the earth. This will cause rise in sea up to 6 meters submerging the coastal regions and the low lying areas, which in turn will cause immense loss to the life and property, this will be other catastrophe due to pollution. So 'Curb the pollution' should be our national slogan and action. 'Van Mahotsava' - tree plantation ceremonies are conducted with pomp and gaiety year after year. Does it really have any impact on the improvement of the situation ? The paper claims of success of these annual 'Van Mahotsava' are contrary to the actual situation existing today. Why there is decline in forest area of the country from 33% to a meagre 11% today? The forests are treated as overnight revenue yielding sources for filling up the coffers. The contract system of felling and removal of saleable wood and the rampant corruptive practices indulged in by unscrupulous contractors by over-felling and smuggling of the valuable timber are some of the the well known facts. There is no denial that there is heavy pressure for fuel-wood due to ever increasing population growth. Concerted efforts have to be made to tackle this menace. The immediate need of the time is to find out suitable alternate renewable sources of energy to meet the demand of firewood and timber. As India has the largest population of cattle in the world today, installation of 'Gobar Gas Plants, Wind Mills' harnessing of the solar and ocean energies, establishment of small viable nuclear power plants are some of the desirable measures which need to be given top priority besides stringent measures to control the population growth. The measures suggested above, though not new, are equally pertinent to the Sanjay Gandhi National Park due to its proximity to Mumbai metropolis.

MAP OF SANJAY GANDHI NATIONAL PARK, BORIVALI



GEOLOGY, GEOGRAPHY AND CLIMATE

A) LOCATION :

Regionally the National Park comes under 'Konkan' the coastal region of Maharashtra State. The area of the park lies between 72'53 & 72'56 east longitude and 19'88 & 19'21 north latitude. The habitation, industries and other installations of the Brihan Mumbai Metropolitan areas press hard against the boundaries of the park. To the east very thickly populated suburbs like Bhandup, Mulund and Thane and to the west suburbs like Goregaon, Malad, Kandivli, Jogeshwari, (Aarey Milk colony) and on the north end of the park lies Nagla round.

B) TOPOGRAPHY :

The terrain of Sanjay Gandhi National Park, Borivali is mainly semi-mountainous and is interspersed with ground level in a few patches, *viz*, the intervening space between Tulsi and Vihar lakes, the lower westerly reaches of 'Krishnagiri Upwan' and a small stretch towards the northern end of Chena private forest near the Bassein creek. At places, the slopes are precipitous exposing the rocky outcrops. The hills constitute the spurs of the Sahyadris with a general trend of north-south run. Rising from the elevation less than 30 meters above mean sea level, the terrain culminates into series of peaks disposed through the park, the highest near the Kanheri caves being 486 meters. Numerous minor drainages form sinuous contours on the slopes. Narrow plateaus rather than sharp ridges connect a number of peaks.

The dominant topographical feature at the southern most part of the park is the peripheral range of hills, both along the eastern and the western limits of the park. The eastern hill range terminates at Mama-Bhacha hills in Yeur forest reserve and takes an abrupt turn westerly to culminate in to the second highest point. The southern slopes of the east-west spur, connecting Mama-Bhacha hill with the Jambulmal, forms the watershed of Tulsi lake, while the northern slopes giving rise to a valley known as Dabadi-dhara, drain into Makrand or Bhendi nalla. The hill range thereafter bifurcates at the centre of the park. The easterly fork leading to Sendur hill, after being intercepted by the river Laxmi. The westerly fork transverses almost northward and ends proximal to Ghodbundar village. Midway, this fork again branches off almost westerly and ends at Kashi-Mira village. The western hill range rises up to Pewamal and then leads on westward to end on the 'Krishnagiri Upwan' plains.

The terrain to the north of Bassein creek is also hilly, the ridges having a general north-south trend. The highest point at Kuradia hill is about 260 meters above the mean sea level. The prominent minor drainages in this tract are Ambon and Korlai, flowing into the Bassein creek and Garbi and Ukas, draining in north-westerly direction, finally in to the Arabian Sea.

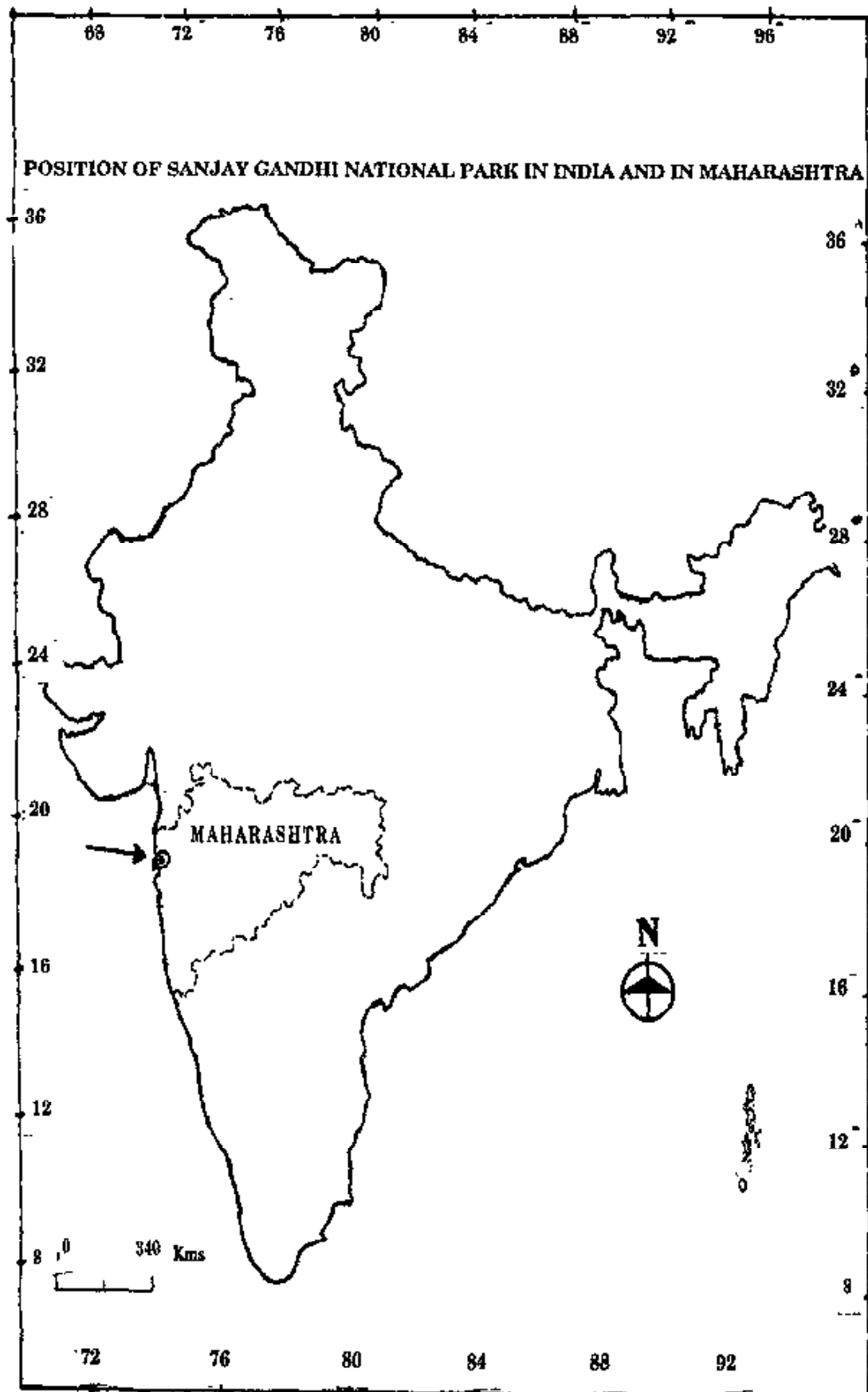
C) GEOLOGY:

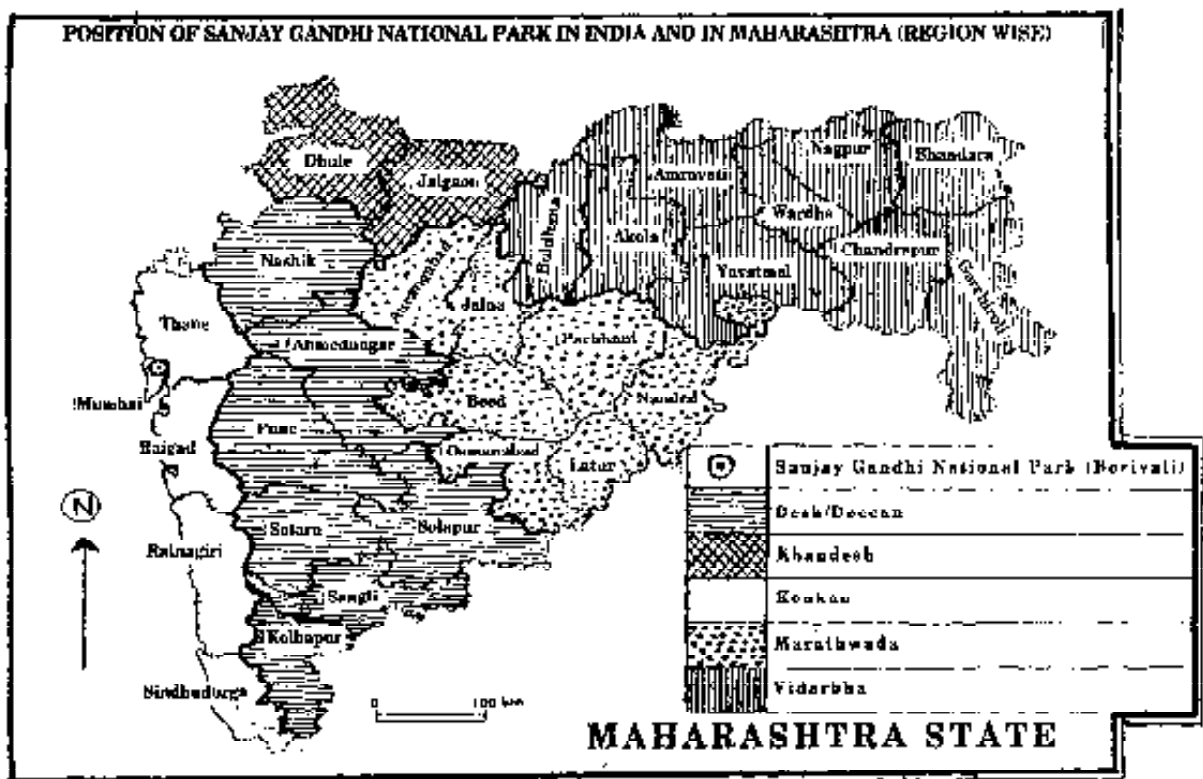
Geologically, the Sanjay Gandhi National Park fall under the category 'Deccan Trap' which mainly comprises basaltic lava flows and geochronologically belongs to Upper Cretaceous-Eocene era dating between 45-60 million years. The basaltic rocks which are amygdaloidal in character constitute the main ridges, extending from Ghatkopar, Vikhroli, east of Jogeshwari, Aarey to Kanheri and beyond indicate a dip of 10-20°. The successive basaltic lava flows have been intervened by ash-beds and are distinctly visible in the cuttings of the new high way passing through Jogeshwari.

The occurrence of a vast thickness of volcanic agglomerate near Tulsi lake and Kanheri caves is another interesting geological feature. This may be probably indicating volcanic focus from which most of the pyroclastic rocks in Salsette Island may have extruded. These agglomerates are largely made of elongated, sub-angular vesicular, blocks of brown chert, trachytes, volcanic ejections and small pieces of yellowish-red or brownish limonitic matter set in a dense, dull grey, amorphous material. This matrix, at places, resembles bauxite-the aluminum ore. Some of these agglomerates show fine banding and layers with alternate siliceous and tufaceous matter at places, with beautiful and intricate plications and contortions. Some of the horizons of agglomerate and breccias, particularly those that are bauxitised are quite soft. Volcanic breccias and ashes interbedded with basalts are significantly noticeable near Tulsi and Vihar lakes.

The basalts are also intruded by sills and dykes of olivine dolerite, tachylytes etc. The dykes have a general north-south trend and appear to be limited to the eastern margins of the main ridge, particularly at the eastern banks and about a kilometer s.w. of Vihar lake. The Mahatma Gandhi Memorial stands on the outcrop of pitchstone or tachylyte.

The microscopic examination of thin sections of basalt reveals fine grained, intergranular or subophitic texture. These contain a few phenocrysts of plagioclase and augite set in ground mass of plagioclase





augite and opaque iron ores. Some samples show patches of devitrified glass or fine flakes of chlorite. In some felsic rocks, such as rhyolites, described from s.w. of Vihar lake phenocrysts of quartz and plagioclase are found in ground mass of quartz and felspar, with little chlorite, apatite, dolomite and iron ores and with or without augite.

The plain areas to the west of the main ridge at Borivali and beyond are covered by marine alluvium represented by saline marine beds, recent shell limestone, calcareous sandstone, etc.

D) SOIL :

A thin layer of soil covers the volcanic rocks underlying the region, particularly on the ridges and other places where centuries of erosion, has continuously worn it away. In some places fairly large areas of hard, dark rock are completely exposed at Kanheri cave regions and its vicinity. On tree clad lower slopes of Vihar and Tulsi catchment areas, a good part of Chena private forest and Nagla Block, the soil is sufficiently deep and fertile.

E) DRAINAGE AND WATER SOURCES :

The Bassein creek which flows east-west, divides the park area into the northern and the southern zones, though not equally. The main sources of water in the park are the rain-fed lakes of Tulsi and Vihar and series of water-courses intersecting the terrain, apart from perennial springs on the hill slopes here and there and the river Dahisar.

The southern zone comprises the Chena private forests under acquisition, the reserved forests of Yeur, Tulsi, Gundgaon and Ghodbundar Rounds and the State-owned forest of Krishnagiri Upawan. The prominent water-courses and the lakes in this zone are as follows.

The river Dahisar, originates from Tulsi lake and flows through the forests of Magathana village and joins Manori creek to the north-west of Dahisar village, before merging finally with the Arabian Sea near Manori village. The catchment area of this river extends over 2023.500 ha. A number of small nallas and tributaries flow and join the river. Perennial water-springs are seen in the beds of these tributaries, which offer a potential for picnic spots and camp-sites which could be developed.

The Revat nalla starts from Avaghada hill to the south-west of Yeur village, flows to the north through the reserved forest of Yeur

village, and the private forests of Chena village ultimately joins the Bassein creek or Ulhas river, to the east of Versova bridge on the Western Express Highway. The nallah near its source, for a length of about a km. is known as Vaghacha Khonda. Later as it flows to the north, it acquires the name Bhendi or Makarand nalla for a length of about 2 km. before its confluence with Katakavana nalla, which takes its origin in Yeur village. From this point the nalla further runs northwards and passes through Chena village, where it acquires the name Revant nalla, through locally it is popular by the name Laxmi river. The nalla however is not perennial, as the waterflow ebbs towards the end of December or January, depending upon the intensity of the monsoon. There are a number of spots in the nalla-bed, with a potential source of water for developing picnic-spots and camping-sites nearby. The catchment area of this nallah extends over 2225.850 ha. within the park.

Tulsi and Vihar lakes are two reservoirs which supply water to Mumbai. Vihar at the extreme south-end of the park is larger of the two, while Tulsi, over a km. upstream, is the more scenic. These lakes are at the best during October and November. Because of the heavy demand, their waters are almost completely exhausted just before arrival of the monsoon. The catchment area of Tulsi lake is about 745.25 ha.

The Vihar lake has a waterspread of about 731.492 ha. Its catchment area is roughly 851.488 ha. At present, the catchment areas is under the management of the Forest Department, while the lake is under the control of the Bombay Municipal Corporation.

F) CLIMATE :

i) Temperature :

The proximity to the Arabian sea, luxuriant vegetation and numerous water sources such as large fresh water lakes: Tulsi and Vihar, river and rivulets have the ameliorating effect, and as a consequence the temperature is mild. The mean annual temperature is ca. 27⁰C. From November to the end of February the temperature drops to ca. 60%. The month of April, May and October are comparatively warm and humid and the temperature usually remains over 30⁰C.

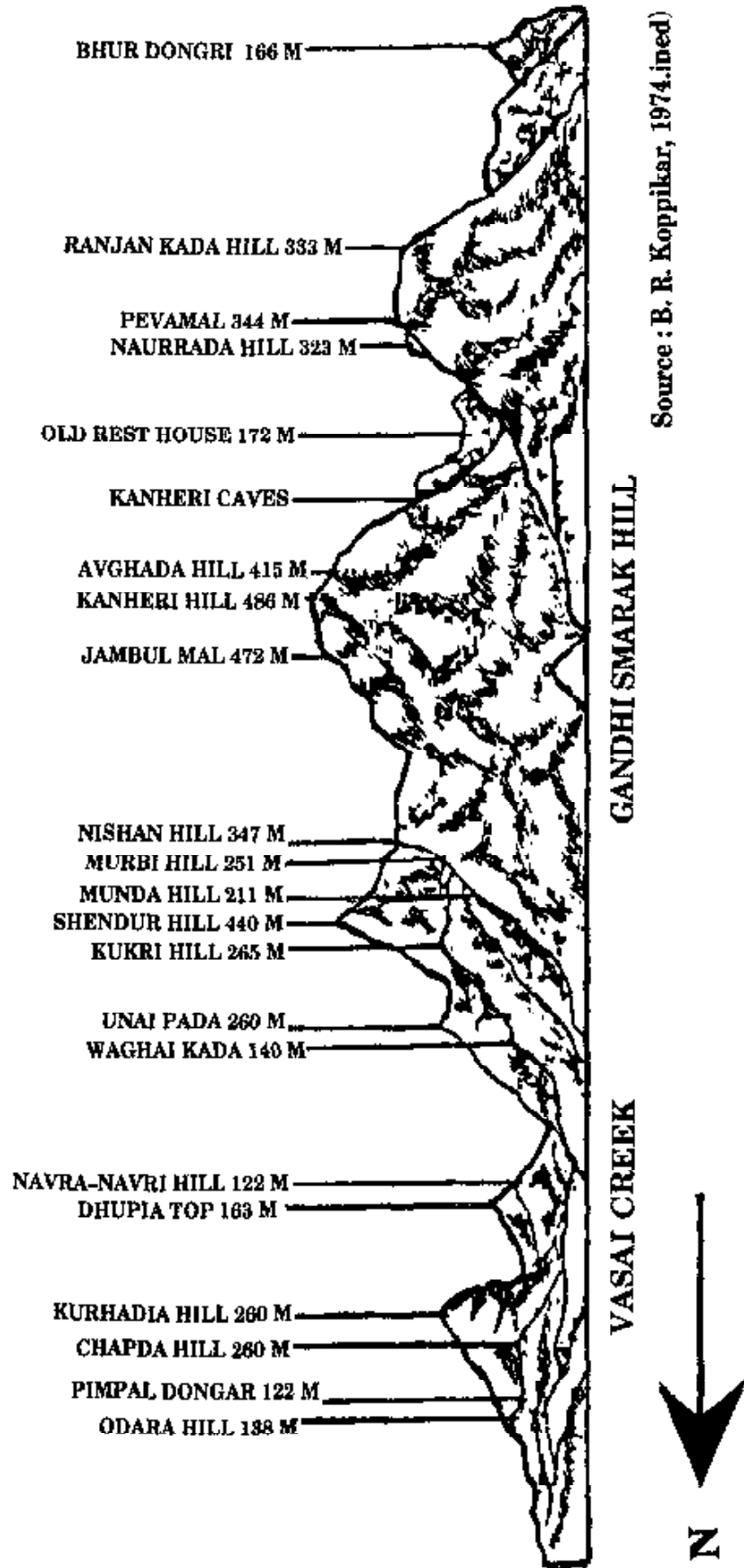
ii) Rainfall :

The South-west monsoon starts from about the middle of June and continues with full impact up to August or September. The mean

SANJAY GANDHI NATIONAL PARK, BORIVALI, MUMBAI

A PROFILE OF THE PROMINENT PEAKS

ELEVATION IN METRES



Source : B. R. Koppikar, 1974.in.ed)

Table 1. Climatological table based on observations from 1951 to 1980, Station Bombay (Santacruz). Lat 19°07'N. Long 72°51'E.

Month	Station level pressure hPa	AIR TEMPERATURE										HUMIDITY		CLOUD AMOUNT		RAINFALL					Mean wind speed		
		MEAN				EXTREMES				Relative humidity Pa	Vapour pressure hPa	All clouds	Low clouds	Monthly total mm	No. of rainy days	Total in wettest month with year mm	Total in driest month with year mm	Heaviest fall in 24 hours mm	Date and year				
		Dry bulb °C	Wet bulb °C	Daily max. °C	Daily min. °C	Highest in the month °C	Lowest in the month °C	Highest °C	Date and year											Lowest °C		Date and year	Okas of sky
Jan.	1013.7	20.2	15.9	30.8	18.4	34.2	12.2	38.2	17	7.4	22	63	14.7	1.5	0.2	0.6	0.1	10.1	0.0	7.0	24	7.5	
	1010.1	26.8	19.6						1961		1962	48	17.0	1.4	0.1			1965			1985		
Feb.	1012.0	21.5	16.9	31.3	17.3	36.1	13.1	39.6	26	10	10	61	15.5	1.1	0.3	1.5	0.1	16.2	0.0	18.0	08	8.4	
	1008.9	27.9	20.2						1966		1990	47	17.3	1.0	0.2			1961			1981		
Mar.	1010.8	25.3	20.6	32.7	20.8	37.9	16.6	41.7	28	28	30	64	20.4	1.3	0.5	0.1	0.0	1.3	0.8	1.3	01	9.3	
	1007.3	28.7	22.2						1966	13.8	1968	51	20.8	1.3	0.3			1973			1973		
April	1008.7	28.4	24.0	33.1	23.7	37.8	20.7	42.2	14	18.8	01	68	25.3	2.5	1.4	0.6	0.1	8.2	0.0	7.2	22	10.4	
	1005.2	30.7	24.0						1962		1968	69	25.6	1.8	0.8			1974			1974		
May	1006.6	29.9	25.4	33.1	26.1	35.8	23.3	41.0	12	20.6	25	68	28.8	4.1	3.2	12.2	01	94	0.0	71.5	31	11.8	
	1003.6	31.2	26.0						1979		1951	84	29.3	3.0	2.2			1956			1971		
June	1003.6	28.4	25.7	31.8	25.6	34.6	22.7	36.7	01	19.8	21	31	39.8	6.2	4.4	574.4	14.8	1037.1	119	306.6	19	15.0	
	1001.3	26.7	29.2						1961		1960	75	31.1	6.1	4.8			1974	6974		1983		
July	1002.7	27.1	25.4	29.8	24.8	31.8	22.8	34.8	22	21.2	08	87	31.1	7.2	4.7	888.3	24.0	1456.1	384.8	375.2	05	17.8	
	1001.1	28.8	26.7						1960		1974	83	31.1	7.3	4.8			1965	1971		1974		
Aug.	1004.2	28.8	26.0	29.3	24.3	30.8	23.0	34.5	29	18.4	01	87	30.3	7.2	4.6	533.0	22.0	1294	168.8	264.7	65	15.7	
	1002.4	27.5	28.2						1969		1960	82	30.1	7.1	6.7			1958	1972		1976		
Sept.	1007.0	26.5	24.6	30.1	24.0	32.6	22.8	36.4	23	21.1	26	86	29.8	6.0	3.7	306.4	13.7	820	43.8	212.4	10	10.0	
	1004.5	28.1	25.8						1972		1964	77	29.3	5.7	3.7			1964	1965		1982		
Oct.	1006.6	27.1	23.8	22.0	22.1	36.7	18.8	37.8	23	16.7	30	74	28.4	3.4	1.2	62.9	3.2	344.8	0.0	117.1	03	4.8	
	1006.5	29.9	24.8						1972		1962	66	27.3	3.2	1.8			1960			1965		
Nov.	1011.8	25.4	20.3	33.4	20.6	38.8	17.0	37.4	04	13.3	18	81	19.8	2.2	0.5	14.9	1.1	101.3	0.0	62.8	02	6.7	
	1008.7	29.2	22.6						1979		1969	95	22.1	2.3	0.7			1979			1972		
Dec.	1013.0	22.5	17.7	32.0	18.2	34.7	14.4	36.8	15	10.6	20	61	16.6	1.5	0.3	5.6	0.8	55.7	0.0	31.4	12	8.8	
	1014.0	27.8	21.0						1975		1949	52	19.5	1.8	0.3			1987			1987		
Annual total or mean	1005.6	25.7	22.7	31.7	22.1	38.0	11.7	42.2			7.4		72	24.2	3.7	2.1	2422.1	80.6	3794.8	1481.2	373.2		10.5
	1005.8	28.9	23.6									63	26.0	3.5	2.0			1968	1968				
No. of years	29	29	29	30	30	30	28	32		32		29	29	29	22	30	30	32	32	32		29	

FLORA OF SANJAY GANSHI NATIONAL PARK

annual rainfall is about 2600 mm. The area also receives north-east monsoon precipitation which seldom exceeds 50 mm. May is the brightest month whereas July and August have the least sunshine due to heavy rain and mist etc.

iii) Winds :

The gentle breeze blows from the Arabian sea towards the main land during summer and the month of October. The winds may reach gale velocity occasionally.

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A SHORT HISTORICAL NOTE WITH PAST BOTANICAL WORK, PRESENT WORK & REASONS FOR UNDERTAKING THE PROJECT

The present landmass of Bombay was separated into many islands before the reclamation. The Salsette was the largest island situated in the extreme north-east and was separated from the mainland by waters of Bassein creek in the north and Bandra creek in the south. It is most hilly and botanically rich area. Many of the localities of Salsette island though not included in the present National park are considered here. It is in this island where the present Sanjay Gandhi National Park is situated, covering 103.09 sq. km. area. The National Park was previously known as Krishnagiri Upawan and covered an area of 19.25 sq. km.

PAST BOTANICAL WORK :

The botanists like Graham, Dalzell and Gibson had visited this area and had few plant collections and reported them in Catalogue of Bombay Plants (1839) and Bombay Flora (1861) respectively. During the year 1917-19 Blatter and his group consisting of Charles McCann, J.F.D. Almeida, T. S. Sabnis and F. Hall carried out extensive work and made large collections. They spent a season living in the historical Kanheri caves. H. Santapau from 1940 onwards visited Krishnagiri Upawan several times during every year and made his collections. R. B. Das around 1950, from the Institute of Science, Bombay, studied the vegetation of the park mainly from the ecological point of view and made good collections, his M.Sc. thesis contains a comprehensive list of plants of the National Park. During 1951-1954, Miss. A. J. Randeria and R. R. Fernandez made a serious and well organized explorations in the National Park. They constantly visited the park at least once a week and collected large number of plant specimens which are deposited in the Blatter Herbarium, Bombay. R. R. Fernandez paid special attention to Monocots while Miss. A. J. Randeria took interest in Gamopetalae. P. S. Herbert in 1958 worked on Polypetalae and Apetalae of the National Park. G.L. Shah (1962) gave an account of vegetation along the sea-shore and Monsoon Flora of Salsette Island.

PRESENT WORK :

A) Field work :

The National Park with its forests covers an area of 103.09 sq. km. so surveying such a vast area by vehicle for floristic purpose is inevitable, and therefore Govt. jeep was used for this purpose. In inaccessible areas where the jeep could not approach the surveying was

done on foot. This work is the result of intensive botanical exploration tours in different seasons & herbarium consultations. All the important seasons covering herbaceous flora including grasses and sedges and arboreal flora etc. were covered. The camping was done in the Forest Rest Houses. All the important forest rounds were covered. The field collections included noting down the plant habit, habitat, colour of the flower, exact locality, altitude, plant associates, phenology, frequency and abundance etc. The plants were collected and pressed in the blotting papers for drying. They were tentatively identified in the field.

B) Herbarium work :

It consisted of poisoning the plant specimens with conventional mercuric chloride in ethyl alcohol solution method, once the specimens were dried they were identified with the help of microscope, local and regional floras and recent monographs or revisionary works etc. The plant specimens were mounted on herbarium sheets, the field notes were entered and deposited at BSI herbarium at Pune.

C) Taxonomic treatment :

1) Bentham and Hookers system (1857) has been followed for the classification purpose. However, the circumscription of some families was modified according to Hutchinson (1959) and according to their latest delimitations 2) Artificial dichotomous keys have been prepared for families, genera, species, subspecies and varieties. 3) The genera within a family, species within a genus, subspecies and varieties within a species have been arranged alphabetically for easy reference. 4) The upto date nomenclature of the species is followed by the citation, local names (whenever possible) morphological notes, phenology, illustrations (wherever possible) and distribution. 5) Ornamental or cultivated plants are arranged in alphabetical order at the end of the respective families. 6) Gymnosperm & Pteridophytes are arranged in their alphabetical order of families at the end. 7) The Flora has been adorned with many relevant maps, informative tables, illustrations and photographs 8) Throughout the present work metric system has been used for measurements. 9) Finally an exhaustive bibliography of important references consulted during the present work is given before indices to botanical and local names.

Consultations at Blatter Herbarium, St. Xaviers College in Mumbai helped us fill up the lacunae in our work since the Blatter Herbarium has a large number of botanical collections from National Park, Borivali.

REASONS FOR UNDERTAKING THE PROJECT

The project 'On the botany of protected area' was allotted to the BSI (W.C.) by the Department of Environment and Forests, the Sanjay Gandhi National Park at Borivali, Mumbai (Bombay), being botanically rich with dense vegetation cover of varied types due to humid climate, heavy rainfall, hilly terrain, fresh water lakes and the coastal vegetation with mangrove belts along the banks of the Bassein creek, promoted the authors to select this area for the preparation of a floristic account.

This part is located adjacent to Mumbai metropolis as a green spot, amidst the concrete jungle and is on the tourist map of Mumbai. It is continuously visited by the tourists, College and University students throughout the year. The lack of comprehensive floristic account was deeply felt by the authors. The encroachment of the park land from all sides, over exploitation of its vegetation cover, illegal felling due to population pressure, are some of the factors which are fast depleting the indigenous flora.

Many of the species both plants and animals have already disappeared. Many developmental projects also have negative effect on the flora and fauna.

A number of botanists like Graham (1939), Dalzell & Gibson (1861), Blatter (1917), Santapau (1940) and enthusiastic and energetic workers of St. Xavier's College (Bombay) made good botanical collections and reported some interesting plants from this area. However, no comprehensive account on floristic of Sanjay Gandhi National Park is available as yet. All these factors necessitated to inventories the floristic components of the National Park.

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TRIBALS

The tribals are often seen in the National Park. They live either in the interior parts or on the outskirts of the forests. Their villages consist of a few huts called '*Padas*'. The tribals residing north of Bassein creek seem to retain their old customs and originality as compared to the tribals residing south of Bassein creek in the park. This is due to its proximity to the city of Mumbai. Many are changing their life style and becoming modernized. However, a few old generation people still follow their old traditions. There are two main types of tribals namely Mahadev Kolis and Warlis inhabiting the National Park.

MAHADEO KOLIS :

These are one of the populous hilly tribals and largely distributed in small villages of uplands, some of which live much in the interior parts surrounded by isolated peaks and rocky cliffs. They are also known as Dongar Kolis.

They have exogamous units of families. The majority of the idols of deities and even evil spirits are of unornamented stones smeared with red lead. They eat cooked rice, bread of millets like nagli, warai and sava and a curry of pulses. They eat mutton but there is a taboo of eating certain animals. Men usually wear a langoti and bundi and a turbon, women wear a saree, bodice and fudki which is a piece of red cloth having a black or white star on it. They live in kachha houses having no windows for ventilation.

Polygamy is a common practice. Polyandry does not exist among them. Divorce is socially recognised, a widow may marry second time this is known as 'Mothur'. Cremation of the dead ones is common but infants are buried in path pits. Panchas regulate the affairs of the community. Drinking country liquor, chewing tobacco and smoking bidis are their social habits. They are Hindus by religion.

WARLIS :

These tribals rank fourth among the schedule tribes in Maharashtra, and are so called because they live in 'Varalat' the northern part of Konkan. They lead quiet agricultural life. They are mostly farmers or forest labourers. They are subdivided into three groups namely Murdes, Devars and Niners.

The Warlis have a dark sun burnt skin and are lean and emaciated partly because of starvation and partly because of drinking.

Men wear scanty clothes consisting of loin cloth, a small waist coat and a turban. Women put on garment called lugde which is about nine yards in length. They eat rice of a coarser kind, nagli, warai, udid, kodra, tur, chavali, dried or fresh fish and mutton of goat, sheep, rabbit, wild pig and some birds.

They believe in Hindu Gods and deities. Their marriages last for four to five days. The custom of Dehej is current. Polygamy was allowed but is stopped. Polyandry is unknown. Divorce is socially recognised. There is another peculiar system of marriage known as 'Koradywar Anne' where a man and a woman are allowed to lead a marital life before the marriage ceremony. Cremation of the dead ones is more common, burials are restricted to children. They are very fond of smoking bidies. Music and dancing are their recreational activities. Bhagat is an influential person without whom there is no ceremony.



FOREST FAUNA

The present Sanjay Gandhi National Park, previously known as 'Krishnagiri Upavan' came to resurgence in 1968 with a view to preserving its picturesque natural environment with luxuriant flora and fauna. The legislation on wild life protection act was enforced, restrictions were imposed on the people for the entry in the reserved forests. The concept for a scientific management plan was evolved in 1970 which laid greater emphasis on preserving the natural environment in its pristine form.

The National Park provides healthy outdoor recreation, relaxation and tranquility to the busy citizen of Mumbai and conditions for their diversion from routine and tedium of a city life. The hilly terrain with luxuriant forests, a river and many nallas and Ghodbundar saline water creek provide different types of habitat for a variety of animals. It is indeed an ideal place for a nature lover.

The Fauna is characteristic of that of part west coast of India from north of Belgaum to south of Surat. This is the fauna of Deccan Peninsula for most of its part. However, some elements of fauna of Kerala are also found. It comprises 48 species of Mammals, 64 species of Aves, 23 species of Reptiles, 7 species of Amphibians and 30 species of Pisces (Yazdani *et al.* 1992). The insects, other arthropodes, molluscs and other lower groups are excluded here.

MAMMALS :

Three species of monkeys viz. *Bonnet macaque Macaca radiata* (Geoffrot), *Rhesus macaque Macaca mulatta* (Zimmerman), *Lion tailed macaque Macaca silenus* (L.) and common *Langur Presbytis entellus* (Dufresne) are found in the park of which the Bonnet monkey is indigenous to the area. The Rhesus was probably introduced sometime in late thirtys by the then Superintendent of the Bombay Zoo.

The shooting of last *tiger Panthera tigris* (L.) was reported in 1925, thereafter it appears to be no more in the National Park. (Koppikar, 1974, *ined.*). But recently in Nagla forest round the presence of a couple of a tigers was confirmed in 2003 after a gap of about 83 years. *Panther Panthera pardus* (L.) is the only large predator in the park. They are frequently observed in 'Krishnagiri Upawan, Kanheri caves and valley west of Vihar lake. Their prays are mostly *dogs Cunon alpinus* (Pallas), *goats Capra ibex* L. and young ones of of feral cattles. *Jungle cat Felis chaus* Guldenstaedt, is rare in the park. *Jackals Canis aureus* L. are occasional. *Stripped Hyenas Hyaena*

Various animals found in the park.



Source : Additional Chief Conservator of Forests. Nature Conservation Maharashtra State.

hyaena L. is common. *Toddy cat* **Paradoxus hermaphroditus** (Pallas), the *Small Indian Civet* **Viverricula indica** (Desmarset) and the *Common mongoose* **Herpestes edwardsi** (Geoffroy), are some of the second degree predators commonly met with in the park. *Sambar* **Cervus unicolor** Kerr., *Chowsingha* or *Four-horned antelope* **Tetracerus quadricornis** (Blainvillia) some are reported to be released in the park by the forest authorities which are rarely seen in Nagla and Kanheri forests. *Chital* or the *Spotted deer* **Axis axis** (Erxleben), a small heard was reported to be spotted near Tulsi lake. *Indian wild boars* **Sus scrofa** (L.) are uncommon and are observed in north hilly areas of Tulsi and Yeur forests. *The Barking deer* **Muntiacus muntjack** (Zimmer.) is common, the *Mouse deer* **Tragulus meminna** is occasional. *The Black naped or Indian hare* **Lepus nigricollis** (F. Curier) is of common occurrence. *Five-stripped Palm squirrel* **Funambulus pennanti** Wroughton and *Jungle stripped squirrel* **F. tristriatus** (Waterhouse) are common in the forest areas. The *Porcupine* **Hystrix indica** Kerr. is rarely seen.

The bats are conspicuous by their presence at Kanheri caves. Out of 13 species the common ones are *Fruit bats* **Rousettus leschenaulti** (Desmarest), *Black bearded tomb bats* **Taphozous melanopogon** Temminck, *Malay false vampire bats* **Megaderma spasma** (L.), *Indian false vampire bats* **M. iyra** (Geoffroy), *Flying fox* **Pteropus giganteus** (Brunnich), *Short-nosed bat* **Cynopterus sphinx** Vahl.

AVES :

The National Park is a paradise for bird watchers. The extensive coast-line and fresh water lakes of the park attract a variety of birds including some of the migrant birds. Some noteworthy birds found are as follows.

Little coromorant **Phalacrocorax niger** (viellot), *Cattle egrets* **Bubulcus ibis coromandus** (Boddaert). *The little grebe* **Podiceps ruticallis capensis** (Salvadori) is common. *Rails* like *White-breasted water hen* **Amaurornis phoenicurus chinensis** (Boddaert) and *Indian purple moorhen* **Porphyriop poliocephalus** (Latham) are common. *Coots* **Fulica atra** (L.) and *Jacanas* like *Bronze-winged jacana* **Metopidius indicus** (Latham) are common.

In marshy coasts and mangrove swamps *Plovers* **Charadius dubius** (Scopoli), *Sand pipers* **Tringa glareola** (L.), *Ternus* **chlidonias hybrida** (Pallas) and *Gulls* **Laras burnnicephalus** (Jerdon) are also reported to be common.

The game birds include *Peafowl* **Pavo cristatus** L. *Red Jungle fowl* **Gallus gallus murghii** Robinson & Kloss, *Grey Jungle fowl* **Gallus sonneratti** Temminck, *Quails*: *Common bustard quail* **Turnix suscitator taigoor** (Skys) and *the Painted partridge* **Francolinus pictus** (Jardine & Selby), etc. are common.

The *Teels* are the *Common teal* **Anas crecca crecca** L. other reported ones are *Gerany teal* **Anas crecca crecca** L. *Cotton teal* **Netapus coromandelianus** (Gmelin) and *Lesser whistling teal* **Dendrocygna javanica** (Horsfield).

The *Parakeets* are the *Rose-ringed parakeet* **Psittacula krameri manillensis** (Bech.) is a resident bird. *Blossom-headed parakeet* **P. cyanocephala** (L.) is also reported to be of common occurrence. The large *Alexandrian parakeet* **P. eupatria** L. is probably an escape. The *Lorkeet* **Loriculus vernalis** (Sparman) is a water migratory bird. The *Cuckoos*, the *Hawk cuckoo* **Cuculus varius** Vahl and *Pied crested Cuckoo* **Clamator jacobinus** (Boddaert) are reported to be common in rainy season.

The nocturnal avians though occasional, include *Indian barn owl* **Tyto alba startens** Hartert and the *Great-horned owl* **Buba buba bengalensis** (Franklin). The *barred jungle owl* **Glaucidium radiatum** (Tieck) and the *spotted owlets* **Athene brama** (Temminck) are also reported.

The graceful looking *Kingfishers* are *Pied kingfisher* **Ceryle rudis leucomelanura** Reichenb. *Common kingfisher* **Alcedo atthis bengalensis**, Gmelin, and *White-breasted kingfisher* **Halcyon smyrensis fusca** (Boddaert). The *Woodpeckers* are *Rufous woodpecker* **Miropertus brachyurus jerdonii** (Malherbe), *Golden backed woodpecker* **Dinopium benghalense tehminae** (Whistler & Kinnear) and *Yellow fronted pied woodpecker* **Picoides mahrattensis mahrattensis** (Latham) is occasional.

Some other birds are *Indian shikra* **Accipiter badius dusumieri** (Temminck.), *Indian white-backed vulture* **Gyps bengalensis** (Gmelin) seen near (MAFCO factory), *Harriers* are *Pale harrier* **Circus macrourus** (S. G. Gmelin), *Marsh harrier* **C. aeruginosus** (L.) are seen near Tulsi lake. *Hornbills* are *Common grey hornbill* **Tockus birostris** (Scopoli) is also a resident species.

Birds with perching type of feet include *Rufous-backed shrikes* **Lanius schach** L. The *Kites* are *Black-winged kite* **Elanus caeruleus vociferus** (Latham), *Pariah kite* **Milvus migrans govinda** Skyes,

Brahmani kite, **Haliastur indicus indicus** (Boddaert) and the *Lesser crested serpent eagle* **Spilornis cheela melanotis** (Jerdon). The *Orioles* are *Golden orioles* **Oriolus oriolus** Skyes and *Black-headed orioles* **Oriolus xanthornius** (L.). The *Flycatchers* are *Rhipidura albicollis abogularis* (Viellot). The *Paradise flycatcher* *Terpsiphone paradisi paradisi* (L.) which is occasional migrant bird and the *black-naped flycatcher* **Monarcha azurea** (Boddaert). The *Bulbuls* are *Red-whiskered bulbul* **Pycnonotus jacosus fuscicaudatus** (Golud). and *Red-vented bulbul* **P. cafer cafer** (L.) The *Warblers* are *Ashy wrenwarblers* **Prinia sociates sociates** skyes. The *spotted babblers* are **Pellorneum ruficeps ruficeps** Swainson. The *Minivets* are the *Scarlet minivet* **Perierocatus flammeus** (Forster) and *small minivet* **P. cianamomeus** (L.) The *Drongos* are *Racket-tailed drongo* **Dicrurus paradiscus grandis** (Gould) and *Grey or ashy drongo* **D. leucophaeus longicaudatus** Hay is a migrant bird. The *Ashy-swallow shrike* **Artamus fuscus** (Vieillot), *Indian treapic* **Dendrocitta leucogastra** (Golud), *Purples sunbird* **Nectarinia asiatica asiatica** (Latham), *Grey wagtail* **Motacilla caspica caspica** (Gmelin). Robin **Savicolooides fulicata intermedia** Whistler & Kinner are some of the birds found in the park.

Very commonly known other birds are *Doves*, *spotted dove* **Streptopelia chinensis suratensis** (Gmelin) *Ring dove*, **S. decaocta decaocta** (Frivaldszky) *Koel*, **Eudynamus scolopacea scolopacea** (L.), *Meyna* **Acridotheres tristis tristis** (L.), *Crow phaesant* **Cantropus sinensis sinensis** (Stephens), *House crow* **Corvus splendens splendens** (Vieillot), *Jungle crow*, **C. macrorhynchos culminatus** Skyes and the *House sparrow* **Passer domestius indicus** Jardine & Selby.

AMPHIBIANS :

The area around Kanheri caves with perennial source of water, two freshwater lakes and nallas provide excellent niche for a variety of toads and frogs. The following are the amphibians found.

Common Indian toad **Bufo melanostictus** Schn. Jerdons *Ramanella* **Ramanells montana** (Jerdon) *Skipper frog* **Rana cyanophlyctis** Schn., *Indian bull frog* **R. tigerina** Daudhin, *Indian burrowing frog* **R. breviceps** and *Common tree frog* **Blypedates maculatus** (Gray).

REPTILES :

The crocodiles are rarely seen in Tulsi lake. Their eggs and breeding sites were deliberately destroyed due to wrong notions that crocodiles are dangerous to human beings. The species of *Indian marsh crocodile* is **Crocodylus palustris** Lesson, *Indian monitor lizard* **Varanus bengalensis** (Daudin), *Fan-throated lizard* **Sitana ponticeriana** Cuvier, *Indian garden lizard* **Calotes versicolor** (Daudin), *Pond tortoise* **Melanochelys trijuga** (Schweigger), *Spotted Indian house gecko* **Hemidactylus brooki**, *Gray rock gecko* **H. maculatus** Dumeril. All these are uncommon.

Serpents : Snakes found in the National Park are as follows

P=Poisonous; N. P.=Non Poisonous

Scientific Name	Local Name of English Name	Type
Acrochordus granulatus (Sch.)		N.P.
Achetulla nasuta (Lacepede)	Common green whip snake	N.P.
A. tristis (Daudin)		N.P.
Argyrogena fasciculata (Shaw)	Banded Racer	N.P.
Boiga trigonata (Sch.)		N.P.
Bungarus caeruleus (Sch.)	Common Indian Krait	P.
Callophis melanurus (Shaw)		P.
Coluber fasciculatus (shaw)		N.P.
Dryophis nasutus (Lacepede)		N.P.
Elaphe helena (Daudin)	Trinket snake	N.P.
Eryx conicus (Schn.)	Russel's earth Boa	N.P.
E. Johni (Russel)	John's earth Boa	N.P.
Liopeltis calamaria (Gunther)		N.P.
Lycodon aulicus (L.)	Common Wolf snake	N.P.
L. travancoricus (Bedd.)		N.P.
Naja naja (L.)	Indian Cobra	P.
Natrix beddomeii (Gunther)		N.P.
N. piscutor (Schn.)		N.P.
Oligodon taeniolatus (Jerdon)	Russell's or variegated kukri snake	P.
Ptyas muscosus (L.)	Dhaman or Common rat snake	N.P.
Python molurus (L.)	Indian Python or Ajar	N.P.
Ramphotyphlops braminus (Daudin)	Common worm snake	N.P.
Trioneresurus malabaricus (Jerdon)		P.
Vipera russellii	Russell's viper	P.

PISCES :

Some important marine fish found in Bassein creek are as follows:

Arius caelatus Valenciennes, **A. sona** (Ham), *Mudstapper* or *Nivti* **Boleophthalmus boddarti** (Pallas) & **B. dussumeri** (Val), *Golden Anchovy* or *Mangeli* - **Coilia dussumeiri** Val, *Bombay duck* or *Bombil* **Herpadon nehereus** (Hum.), *Giant Herring* **Hilsa toli** (Val), **Johnius belangeri** (Cuvier) & **J. elongatus** Mohan, **Kathala axillaris** (Cuvier), *Rawas* **Moutheronema** Sp., *Boi*. **Valamugil spiegleri** (Bleeker) etc.

Some fresh water species are as follows :

Anabus testudineus (Block), **Aplocheiles lineatus** (Val), *Catla* **Catla catla** (Ham), *Murrel* **Channa punctatus** (Bloch), *Stone crap* or *Mullya* **Garra mullya** (Skyles), *Fresh water Goby* **Glossogobius giuris giuris** (Hahn), *Cat fish* or *Shingti* **Mystus menoda trachacanthus** (Val), *Stinging cat fish* **Herteropheustes follillis** (Val), *Rasbora* , **Rasbora daniconius** (Hamilton).

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FOREST TYPES

Sanjay Gandhi National Park, Borivali, previously forming a part of the island or known as Krishnagiri Upawan is indeed an oasis in the concrete jungle situated at the extreme north of Mumbai. It covers an area of 103.09 sq. km, extending from the suburb Malad northwards towards Nagla forest round and from Borivali eastwards towards Thane. The altitude ranges from the sea level to 486 m of the famous ancient Kanheri hill. The annual rainfall is high, coupled with humid climate owing to its proximity to the sea-coast. All these factors contribute towards nurturing a large number of plant species, ranging from evergreen to deciduous elements. The humus formation on the ground and tree trunks makes many epiphytic and parasitic species flourish. Tulsi and Vihar lakes and Dahisar river along with many nallas in the parks provide good shelter to the hydrophytic and/or aquatic vegetation. The Bassein creek passes through the National Park dividing it into two unequal parts. The creek further passes eastwards to Ghodbunder and Nagla. The halophytes including many mangroves flourish in such type of saline habitat.

The luxuriant forests of this park can be classified into (1) Southern moist mixed deciduous forest (3B/C2), (2) Moist teak bearing forest (3B/C1), (3) West coast semi-evergreen forest (2A / C2) and (4) Mangrove scrub (4B/TSI) [Champion & Seth (1968).]

1) (3B/C2) SOUTHERN MOIST MIXED DECIDUOUS FOREST :

This type occupies a greater part of the park area in the following compartments. Reserved forests: Compartment Nos. 1-19, Old Krishnagiri Upawan; Compartment Nos. 1-6, Private forest; Compartment Nos. 1-2 Municipal forests; Compartment No. 1-6.

The soil is deep, loamy and generally rich in humus contents. In the hilly parts and plains of Chena, Ghodbundar, Kashi, Nagla, Ravanpada, Sarjamori, Sasunavaghar, Tulsi lake, Tumnipada and Yeur forest rounds. This type of forest is predominant.

The dominant plant species are mostly deciduous interspersed with evergreen species. Some typical moist deciduous species found are **Alstonia scholaris** (L.) R.Br., **Bauhinia foveolata** Dalz. **Bombax ceiba** L., **Careya arborea** Roxb., **Heterophragma quadriloculare** (Roxb.) K. Schum., **Dillenia pentagyna** Roxb., **Schleichera oleosa** (Lour.) Oken and **Tectona grandis** L.f.. Other tree species comprising this type are **Anogeissus latifolia** (DC.) Guill., **Bridelia retusa** (L.) Spr., **Butea monosperma** (Lam.) Taub., **Cassia fistula** L., **Cordia**

dichotoma Forst. f., *Dalbergia lanceolaria* L.f., *D. latifolia* Roxb., *Dendrocalamus strictus* (Roxb.) Nees, *Diospyros montana* Roxb., *Ficus racemosa* L., *Firmiana colorata* (Roxb.) R. Br., *Garuga pinnata* Roxb., *Gmelina arborea* Roxb., *Grewia tiliifolia* Vahl, *Haldina cordifolia* (Roxb.) Ridsd. *Holoptelea integrifolia* (Roxb.) Planch., *Hymenodictyon excelsum* (Roxb.) Wall., *H. obovatum* Wall., *Kydia calycina* Roxb., *Lagerstroemia parviflora* Roxb., *Madhuca longifolia* var. *latifolia* (Roxb.) Chevalier, *Manilkara hexandra* (Roxb.) Dub., *Mangifera indica* L., *Memecylon umbellatum* Burm.f., *Milium tomentosum* (Roxb.) Finet & Gagnep., *Mitragyna parvifolia* (Roxb.) Korth., *Olea dioica* Roxb., *Oroxylum indicum* (L.) Vent., *Pterocarpus marsupium* Roxb., *Radermachera xylocarpa* (Roxb.) K. Schum., *Sapindus laurifolius* Vahl, *Semecarpus anacardium* L.f., *Spondias pinnata* (L.f.) Kurz, *Sterculia guttata* Roxb. ex DC., *S. urens* Roxb., *Stereospermum colais* (Dillw.) Mabb., *Streblus asper* Lour., *Terminalia bellirica* (Gaertn.) Roxb., *T. crenulata* Roth, *Trewia polycarpa* Bth., *Ziziphus oenopia* (L.) Mill.

Shrubby or small trees which form the second storey canopy are *Alangium salvifolium* (L.f.) Wang, *Bauhinia racemosa* Lam., *Catunaregam spinosum* (Thunb.) Tirv., *Ficus exasperata* Vahl, *F. hispida* L.f., *Holarrhena pubescens* (Buch.-Ham.) Wall. ex G. Don, *Ixora brachiata* Roxb., *Morinda pubescens* J.E. Sm., *Mallotus philippensis* (Lam.) Muell.-Arg., *Trema orientalis* (L.) Bl., *Wrightia tinctoria* R. Br. etc.

Shrubs are *Capparis sepiaria* L. *Carissa congesta* Wight, *Casearia elliptica* Willd., *C. graveolens* Dalz., *Flacourtia indica* (Burm.f.) Merr., *Glochidion sinicum* Grah., *Grewia nervosa* (Lour.) Panigr., *Helicteres isora* L., *Pogostemon benghalensis* (Burm.f.) O. Ktze., *P. plectranthoides* Desf., *Securinega virosa* (Willd.) Baill., *Woodfordia fruticosa* (L.) Kurz, etc.

Twiners and climbers are. *Ampelocissus latifolia* (Roxb.) Planch., *Argyrea nervosa* Boj., *A. seresia* Dalz., *Aspidopteris cordata* Heyne ex Wight, *Butea parviflora* Roxb., *B. superba* Roxb., *Calycopteris floribunda* (Roxb.) Poir., *Canavalia gladiata* DC., *Cayratia trifolia* (L.) Domin., *Clematis hedysarifolia* DC., *C. triloba* Heyne ex Roth., *Combretum albidum* G. Don, *C. latifolium* Bl., *Entada rheedii* Spreng., *Gnetum ula* Brongn., *Heterostemma dalzellii* Hook. f., *Ipomoea pes-tigridis* L., *Paracalyx scariosus* (Roxb.) Ali, *Tinospora cordifolia* (Willd.) Hook. f. & Thoms.,

Trichosanthes tricuspidata Lour. and **Ventilago maderaspatana** Gaertn. are conspicuous by their presence.

Ground flora : The undergrowth consists of a large number of seedlings of tree and shrub species along with herbs and undershrubs such as **Baliospermum montanum** (Willd.) Muell.-Arg., **Barleria prattensis** Sant., **Blumea membranacea** DC., **Clitoria biflora** Dalz., **Curcuma inodora** Bth., **C. pseudomontana** Grah., **Dicliptera zeylanica** Nees, **Eranthemum roseum** (Vahl) R. Br., **Haplanthodes verticellatus** (Roxb.) Majum., **Leea macrophylla** (Roxb.) Hornem., **Neuracanthus sphaerostachys** (Nees) Dalz., **N. trinervis** Wight, **Rungia pectinata** (L.) Nees, **Sida retusa** L., **Solanum violaceum** Ortega.

Some common grass species are **Apluda mutica** L., **Arthraxon lancifolius** (Trin.) Hochst., **Arundinella pumila** (Hochst. ex A. Rich.) Steud., **Brachiaria ramosa** (L.) Stapf, **Cynodon dactylon** (L.) Pers., **Dichanthium annulatum** Stapf, **D. huegelii** (Hack.) Jain et Deshp., **D. pertusum** (L.) Clayton, **Digitaria ciliaris** (Retz.) Koel., **Eragrostis pilosa** (L.) P. Beauv., **Heteropogon contortus** (L.) P. Beauv., **Ischaemum semisagittatum** Roxb., **Oplismenus compositus** (L.) P. Beauv., **Setaria pumila** (Poir.) Roem. & Schult., **Themeda quadrivalvis** (L.) O. Ktze. etc.

Degradation of forest is noticed at some places and are marked by **Euphorbia ligularia** Roxb. bushes on the Kanheri hills, Mulund forest. beat, and on the out skirts of the National Park on the eastern side.

2) (3B/C1) MOIST TEAK BEARING FOREST :

This type occurs in the following areas of the park.

i) Reserved Forests :

Teak bearing forests occur in a part of compartment Nos. 3-7 of Yeur round, 1 and 2 of Ghodbandar round, and 13-19 of Nagla round extending over an area of approximately 404.700 hectares from Nagla round, respectively.

ii) Private forests of Chena :

They cover parts of compartment No. 1 and 2. The floristic composition of teak-bearing forests is practically the same as that of the Southern Mixed Deciduous Forests. The difference is due to the percentage of teak which is well above 20% in this type.

The bamboos are **Dendrocalamus strictus** (Roxb.) Nees

The undergrowth consists of **Helicteres isora** L., **Lantana camara** var. **aculeata** (L.) Moldenke, **Petalidium barlerioides** (Roth) Nees, **Pogostemon plectranthoides** Desf. etc.

Ground flora and grasses are practically the same as in the former case.

The superior quality of forests bearing teak tend to be moister with a preponderance of species like **Ixora brachiata** Roxb., **Mallotus philippensis** (Lam.) Muell.-Arg., **Mangifera indica** L., **Schleichera oleosa** (Lour.) Oken etc. The common associates of teak in the top canopy usually are **Bombax ceiba** L., **Dalbergia latifolia** Roxb., **Haldina cordifolia** (Roxb.) Ridsd. and **Grewia tiliifolia** Vahl. The second associates generally are **Ficus hispida** L.f., **Garuga pinnata** Roxb., and **Ixora brachiata** Roxb. etc.

3) (2A/C2) WEST COAST SEMI-EVERGREEN FORESTS :

This type of forest is found in small patches in compartment Nos. 2 and 8 of Old Krishnagiri Upawan and compartment Nos. 7 & 11 of reserved forest at an altitude of 344-472 m above mean sea level. Here the temperature is lower than that in the other areas of the park. The annual rainfall in park is 2000-2500 mm. The soil is loamy and moderately deep to shallow. This forest type is very variable and difficult to define except in comparative terms, being intermediate between the tropical evergreen and the moist deciduous forest type but generally includes species typical of both. In semi-evergreen type the number of evergreen elements dominate. If the dominance of deciduous elements is more, the forest slowly merges into moist deciduous type.

The tree species are **Alseodaphne semicarpifolia** Nees, **Bombax ceiba** L., **Bridelia retusa** (L.) Spr., **Careya arborea** Roxb., **Dalbergia latifolia** Roxb., **Diospyros montana** Roxb., **Ficus arnottiana** (Miq.) Miq., **F. racemosa** L., **Firmiana colorata** (Roxb.) R. Br., **Garcinia indica** Choiss., **Grewia tiliifolia** Vahl, **Haldina cordifolia** (Roxb.) Ridsd., **Heterophragma quadriloculare** (Roxb.) K. Schum., **Holoptelea integrifolia** (Roxb.) Planch., **Kydia calycina** Roxb., **Litsea deccanensis** Gamble, **L. glutinosa** (Lour.) C. Robins, **L. lutea** Bth. & Hook. f., **Mammea suriga** (Buch.-Ham. ex Roxb.) Kosterm., **Manilkara hexandra** (Roxb.) Dub., **Memecylon umbellatum** Burm. f., **Mimusops elengi** L., **Olea dioica** Roxb., **Persea micrantha** (Nees) Kosterm., **Pterocarpus marsupium** Roxb., **Saraca asoca** (Roxb.) de Wilde, **Schleichera oleosa** (Lour.)

Oken, **Spondias pinnata** (L.f.) Kurz, **Sterculia guttata** Roxb. ex DC., **S. urens** Roxb., **Terminalia crenulata** Roth etc.

The lower canopy consists of **Callicarpa tomentosa** (L.) Murr., **Catunaregam spinosa** (Thunb.) Tirv., **Glochidion sinicum** Grah., **Ixora brachiata** Roxb., **Mallotus philippense** (Lam.) Muell.-Arg. etc.

Stragglers or lianas are **Butea superba** Roxb., **Calycopteris floribunda** (Roxb.) Poir., **Combretum albidum** G. Don, **C. latifolium** Bl., **Entada rheedii** Spr., **Gnetum ula** Brongn., **Grewia nervosa** (Lour.) Panigr., **Ventilago maderaspatana** Gaertn. etc.

The bamboos are **Dendrocalamus strictus** (Roxb.) Nees. The ground cover is mainly composed of evergreen shrubs including members of Rubiaceae and Acanthaceae.

4) (4B/T51) MANGROVE SCRUB :

This type of vegetation is found along the banks of the Bassein creek as small narrow strips along Ghodbandar creek eastwards. In Nagla forest round compartment Nos. 18-19 and in Chena private land compartment No. 1 mangrove scrub vegetation is spread over. The ground is flooded at every high tide with only brackish water.

The species found along the muddy banks are **Aegiceras corniculata** (L.) Blanco, **Avicennia marina** (Forssk.) Vierh., **A. officinalis** L., **Bruguiera cylindrica** (L.) Bl., **B. gymnorrhiza** (L.) Savi and **B. parviflora** Wight & Arn., **Ceriops tagal** (Pers.) C. B. Robins., **Excoecaria agallocha** L. and **Rhizophora mucronata** Poir. These species are of low average height of 3-6 m. **Sonneratia apetala** Buch.-Ham. is the only tall mangrove species. The pneumatophores and vivipary are the common features among above species.

The bushes of **Clerodendrum inerme** (L.) Gaertn., **Malachra capitata** (L.) L., **Salvadora persica** L. var. **wightiana** (Planch. ex Thw.) Verdc. are commonly found, along the banks of the creek.

The climbers or twiners frequently found are **Derris trifoliata** Lour., **Ipomoea pes-caprae** (L.) R. Br., **Mukia maderaspatana** (L.) Roem., **Pentatropis nivalis** (J.F Gmel.) Field & Wood, **Trichosanthes cucumerina** L. etc.

Grasses such as **Aeluropus lagopoides** (L.) Trin. ex Thw., **Sporobolus virginicus** (L.) Kunth, **Zoysia matrella** (L.) Merr. are prominent. **Acanthus ilicifolius** L. which are often seen forming pure

communities. The other species of muddy saline soil are **Arthrocnemum indicum** (Willd.) Moq., **Blepharis repens** (Vahl) Roth, **Cressa cretica** L., **Crotalaria verrucosa** L., **Heliotropium marifolium** Koen. ex Retz., **Pedaliium murex** L., **Sesuvium portulacastrum** (L.) L., **Suaeda fruticosa** (L.) Forssk., **S. maritima** (L.) Dum. and **S. nudiflora** Moq. and **Salicornia brachiata** Roxb.

Common Cyperaceae members of saline sandy soils are **Cyperus arenarius** Retz., **C. compressus** L., **C. rotundus** L., **Fimbristylis ferruginea** (L.) Vahl and **F. polytrichoides** Retz.) Vahl.

Ipomoea pes-caprae (L.) R. Br. is a good soil binding twiner commonly found. **Spinifex littoreus** (Burm.f.) Merr. form loose to dense patches. **Acrostichum aureum** L. is found in the brakish water along the mangrove swamps.

Little away from the banks of the creek large patches of **Pandanus furcatus** Roxb., and **P. odoratissimus** L.f. are seen near Ghodbundar. **Borassus flabellifer** L. is commonly scattered all over the coastal region. Trees of **Erythrina stricta** Roxb. and **Thespesia populnea** (L.) Soland. ex Corr. are found scattered along the coast line **Casuarina equisetifolia** Forst. & Forst.f. are also seen.

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HYDROPHYTES, EPIPHYTES AND PARASITES***HYDROPHYTES :***

Hydrophytic vegetation is divided into two types a) Reverain and b) Fresh water aquatic vegetation.

A) REVERAIN VEGETATION :

Reverain vegetation includes vegetation along banks and beds of the rivers, streams and ponds. The speceis found are **Coix lacryma-jobi L.**, **Cyperus exaltatus Retz.**, **C. nutans Vahl ssp. eleusinoides (Kunth) T. Koyama**, **C. pangorei Rottb.**, **Homonoia reparia Lour.**, **Phyllanthus reticulatus Poir**, **Pongamia pinnata (L.) Pierre (bush form)**, **Rotula aquatica Lour.**, **Syzygium cumini (L.) Skeels**, **Tamarix ericoides Rottl.** and **Typha angustifolia L.**

B) FRESH WATER AQUATIC VEGETATION :

The fresh water flora of the National Park found in the lakes, rivers, steams and ponds may be grouped into two categories (1) free floating and (2) rooted. The rooted ones may be further subdivided into (a) floating and/or submerged (b) partly submerged or marshy plants. There are two fresh water lakes adjacent to each other, viz. Tulsi and Vihar in the hilly range of the National Park south of Kanheri hills, in addition to Dahisar river and many nallas, which provide environment congenial for many aquatic plants. Some of the aquatic plants of common occurrence are listed below:

1) FREE FLOATING SPECIES :

Eichhornia crassipes (Mart.) Solms., **Ipomoea aquatica Forssk.**, **Lemna gibba L.**, **Hygroryza aristata Wight & Arn.**, **Hydrilla verticillata Royle**, **Myriophyllum oliganthum (Wight & Arn.) F. Muell.**, **Neptunia oleracea Lour.**, **Nymphoides hydrophylla (Lour.) O. Ktze.**, **N. indicum (L.) O. Ktze.**, **Ottelia alismoides (L.) Pers.**, **Pistia stratiotes L.**, **Pseudoraphis spinescens (R. Br.) Vick.**, **Trapa bispinosa Roxb.** and **Utricularia stellaris L.f.**

2) ROOTED SPECIES :***a) FLOATING AND/OR SUBMERGED SPECIES :***

Aponogeton nutans (L.) Engl. & Krause, **Ceratophyllum demersum L.**, **Ceratopteris thalictroides Brong.**, **Limnophila heterophylla (Roxb.) Bth.**, **L. indica (L.) Druce**, **L. sessiliflora C.B.**

Cl., *Nymphaea nouchali* Burm. f., *N. stellata* Willd., *Potamogeton nodosus* Poir.'

b) *PARTLY SUBMERGED OR MARSHY SPECIES :*

Aeschynomene indica L., *Alternanthera sessilis* (L.) R. Br., *Ammannia baccifera* L., *A. multiflora* Roxb., *Bacopa monnieri* (L.) Penn., *Bergia ammannioides* Roxb. ex Roth, *Blyxa echinosperma* Hook. f., *Cleome chelidonii* L.f., *Cyperus exaltatus* Retz., *C. nutans* subsp. *eleusinoides* (Kunth) T. Koyama, *Dalzellia ceylanica* (Gardn.) Wight, *Dopatrium junceum* (Roxb.) Ham. ex Bth., *Echinochloa colona* (L.) Link, *Eclipta prostrata* (L.) L., *Eleocharis spiralis* (Rottb.) Roem. & Schult., *Eriocaulon eurypeplon* Koern., *E. heterolepis* Steud., *Homonoia reparia* Lour., *Hydrolea zeylanica* (L.) Vahl, *Hygrophilla quadrivalvis* (Buch.-Ham.) Nees, *H. schulli* (Buch.-Ham.) M.R. & S.M. Almeida, *Ludwigia linifolia* (Vahl) R.S. Rao, *L. perennis* L., *Monochoria hastaeifolia* Presl, *Murdannia semiteres* (Dalz.) Sant., *Paspalidium flavidum* (Retz.) A. Camus, *Phyla nodiflora* (L.) Greene, *Persicaria barbata* (L.) H. Hara, *P. glabra* (Willd.) M. Gomez, *Pycreus polystachyos* (Rottb.) P. Beauv., *Rorippa indica* (L.) Hiern, *Rotula aquatica* Lour., *Schoenoplectus articulatus* (L.) Palla and *Typha angustifolia* L.

EPIPHYTES AND PARASITES :

The forests the of National Park provide congenial environment for the growth of epiphytic and parasitic plant species owing to humid climate and heavy rainfall. The moist tree trunks and branches facilitate the growth of many saprophytic fungi, lichens and mosses which further increase water retaining capacity and provide shelter to the epiphytes. The litter formed during dry season is transformed into humus-rich soil during Monsoon, thus encouraging the growth of a variety of host plants for the parasitic species.

The epiphytes found and reported are *Acampe praemorsa* (Roxb.) Blatt. & McC., *Aerides ringens* (Lindl.) C. Fischer, *Cymbidium aloifolium* (L.) Sw., *Dendrobium barbatulum* Lindl., *D. ovatum* (willd.) Kranzl., *Drynaria quercifolia* (L.) J. Sm., *Pyrosia adnascens* (Sw.) Ching, *Rhynchostylis retusa* (L.) Bl., etc.

The parasites and semiparasites found and reported are *Aeginetia indica* L., *Buchnera hispida* (Buch.-Ham.) ex D. Don., *Cassytha filiformis* L., *Christisonia calcarata* Wight, *C. lawii* Wight, *Cistachne tubulosa* (Schrenk) Wight, *Cuscuta reflexa* L.

Dendrophthoe falcata (L.f.) Etting, **Loranthus lageniferus** Wight, **Macrosolen capitellatus** (Wight & Arn.) Danser, **Ramphicarpa longiflora** (Arn.) Bth., **Striga angustifolia** (D. Don) Sald., **S. asiatica** (L.) O. Ktze., **S. densiflora** Bth. **S. gesnerioides** (Willd.) Vatke and **Viscum nepalense** Spreng.

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WEEDS OF THE NATIONAL PARK

Weeds are well established and resistant plants growing vigorously in a place where they are not wanted. These are defined as plants growing out of place. The National Park, covering an area of 103.09 sq. km. includes many padas (a few huts), cultivated fields public gardens, lakes and ponds etc. It provides suitable niche for different plants to grow. The garden maintenance operations regularly weed out unwanted plants from the gardens and the fields under cultivation for better yield. The lakes and ponds harbour some of the aquatic plants which are either submerged or floating. These plants become troublesome since they provide shelter to mosquitoes to breed, the tangled aquatic plant masses obstruct free flow of water and navigation. Similarly near the human dwellings and garbage dumping places a variety of weeds grow. Some weeds found in this area are poisonous. Thus depending upon their habitat these weeds are segregated as follows:

- 1) Weeds of fields
- 2) Weeds of gardens and nurseries
- 3) Weeds of lakes or ponds
- 4) Weeds of wastelands

1) Weeds of fields :

Alloteropsis cimicina (L.) Stapf, **Alysicarpus rugosus** (Willd.) DC., **Argemone mexicana** L., **Caesulia axillaris** Roxb., **Chamaecrista pumila** (Lam.) Singh, **Celosia argentea** L., **Coldenia procumbens** L., **Commelina diffusa** Burm. f., **Crotalaria filipes** Bth., **C. medicaginea** Lam., **C. prostrata** Rottl., **Chrozophora prostrata** Dalz., **Epaltes divaricata** Cass., **Eriocaulon heterolepis** Steud., **Euphorbia parviflora** L., **Fimbristylis bisumbellata** (Forssk.) Bub., **F. sieberiana** Kunth, **Grangea maderaspatana** (L.) Poir., **Heliotropium indicum** L., **Hydrolea zeylanica** (L.) Vahl, **Lindernia crustacea** (L.) F.V. Muell., **Lobelia alsinoides** Lam., **Physalis minima** L., **Polygonum plebeium** R. Br., **Solanum nigrum** L., **Sopubia delphinifolia** (L.) G. Don, **Sphenoclea zeylanica** Gaertn., **Stemodia viscosa** Roxb., **Striga asiatica** (L.) O. Ktze., **Vigna trilobata** (L.) Verdc. and **Zornia gibbosa** Span.

2) Weeds of gardens and nurseries :

Acalypha indica L., **Ageratum conyzoides** L., **Alternanthera sessilis** (L.) R. Br. ex DC., **Bidens biternata** (Lour.) Merr. & Sherff

ex Sherff, **Biophytum sensitivum** (L.) DC., **Boerhavia diffusa** L., **Blumea membranacea** L., **B. obliqua** (L.) Druce, **Digera muricata** (L.) Mart., **Dipteracanthus prostratus** (Poir.) Ness, **Euphorbia hirta** L., **E. parviflora** L., **Hedyotis corymbosa** (L.) Lam., **H. herbacea** (L.) Roxb., **Lindernia anagallis** (Burm. f.) Penn., **L. ciliata** (Colsm.) Penn., **L. crustacea** (L.) F. Muell., **L. oppositifolia** (Retz.) Mukerjee, **L. parviflora** (Roxb.) Haines, **Mazus pumilus** (Burm. f.) van Steenis, **Oxalis corniculata** L., **Peperomia pellucida** (L.) H. B. & K., **Phyla nodiflora** (L.) E. Greene, **Polygala arvensis** Willd., **Spermacoe hispida** L., **S. pusilla** Wall., **Stachytarpheta jamaicensis** (L.) Vahl and **Vernonia cinerea** (L.) Less.

3) *Weeds of lakes and ponds :*

Aponogeton natans (L.) Engl. & Krause, **Eichhornia crassipes** (Mart.) Solms, **Limnophylla heterophylla** (Roxb.) Bth., **Ottelia alismoides** (L.) Pers., **Pistia stratiotes** L., **Potamogeton nodosus** Poir., **Trapa bispinosa** Roxb. etc.

4) *Weeds of waste lands :*

Abutilon indicum (L.) Sw., **Acanthospermum hispidum** DC., **Achyranthes aspera** L., **Aerva lanata** (L.) Juss., **Alternanthera pungens** Kunth, **Amaranthus spinosus** L., **A. tricolor** L., **A. viridis** L., **Argemone mexicana** L., **Boerhavia diffusa** L., **Calotropis gigantea** (L.) R. Br., **C. procera** (Ait.) R. Br., **Cleome viscosa** L., **Datura metel** L., **Hygrophila schulli** (Buch.-Ham.) Mr. & S. M. Almeida, **Ipomoea carnea** subsp. **fistulosa** (Choisy) Austin, **Lagascea mollis** Cav., **Malachra capitata** (L.) L., **Martynia annua** L., **Parthenium hysterophorus** L., **Pergularia daemia** (Forssk.) Choiv., **Peristrophe paniculata** (Forssk.) Brummit., **Physalis minima** L., **Senna tora** (L.) Roxb., **Sida rhombifolia** subsp. **retusa** Borss., **Tephrosia purpurea** (L.) Pers., **T. villosa** (L.) Pers., **Triumfetta rhomboidea** Jacq., **Trianthema portulacastrum** L., **Tridax procumbens** L., **Urena lobata** L., and **Xanthium indicum** koen. ex Roxb.

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MONSOON FLORA

After the first few showers of rains towards the end of May or in the beginning of June the entire area, which otherwise appears dry, turns green. The grasses are dominant and occupy greater part of the area. Intermingled with grasses many bulbous plants belonging to families Amaryllidaceae, Araceae, Dioscoreaceae, Hypoxidaceae, Liliaceae, Scitamineae etc. make their appearance. Most common ephemerals are *Amorphophallus commutatus* Eng., *Chlorophytum tuberosum* Baker, *Crinum latifolium* L., *Curculigo orchoides* Gaertn. and *Scilla hyacinthina* (Roth) Mac Bride. These are the short lived plants and disappear within a week or two.

The next ones to appear are *Enicostema axillare* (Lam.) A. Raynal, *Hibiscus lobatus* (Murr.) O. Ktze., *Mollugo pentaphylla* L., *Neanotis hohenackeri* Daniel & Vajr., *N. rheedii* (Wall. ex Wight & Arn.) Lewis, which form large patches. The other common plants are *Biophytum sensitivum* DC., *Blainvillea acmella* (L.) Philip., *Costus speciosus* L. forming a very common undergrowth. *Cyprus leucocephalus* Retz., *Emilia sonchifolia* DC., *Murdannia nudiflora* (L.) Brenan, *Phyllanthus maderaspatensis* L., *Polygala arvensis* Willd., *Spermacoce pusilla* Wall., *Trichodesma indicum* L., etc. At this stage a number of seedlings of *Celosia argentea* L., *Impatiens balsamina* L., *Rhynchospora wightiana* Steud., *Setaria pumila* (Poir.) Roem. & Schult. are conspicuously marked by the colour of their flowers or spikes.

The grasses become fairly tall and abundant by about the middle of the monsoon and occur either in pure strands or as mixed communities. Some of these are *Apluda mutica* L., *Alloteropsis cimicina* (L.) Stapf, *Arthraxon lancifolius* (Trin.) Hochst., *Arundinella pumila* (Hochst. ex A. Rich.) Steud., *Brachiaria ramosa* (L.) Stapf, *Chloris virgata* Sw., *Coix lacryma-jobi* L., *Dichanthium pertusum* (L.) Clayton, *D. huegeli* (Hack.) Jain & Destipande, *Digitaria ciliaris* (Retz.) Koel., *Dinebra retroflexa* (Vahl) Panzer, *Eleusine indica* (L.) Gaertn., *Eragrostis pilosa* (L.) P. Beauv., *E. unioloides* (Retz.) Nees ex Steud., *Heteropogon contortus* (L.) P. Beauv., *Isachne globosa* (Thunb.) O. Ktze., *Ischaemum molle* Hook. f., *I. semisagittatum* Roxb., *Iseilema laxum* Hack., *Mnesithea granularis* (L.) Koenig & Sosef, *Oplismenus compositus* (L.) P. Beauv., *Panicum trypheron* Schult., *Paspalidium flavidum* (Retz.) A. Camus, *Paspalum vaginatum* Sw., *Pseudanthistiria heteroclita* (Roxb.) Hook. f.,

Saccharum spontaneum L., **Setaria verticellata** (L.) P. Beauv., **Sporobolus maderaspatanus** Bor, **Themeda quadrivalvis** (L.) O. Ktze. and **T. tremula** (Ness ex Steud.) Hack.

Intermingled with grasses species of Asteraceae, Leguminosae and Rubiaceae are found. Parasites such as **Aeginetia indica** L., **Buchnera hispida** Buch.-Ham. ex D. Don, **Rhamphicarpa longiflora** (Arn.) Bth., **Sopubia delphinifolia** (L.) D. Don, **Striga asiatica** L. are also found on roots of some grasses and other herbs.

The terrestrial orchids are marked by their erect scapes and radical and/or cauline leaves. These are **Eulophia herbacea** Lindl., **E. ochreatea** Lindl., **Habenaria commelinifolia** Wall. ex Lindl., **H. grandifloriformis** Blatt. & McC., **H. marginata** Coleb., **H. ovalifolia** Wight, **H. plantaginea** Lindl., **Peristylus plantagineus** Lindl. etc. and the epiphytic orchid being **Acampe pracemorsa** (Roxb.) Blatt. & McC., **Aerides ringens** (Lindl.) C. E. C. Fischer, **Cymbidium aloifolium** (L.) Sw., **Dendrobium barbatulum** Lindl., **D. ovatum** (Willd.) Kranzl. etc.

The ferns such as **Adiantum philippensis** L., **Athyrium hohenackerianum** (O. Ktze.) Moore, **Cheilanthes farinosa** (Forssk.) Kaulf., **Lygodium flexuosum** (L.) Sw. are very conspicuous by their presence during this season. **Drynaria quercifolia** (L.) Smith. and **Pyrosia adnascens** (Sw.) Ching are the epiphytic ferns found.

During the second half of the monsoon i.e. from late August to September plant species such as **Celosia argentea** L., **Costus speciosus** (Koen.) Sm., **Gloriosa superba** L., **Impatiens balsamina** L. and **Cyanotis fasciculata** (Heyne ex Roth) Schult. & Schult. f., **Paracaryopsis malabarica** (C. B. Cl.) R. Mill. form prominent undergrowth, whereas **Pandanus furcatus** Roxb. and **P. odoratissimus** L.f. are in full bloom and become conspicuous by their fragrans.

The undergrowth, in addition to the grasses, consists of **Laportea interrupta** (L.) Chew, **Leea asiatica** (Burm. f.) Merr., **L. macrophylla** Roxb. ex Hornem., **Curcuma inodora** L., **C. pseudomontana** L., **Plumbago zeylanica** L. etc.

The climbers and twiners which become dominant and come to flower during rainy season are **Ampelocissus tomentosus** (Roth) Planch., **Argyreia nervosa** Boj., **A. serecia** Dalz., **Cajanus scarabaeoides** (L.) Thourus, **Canavalia gladiata** DC., **Cayratia trifolia** (L.) Domin, **Cissampelos pariera** var. **hirsuta** (DC.) Forman, **Clitoria ternatea** L., **Dioscorea bulbifera** L., **D. hispida** Dennst.,

D. oppositifolia L., **D. pentaphylla** L., **Diplocyclos palmatus** (L.) Jeffrey, **Derris scandens** (Roxb.) Bth, **Holostemma ada-kodein** Schult., **Ipomoea mauritiana** Jacq. **I. muricata** (L.) Jacq., **I. nil** (L.) Roth, **I. pes-tigridis** L., **I. sepiaria** Koen., **Luffa acutangula** (L.) Roxb., **Momordica dioica** Roxb. ex Willd., **Mukia maderaspatana** (L.) Roem., **Pergularia daemia** (Forssk.) Chiov., **Rhynchosia minima** (L.) DC. and **Vigna triloba** (L.) Verde.

Rock vegetation :

The rocks are covered with lichens and mosses in addition to angiosperms such as **Begonia crenata** Dryand, **Cyanotis fasciculata** (Heyne ex Roth.) Schult. & Schult. f., **Dipcadi saxorum** Blatt., **Dopatrium junceum** (Roxb.) Ham. ex Bth., **Murdannia semiteres** (Dalz.) Sant., **Neanotis hohenackeri** Daniel & Vajr., **Pilea microphylla** (L.) Liebon, **Rotala densiflora** Koehne and **Utricularia striatula** J. E. Sm. etc.

Along open patches or cleared areas of the forest or roadsides the plants like **Acanthospermum hispidum** DC., **Anisomeles indica** (L.) O. Ktze., **Heliotropium marifolium** var. **laxiflora** (DC.) T. Cooke, **Hibiscus lobatus** (Murr.) O. Ktze., **H. micranthus** L. f., **Malachra capitata** L., **Martynia annua** L., **Melochia corchorifolia** L., **Senna tora** (L.) Roxb., **Sesamum orientale** L., **Sida acuta** Burm. f., **Synedrella nodiflora** (L.) Gaertn., **Triumfetta rhomboidea** Jacq., **Urena lobata** L., **Wedelia urticaefolia** DC. etc. are found with their full bloom.

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FLORISTIC ANALYSIS

Dominant families arranged according to their descending order of number of taxa.

No.	Family	No. of taxa
1	POACEAE	143
2	FABACEAE	102
3	CYPERACEAE	65
4	ACANTHACEAE	46
5	ASTERACEAE	42
6	EUPHORBIACEAE	39
7	CONVOLVULACEAE	37
8	SCROPHULARIACEAE	35
9	RUBIACEAE	25
10a	MALVACEAE	22
10b	ORCHIDACEAE	22
11a	AMARANTHACEAE	20
11b	TILIACEAE	20
12a	ASCLEPIADACEAE	18
12b	CAESALPINIACEAE	18
13	LAMIACEAE	17
14a	CUCURBITACEAE	13
14b	MIMOSACEAE	13
14c	MORACEAE	13
15a	VERBENACEAE	12
15b	VITACEAE	12
16a	GENTIANACEAE	11
16b	LYTHRACEAE	11

	ANGIOSPERMS		GYMNO- SPERMS	PTERID- OPHYTES
	Dicots	Monocots		
Families	112	25	1	13
Genera	432	135	1	13
Species	754	307	1	16
Subspecies	7	1		
Varieties	21	2		
Trees	147	5		
Shrubs	103	1		
Undershubs	70	2		1
Herbs	333	293		13
Climbers	128	9	1	2
Cultivated	148	8		

Total No. of taxa of wild plants including infraspecific rank

$$= \text{Dicots} + \text{Monocots} + \text{Gymnosperm} + \text{Pteridophytes}$$

$$= 782 + 310 + 1 + 16$$

Total No. of Wild Plants = 1109

Total No. of Cultivated plants = 155

Percentage wise Representation of Floristic Analysis	
Dicots	70.48%
Monocots	27.97%
Gymnosperms	0.09%
Pteridophytes	1.44%
Trees	13.71%
Shrubs & Undershubs	15.97%
Herbs	56.40%
Climbers	12.36%

MEDICINAL PLANTS

The flora of the National Park is quite rich as is evident from the occurrence of over eleven hundred wild plants. Many of these species are reported to have medicinal properties and are commonly used by the local people to cure various body ailments. Some important and commonly occurring species along with their medicinal uses are given below :

Abrus precatorious L. (FABACEAE) : Roots contain *glycyrrhizin* which is useful in coughs, colds and collic complaints. Leaves are chewed to relieve hoarseness.

Acalypha indica L. (EUPHORBIACEAE) : '*Acalypha*' drug obtained from dried plants is used in curing bronchial asthma, pneumonia and rheumatism. Roots and leaves possess laxative properties. Poultice of fresh leaves is used in treatment of ulcers.

Alstonia scholaris (L.) R. Br. (APOCYNACEAE) : '*Chattim*' drug obtained from dried plant is used in chronic diarrhoea and dysentery. It also brings down blood pressure.

Anisomeles indica (L.) O. Ktze. (LAMIACEAE) : Plant is used as carminative, astringent and as a tonic. Its oil is used in uterine affections.

Asparagus racemosus Willd. (ASPARAGACEAE) : Roots are used as diuretic, demulcent, aphrodisiac, alterative, antiseptic, antidiarrhoeal, galactagogue and refrigerant.

Avicennia officinalis L. (AVICENNIACEAE) : Bark is used as astringent, roots as aphrodisiac, unripe seeds used as poultice to ripen boils and also as an antiseptic.

Bacopa moonieri (L.) Penn. (SCROPHULARIACEAE) : Plant is a nerve tonic used in epilepsy and insanity. Ghee prepared from leaf-oil is used in neuralgia and hysteria. Petroleum mixed with leaf juice is applied to rheumatic body parts. Leaves are eaten as vegetable to relieve constipation.

Barleria prionitis L. (ACANTHACEAE) : Leaf juice mixed with honey is used in catarrhal affections of children. Root pest is applied to cure boils and swellings. Leaf chewing relieves toothache.

Bauhinia racemosa Lam. (CAESALPINIACEAE) : Leaf decoction is used in headache and malaria. Bark is used as an astringent and also in diarrhoea and dysentery.

Bombax ceiba L. (BOMBACACEAE) : Roots are used as tonic, stimulant, aphrodisiac and in sexual impotency. Bark possesses emetic property, gum is used as demulcent, astringent, hemostatic and alterative.

Borassus flabellifer L. (ARECACEAE) : 'Nira' obtained from this plant is rich in Vitamin B Complex and is nutritive and digestive. It is also a good stimulant and antiphlogestic in dropsy.

Butea monosperma (Lam.) Taub. (FABACEAE) : Gum is used in diarrhoea. Seeds are used as anthelmintic and also in the treatments of ring worms and tape worms.

Calotropis gigantea (L.) R. Br. (ASCLEPIADACEAE) : Root bark is used in treatment of dysentery. Leaf tincture is used in moderate fever and flowers in the treatments of cold, cough and indigestion.

Capparis zeylanica L. (CAPPARACEAE) : Root bark is used as sedative and as cholagogue. Leaves are used to cure swellings and boils.

Celastrus paniculatus Willd. (CELASTRACEAE) : Leaves are used as an antidote for opium poisoning. Seeds are used as laxative, emetic and tonic.

Ceriops tagal (Perr.) Robins. (RHIZOPHORACEAE) : Plant is used as an astringent; its bark extract as hemostatic; shoot extract in fevers and also as a substitute to quinine.

Cocculus hirsutus (L.) Theob. (MENISPERMACEAE) : Leaf juice is used as a coolant in gonorrhoea and eczema. Roots are used as laxative and demulcent.

Commelina benghalensis L. (COMMELINACEAE) : Plant is emollient, demulcent, laxative and refrigerant. Leaves are edible and rich in iron contents.

Cordia dichotoma Forst. f. (CORDIACEAE) : Stem bark is used as an astringent. Fruits are cooked and eaten, good as an astringent, anthelmintic, diuretic, demulcent and expectorant. Stem bark decoction is given in dyspepsia and fever.

Cryptolepis buchanani Roem. & Schult. (PERIPLOCACEAE) : Plant is used in the treatment of rickets in children.

Dalbergia latifolia Roxb. (FABACEAE) : Plant is used as stomachic, and in dyspepsia, diarrhoea, obesity and leprosy.

Datura metel L. (SOLANACEAE) : Seeds, leaves and roots are used in insanity and fever in low doses. Leaves possess antiseptic and wound healing properties.

Dioscorea bulbifera L. (DIOSCOREACEAE) : Tubers are used in the treatment of ulcers, piles and dysentery.

Diospyros melanoxylon Roxb. (EBENACEAE) : Fruits are used as carminative, astringent, laxative and diuretic and bark extract in dyspepsia.

Eclipta prostrata (L.) (ASTERACEAE) : Plant is used as deobstruent, in catarrhal and hepatic complaints. Fresh plant with sesamum oil is used in elephantises. Roots are used as an emetic and purgative.

Eranthemum roseum (Vahl) R. Br. (ACANTHACEAE) : Tuberos roots are boiled in milk and given in case of leucorrhoea.

Euphorbia hirta L. (EUPHORBIACEAE) : Plant gives relief in bronchites, it promotes flow of milk in women.

Excoecaria agallocha L. (EUPHORBIACEAE) : Latex is used as caustic in the treatment of ulcers and also possesses purgative and abortifacient properties. Decoction of leaves is given in case of epilepsy.

Ficus racemosa L. (MORACEAE) : Bark used as an astringent is given to cattle suffering from rinderpest. Fruits are used as astringent, stomachic, carminative and given in case of menorrhagia, milky juice is used in piles and diarrhoea.

Garcinia indica Choisy (CLUSIACEAE) : Dried fruits used for preparing cooling syrups which are anthelmintic and cardiotoxic.

Garuga pinnata Roxb. (BURSERACEAE) : Fruits eaten raw, are acidic and digestive.

Gymnema sylvestre R. Br. (ASCLEPIADACEAE) : The plant is stomachic, stimulant, laxative and diuretic and given in eye sores. Leaves are used as remedy for diabetes. Roots are used as emetic and expectorant.

Holarrhena pubescens (Buch. -Ham.) Wall. ex G. Don (APOCYNACEAE) : Bark is used as an astringent, antidysenteric, anthelmintic, stomachic and as a febrifuge.

Holoptelea integrifolia (Roxb.) Planch. (ULMACEAE) : Bark juice is applied to rheumatic swellings.

Impatiens balsamina (L.) Sw. (BALSAMINACEAE) : Flowers possess antibiotic properties, plant juice is emetic, cathartic and diuretic. Powdered seeds are used in difficult child birth.

Madhuca longifolia (Koen.) Mac Bride var. **latifolia** (Roxb.) Chevalier (SAPOTACEAE) : Flowers are edible, astringent and used as tonic, dried flowers with pure ghee as a sedative in cases of piles.

Mallotus philippensis Muell. -Arg. (EUPHORBIACEAE) : Red powder from fruits is used against tape worms.

Mucuna pruriens (L.) DC. (FABACEAE) : Young pods are edible and anthelmintic. Roots are used as diuretic, purgative, emmenagogue and administered in nervous disorders, dropsy. Seeds are used as aphrodisiac.

Oroxylum indicum (L.) Vent. (BIGNONIACEAE) : Root bark is used as an astringent, diaphoretic and is given in diarrhoea, dysentery and rheumatism; root bark prepared in sesamum oil is used in otorrhoea.

Pongamia pinnata (L.) Pierre (FABACEAE) : Stem bark is given in bleeding piles. Roots are used as antiseptic for washing wounds. Seed oil is used in skin diseases.

Pterocarpus marsupium Roxb. (FABACEAE) : Gum is used as an astringent and given in diarrhoea. Bruised leaves are applied on boils and sores. Stem bark is used as an astringent and given in toothache.

Phyllanthus emblica L. (EUPHORBIACEAE) : Fruits are used as a liver tonic; raw fruits as a coolant and mild laxative. Fruit liquor used in indigestion, anaemia, jaundice and is rich in vitamin C.

Saraca asoca (Roxb.) de Wilde (CAESALPINIACEAE) : Dried bark is astringent and used in the treatment of excessive menstruation.

Senna tora (L.) Roxb., (CAESALPINIACEAE) : Leaves are used as antiperiodic, anthelmintic and laxative.

Spondias pinnata (L.f.) Kurz (ANACARDIACEAE) : Fruits contain vitamin C, calcium, iron and phosphorus and are astringent and antiscorbutic, also used in dyspepsia.

Streblus asper Lour. (MORACEAE) : Twig is chewed to cure pyorrhoea. Root as antiseptic is applied on ulcers, root extract is used for the treatment of syphilis.

Terminalia bellirica (Gaertn.) Roxb. (COMBRETACEAE) : Fruits are used in indigestion, diarrhoea and as a brain tonic.

Tinospora cordifolia (Willd.) Miers (MENISPERMACEAE) : Dried stem with bark is used as tonic, antiperiodic and as an aphrodisiac.

Vernonia cinerea (L.) Less. (ASTERACEAE) : Plant juice is given to infants in irregular and painful urination. Leaf juice is administered in amoebiosis. Roots are anthelmintic. Seeds are alexipharmac, effective in laucoderma.

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EXPLANATION TO MEDICAL TERMINOLOGY

- Abortifacient** : A drug or agent inducing expulsion of the foetus.
- Alexipharmac** : A defensive remedy against poison, venum or infection.
- Alterative** : Any medicine that alters the process of nutrition, restoration in some unknown way the normal functions of an organ, or of the system.
- Anthelmintic** : A remedy for the destruction or elimination of intestinal worms.
- Antiperiodic** : Preventing attacks of a periodic disease like malaria.
- Antiphlogestic** : An agent reducing inflammation or fever.
- Antiscorbutic** : An agent which prevents or cures scurvy (vitamin "c" deficiency)
- Aphrodisiac** : Any preparation or agent stimulating the sexual desire or passion.
- Astringent** : An agent that produces contraction of organic tissue or arrests haemorrhages or diarrhoea.
- Carminative** : Agent having the power to relieve flatulence and colic carminations.
- Cathartic** : Substance possessing laxative properties.

Cholagogue or : or cholagog	Any agent that promotes the flow of bile secretion.
Coolant :	A substance which reduces body temperature.
Demulcent :	Soothing irritation of surfaces especially mucous membrane, a soothing substance particularly a slippery mucilaginous liquid.
Deobustruent :	Any agent or drug which removes an obstructions in the alimentary canal.
Diaphoretic :	A substance causing an increase in perspiration.
Diuretic :	An agent that increases the quantity or volume of urine.
Emetic :	Drug having the power to induce vomiting.
Emollient :	A substance used externally to soften the skin or internally to soothe an irritated or inflamated surface.
Expectorant :	A remedy that promotes or modifies expectoration i. e. ejection of material from mouth, the fluid or semifluid matter from the lungs and air passage expelled by coughing and spitting sputum.
Emmenagogue :	An agent that stimulates menstrual flow.
Febrifuge :	A substance which mitigates or reduces fever.
Galactagogue :	An agent that stimulates the secretion of milk.
Haemostatic :	A drug or substance that arrests haemorrhage.
Laxative :	An agent that relieves constipation.
Purgative :	Producing purgation (evacuation of bowels by means of an agent).
Refrigerant :	Cooling substance or reducing fever and heat.
Sedative :	Quieting body functions or activities.
Stomachic :	Substance that stimulates secretary activity of stomach.

ECONOMIC AND POISONOUS PLANTS***ECONOMIC PLANTS***

Since the inception of human civilization the plants have played a significant role either in trade or in medicines. The luxuriant vegetation of the National Park presents a variety of economically important plant species. These plant species can be categorised in to different groups as follows as per their economic values.

1) Dyes and Tan yielding Plants :

Acacia nilotica (L.) Del. subsp. **indica** (Bth.) Brenan, **Bruguiera gymnorrhiza** (L.) Lam., **Butea monosperma** (Lam.) Taub, **Ceriops tagal** (Perr.) Roxb., **Diospyros melanoxylon** Roxb., **Indigofera tinctoria** L., **Lawsonia inermis** L., **Mallotus philippensis** (Lam.) Muell. -Arg., **Moullava spicata** (Dalz.) Nicols., **Oroxylum indicum** (L.) Vent., **Peltophorum pterocarpum** (DC.) Baker ex K. Heyne, **Pterocarpus marsupium** Roxb., **Rhizophora mucronata** Poir., **Semecarpus anacardium** L.f., **Sonneratia apetala** Buch. -Ham., **Tamarix ericoides** Rottl., **Terminalia crenulata** Roth etc.

2) Fibre and pulp yielding plants :

Abutilon indicum (L.) Sw., **Bombax insige** Wall., **Borassus flabellifer** L., **Calotropis gigantea** (L.) Ait., **C. procera** (Ait.), R. Br., **Caryota urens** L., **Cocos nucifera**, L., **Corchorus capsularis** L., **Crotalaria juncea** L., **Erythrina stricta** Roxb., **Gossypium barbadense** L., **Helicteres isora** L., **Hibiscus cannabinus** L., **Pandanus furcatus** Roxb., **P. odoratissimus** L., **Pergularia daemia** (Forssk.) Choiv., **Phoenix sylvestris** (L.) Roxb., **Sesbania bispinosa** (Jacq.) Wight etc.

3) Fodder plants :

They include many leafy species and a majority of grasses.

Albizia lebbeck (L.) Bth., **Apluda mutica** L., **Arthraxon lancifolius** (Trin.) Hochst., **Brachiaria ramosa** (L.) Stapf, **Buchanania lanzan** Spreng., **Butea monosperma** (Lam.) Taub., **Canavalia virosa** (Roxb.) Wight & Arn., **Capparis spinosa** L., **Celosia argentea** L., **Crotalaria juncea** L, **Dactyloctenium aegyptium** (L.) P. Beauv., **Derris trifoliata** Lour., **Desmodium dichotomum** (Willd.) DC., **Dichanthium annulatum** Stapf, **D. compressum** (Hook. f.) Jain et Deshp., **D. huegeli** (Hack.) Jain &

Desh., **Ficus benghalensis** L., **F. racemosa** L., **Isachne globosa** (Thunb.) O. Ktze., **Ischaemum indicum** (Houtt.) Merr., **I. semisagittatum** Roxb., **Iseilema laxum** Hack., **Mallotus philippensis** (Lam.) Muell. -Arg., **Manilkara hexandra** (Roxb.) Dub., **Oplismenus compositus** (L.) P. Beauv., **Panicum sumatrense** Roth ex R. & S., **Paspalidium flavidum** (Retz.) A. Camus, **Paspalum scrobiculatum** L., **P. vaginatum** Sw., **Sesbania bispinosa** (Jacq.) W. F. Wight, **S. sesban** (L.) Merr., **Sterculia urens** Roxb., **Ziziphus xylopyra** (Retz.) Willd., etc.

4) *Edible fruit yielding plants :*

Aegle marmelos (L.) Corr., **Anacardium occidentale** L., **Annona squamosa** L., **Artocarpus heterophyllus** Lam., **Borassus flabellifer** L., **Buchanania lanzan** Spreng., **Ficus racemosa** L., **Garcinia indica** Choiss., **Mangifera india** L., **Manilkara hexandra** (Roxb.) Dub., **Phyllanthus emblica** L., **Spondias pinnata** (L. f.) Kurz, **Streblus asper** Lour., **Syzygium cumini** (L.) Skeels, **Trapa bispinosa** Roxb., **Ziziphus mauritiana** Lam., **Z. oenoplia** (L.) Mill. etc.

5) *Gums and Resin yielding plants :*

Acacia nilotica Del. subsp. **indica** (Bth.) Brenan, **Anogeissus latifolia** (DC.) Wall. ex Bedd., **Bombax ceiba** L., **Excoecaria agallocha** L., **Macaranga peltata** (Roxb.) Muell. -Arg., **Pterocarpus marsupium** Roxb., **Semecarpus anacardium** L.f., **Sterculia guttata** Roxb., **S. urens** Roxb., **Stereospermum colais** (Buch.-Ham. ex Dillw.) Mabb., **Tamarindus indica** L. etc.

6) *Oil yielding plants :*

Brassica juncea Hook. f. & Thoms., **Calophyllum inophyllum** L., **Celastrus paniculatus** Willd., **Cocos nucifera** L., **Cymbopogon martinii** Stapf, **Gossypium barbadense** L., **Mackenziaea integrifolia** (Dalz.) Bremek., **Ocimum cannum** Sims., **Olea dioica** Roxb., **Pandanus furcatus** Roxb., **P. odoratissimus** L.f., **Pongamia pinnata** (L.) Pierre, **Ricinus communis** L., **Salvadora persica** L., var **wightiana** (Planch. ex Thw.) Verdc., **Schleichera oleosa** (Lour.) Oken., **Xanthium indicum** Koen. ex Roxb. etc.

7) *Timber yielding plants :*

Acacia nilotica Del. subsp. **indica** (Bth.) Brenan, **Albizia lebbeck** (L.) Bth., **A. procera** Bth., **Anogeissus latifolia** (DC.) Wall. ex Bedd., **Calophyllum inophyllum** L., **Dalbergia sissoo** Roxb.,

Dendrocalamus strictus (Roxb.) Nees, **Diospyros montana** Roxb., **Gmelina arborea** Roxb., **Grewia tiliifolia** Vahl, **Holoptelea integrifolia** (Roxb.) Planch., **Mimusops elengi** L., **Pterocarpus marsupium** Roxb., **Schleichera oleosa** (Lour.) Oken., **Syzygium cumini** (L.) Skeels, **Tectona grandis** L. f., **Terminalia bellirica** (Gaertn.) Roxb., **T. crenulata** Roth etc.

8) *Plants used in Beverages :*

Anacardium occidentale L., **Borassus flabellifer** L., **Caryota urens** L., **Hemidesmus indicus** (L.) R. Br., **Madhuca longifolia** (Koen.) Mac Bride var. **latifolia** (Roxb.) Chevalier, **Phoenix sylvestris** (L.) Roxb., **Ziziphus mauritiana** Lam., etc.

POISONOUS PLANTS

The National park harbours a variety of plant species, many of which are poisonous. "A poisonous plant is one which, as a whole or a part thereof, under all or certain conditions, and in a manner and in amount likely to be taken or brought into contact with an organism, will exert harmful effects or cause death either immediately or by reasons or cumulative action of the toxic property, due to the presence of known or unknown chemical substance in it and not by mechanical action" (R. N. Chopra, R. L. Badhwar & S. Ghosh, 1949). In simple words poisonous plants are those which cause harmful effects to the living organisms and even their death.

They are classified according to their effect of poisoning.

1) *Plants causing dermatites :*

Poisoning effect may be seen through contact with the skin, resulting in minor or temporary irritation of the skin or in severe cases inflammations with blisters may be produced. It depends on the susceptibility of the individual and the severity of contact. The plants are as follows:

Anacardium occidentale L., juice from pericarp and trunk, **Arisaema tortuosum** (Wall.) Schott juice especially from tubers. **Calotropis gigantea** (L.) Ait., **C. procera** (Ait.) R. Br., **Euphorbia ligularia** Roxb., **E. tirucalli** L., **Excoecaria agallocha** L., milky latex. **Laportea interrupta** (L.) Chem. stinging hairs, **Mucuna pruriens** (L.) DC. irritating bristles on pods and **Nerium oleander** L. from leaves and **Semecarpus anacardium** L.f. juice from pericarp and bark.

2) Food poison :

Some plants which have food and fodder values produce harmful effects under certain conditions. They are called food poisoning plants, or food poison. Human beings or animals may suffer from food poisoning directly or indirectly by eating the flesh or animals which have died from the effect of poisoning of the plants. They are as follows:

Abrus precatorius L., **Ammannia baccifera** L., **Anacardium occidentale** L., **Annona squamosa** L., **Argemone mexicana** L., **Arisaema tortuosum** (Wall.) Schott, **Baliospermum montanum** Muel.-Arg., **Barringtonia acutangula** (L.) Gaertn., **Brassica nigra** (L.) Koch, **Butea monosperma** (Lam.) Taub., **Calotropis gigantea** (L.) Ait., **C. procera** (Ait.) R. Br., **Canavalia virosa** (Roxb.) Wight & Arn., **Casearia graveolens** Roxb., **Catunaregam spinosa** (Thunb.) Tirv., **Centella asiatica** (L.) Urban, **Chrozophora rottleri** (Geis.) A. Juss., **Clitoria ternatea** L., **Crinum asiaticum** L., **C. latifolium** L., **Cucumis trigonous** Roxb., **Datura metel** L., **Dendrocalamus strictus** (Roxb.) Nees, **Dioscorea hispida** L., **Diospyros montana** Roxb., **Drimia indica** (Roxb.) Jessop, **Duranta repens** L., **Entada rheedii** Spreng., **Euphorbia hirta** L., **E. ligularia** Roxb., **E. thymifolia** L., **E. tirucalli** L., **Excoecaria agallocha** L., **Ficus hispida** L.f., **Gloriosa superba** L., **Holarrhena pubescens** (Buch.-Ham.) Wall. ex Don, **Ipomoea nil** (L.) Roth, **Jatropha curcas** L., **J. gossipifolia** L., **Lantana camara** L. var. **aculeata** (L.) Moldenke, **Laportea interrupta** (L.) Chem., **Madhuca longifolia** var. **latifolia** (Roxb.) Chevalier, **Moringa oleifera** Lam., **Nerium oleander** L., **Operculina turpethum** (L.) S. Manso, **Paspalum scrobiculatum** L., **Plumbago zeylanica** L., **Plumeria acutifolia** Poir., **Rauvolfia serpentina** Bth. ex Kurz, **Ricinus communis** L., **Salvadora persica** L. var. **wightiana** (Planch. ex. Thw.) Verdc. **Sauromatum venosum** (Ait.) Schott, **Schleichera oleosa** (Lour.) Oken, **Semecarpus anacardium** L.f., **Scilla hyacinthina** (Roth) Mac Bride, **Solanum nigrum** L., **Suaeda fruticosa** Forssk., **Tacca leontopetaloides** (L.) O. Ktze., **Terminalia bellirica** (Gaertn.) Roxb., **Trianthema portulacastrum** L., **Tribulus terrestris** L., **Trichosanthes cucumerina** L., **T. tricuspidata** Lour., **Withania somnifera** Dunnal and **Xanthium indicum** Koen. ex Roxb. etc.

3) Insecticidal and insect repellent plants :

These plants possess insecticidal and insect repelling properties, they are as follows:

Haldina cordifolia (Roxb.) Ridsd., **Anacardium occidentale** L., **Annona squamosa** L., **Arisaema tortuosum** (Wall.) Schott, **Bambusa arundinacea** (Retz.) Willd., **Butea monosperma** (Lam.) Taub., **Catunaregam spinosa** (Thunb.) Tirv., **Duranta repens** L., **Euphorbia thymifolia** L., **Gloriosa superba** L., **Madhuca longifolia** var. **latifolia** (Roxb.) Chevalier, **Ocimum gratissimum** L., **Ricinus communis** L., **Schleichera oleosa** (Lour.) Oken., and **Vitex negundo** L. etc.

4) *Fish poison :*

Plants poisonous to fishes causing their death are known as fish poison, They are as follows :

Albizia procera (Roxb.) Bth., **Annona squamosa** L., **Barringtonia acutangula** (L.) Gaertn., **Calophyllum inophyllum** L., **Careya arborea** Roxb., **Cascabela thevetia** (L.) Lippold., **Casearia graveolens** Dalz., **Catunaregam spinosa** (Thunb.) Tirv., **Derris trifoliata** Lour., **Dioscorea hispida** Dennst., **Diospyros montana** Roxb., **Entada rheedii** Spreng., **Euphorbia ligularia** L., **E. tirucalli** L., **Excoecaria agallocha** L., **Jatropha curcas** L., **Laportea interrupta** (L.) Chem., **Madhuca longifolia** var. **latifolia**, (Roxb.) Chevalier, **Ougeinia oojeinensis** (Roxb.) Hochr., **Rauvolfia serpentina** Bth. ex Kurz, **Ricinus communis** L., **Sphaeranthus indicus** L., **Tephrosia purpurea** (L.) Pers., and **Terminalia bellirica** (Gaertn.) Roxb. etc.

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PLANTS OF HORTICULTURAL IMPORTANCE

The National Park is a beautiful and fascinating place for the nature lovers and horticulturists as it exhibits a spectrum of natural colours, displayed by various flowers in different seasons. Some of the plant species attract living beings either by their colour, odour or some kind of structural peculiarities. Such species deserve special attention for their introduction from the horticultural point of view. There are noteworthy wild species which have horticultural potentialities. The probable ones can be categorized as follows :

(a) **Species found wild in the National Park and need introduction trials** : These are *Argyreia nervosa* (Burm.f.) Boj., *Asparagus racemosus* L., *Athyrium hohenackerianum* (O. Ktze.) Moore, *Barleria prattensis* L., *B. prionitis* L., *Begonia crenata* Dryand, *Calycopteris floribunda* (Roxb.) Poir., *Canavalia gladiata* (Jacq.) DC., *Careya arborea* Roxb., *Carvia callosa* (Nees) Bremek., *Celosia argentea* L. var. *argentea*, *Clematis hedysarifolia* DC., *C. heynei* M. A. Rau, *Clerodendrum viscosum* Vent., *Combretum ovalifolium* Roxb., *Costus speciosus* (Koenig) Smith, *Crotalaria leptostachya* Bth., *Cyathocline purpurea* (D. Don) O. Ktze., *Eranthemum roseum* (Vahl) R. Br., *Exacum bicolor* R. Br., *Firmiana colorata* (Roxb.) R. Br., *Gloriosa superba* L., *Grewia nervosa* (Lour.) Panigr., *Habenaria commelinifolia* Wall. ex Lindl. *Helicteres isora* L., *Heterophragma quadriloculare* (Roxb.) K. Schum., *Hiptage benghalensis* (L.) Kurz, *Hydrolea zeylanica* (L.) Vahl, *Ixora brachiata* Roxb., *Lavandula bipinnata* (Roxb.) O. Ktze., *Lygodium flexiosum* (L.) Sw., *Moullava spicata* (Dalz.) Nicolson, *Nervilia aragona* Gaud., *Neuracanthus sphaerostachys* (Nees) Dalz., *Operculena turpethum* (L.) S. Manso, *Paracalyx scariosus* (Roxb.) Ali, *Passiflora foetida* L., *Pavetta crassicaulis* Bremek., *Sopubia delphinifolia* (L.) G. Don, *Sphaeranthus indicus* L., *Thespesia lampas* (Cav.) Dalz. & Gibs., *Thunbergia erecta* (Bth.) T. Anders., *Wedelia urticaefolia* DC. and *Woodfordia fruticosa* (L.) Kurz. etc.

(b) **Species found wild in the National Park and already introduced into gardens and parks** : These are *Bombax ceiba* L., *Butea monosperma* (Lam.) Taub., *Cassia fistula* L., *Eichhornia crassipes* (Mart.) Solms, *Erythrina stricta* Roxb., *Impatiens balsamina* L., *Ixora coccinea* L., *Jasminum malabaricum* Wight, *J. multiflorum* (Burm. f.) Andr., *Kydia calycina* Roxb., *Mimosa pudica* L., *Mimusops elengi* L., *Nymphaea nouchali* Burm. f., N.

stellata Willd., **Nymphoides hydrophylla** (Lour.) O. Ktze., **N. indicum** (L.) O. Ktze., **Plumbago zeylanica** L., **Pongamia pinnata** (L.) Pierre, **Pteris vittata** L., **Saraca asoca** (Roxb.) de Willede and **Stachytarpheta jamaicensis** (L.) Vahl etc.

(c) *Species already introduced in the gardens and found cultivated in the National Park* : These are **Acacia auriculiformis** A. Cunn. ex Bth., **Adansonia digitata** L., **Annona reticulata** L., **A. squamosa** L., **Artocarpus heterophyllus** Lam., **Bauhinia purpurea** L., **B. tomentosa** L., **B. variegata** L., **Caesalpinia pulcherrima** (L.) Sw., **Canna indica** L., **Cascabela thevetia** (L.) Lippold, **Cassia siamea** Lam., **C. surattensis** Burm. f., **Casuarina equisetifolia** Forst. & Forst. f., **Ceiba pentandra** (L.) Gaertn., **Celosia argentea** var. **cristata** (L.) O. Ktze., **Cleome speciosa** Rafin., **Clerodendrum glabrum** E. May, **C. indicum** (L.) O. Ktze., **C. umbellatum** var. **speciosum** (Dombrain) Wolden., **Coreopsis tinctoria** Nutt., **Cosmos bipinnatus** Cav., **C. sulphureus** Cav., **Crateva magna** (Lour.) DC., **Crinum asiaticum** L., **Delonix regia** (Boj. ex Hook.) Raf., **Diospyros peregrina** (Gaertn.) Guerke, **Duabanga grandiflora** (Roxb. ex DC.) Walp., **Duranta repens** L., **Epiphyllum oxipetalum** Plan., **Eupatorium odorum** L., **Euphorbia pulcherrima** Willd. ex Klotz., **E. tirucalli** L., **Ficus elastica** Roxb., **Gardenia jasminoides** Ellis, **Gliricidia sepium** (Jacq.) Kunth ex Walp., **Gmelina philippensis** L., **Gomphrena globosa** L., **Guizotia abyssinica** (L.f.) Cass., **Hibiscus cannabinus** L., **H. schizopetalus** (Mast.) Hook. f., **Hymenanthemum tenuifolium** Cass., **Ipomoea quamoclit** L., **Jatropha gossipifolia** L., **Justicia gendarussa** Burm. f., **Kalanchoe pinnata** (Lam.) Pers., **Lagerstroemia floribunda** Jacq., **Lawsonia inermis** L., **Manihot esculenta** Grantz, **Melaleuca leucadendra** L., **Moringa olieifera** Lam., **Morus alba** L., **Musa paradisiaca** L., **Nerium oleander** L., **Nyctanthus arbor-tristis** L., **Ocimum basilicum** L., **O. gratissimum** L., **O. tenuiflorum** L., **Parkia biglandulosa** Wight & Arn., **Pedilanthus tithymaloides** (L.) Poit., **Peltophorum pterocarpum** (DC.) Baker, **Pereskia grandiflora** Maw., **Petunia nyctaginifolia** Juss., **Physalis peruviana** L., **Pithecolobium dulce** (Roxb.) Bth., **Plumeria rubra** L., **Pterocarpus suberifolium** Lam., **Rivea ornata** Choisy, **Sesbania grandiflora** (L.) Poir., **Spathodea campanulata** P. Beauv., **Sterculia foetida** L., **Tagetes patula** L., **Tecoma stans** (L.) Kunth., **Thunbergia erecta** (Bth.) T. Ander., **Torenia fournieri** Lindl. ex Forum. & **Trichosanthes anguina** L. etc.

RARE, ENDANGERED & THREATENED (RET) SPECIES

Rare species are those which have small world populations that are not at present endangered or vulnerable but are at risk. Endemic plants include those taxa which are usually localized within restricted geographical areas or habitats or are thinly scattered over a more extensive range. Endangered plants include those taxa which are in danger of extinction and whose survival is unlikely if the casual factors (biotic or abiotic) continue to operate. Vulnerable species are those which are at present not endangered but are likely to move into endangered category in the near future. (Jain & Sastri 1980).

The National Park was very rich in floristic composition with its virgin forests in the past, as is evident from the previous old plants collections housed in the Blatter Herbarium at St. Xavier's College, Mumbai. Some of the plants species have disappeared and could not be located from the same area. The probable reasons for their disappearance could be attributed to some extent to the following reasons.

The urbanization and commercialization of Borivali and its adjacent suburbs during the last three decades resulting in the industrial growth and unlimited population, this in turn had an indirect adverse effect on the natural forest of the National Park, activities like clandestine felling of the trees for fuel, encroachment of forest land for farming coupled with other illicit activities within the park which continued in the past despite the best efforts by the state forest department to stop them.

The present engulfing of the hillocks, once covered with green vegetation, by the slum dwellers on the outskirts has an adverse effect on the forests. The air pollution due to industries, around the park and the vehicular traffic in and around the park is clearly visible rendering the plants pale-coloured due to dust cover. Chemical effluents discharged in water also have an adverse effect on the floristic composition.

Overgrazing and trampling of ground by domestic animals inhibits regeneration of herbaceous vegetation and tree saplings. White ants are one of the main biotic agents causing destruction of tree species.

Clearance of forests for developmental purposes like erecting high tension electric cables and towers for electricity, excavation of soil for building paths and roads for communications, laying water pipe lines

for water supply and irrigation, all these causes seemingly though inevitable, but do have their share towards causing imbalance of the natural harmonious ecosystem and should be implemented with great care and study.

The following plants reported from the National Park are categorized according to the revised (IUCN) International Union for Conservation of Nature and the Natural Resources. Red list categories prepared by IUCN Species Survival Commission (SSC) and approved at the 40th meeting of the IUCN Council, Gland, Switzerland on 30th November 1994.

(1) *Ex – Extinct* : A taxon is extinct when there is no reasonable doubt that the last individual has died.

Synnema anomalum (Blatt.) Sant. (ACANTHACEAE) is possibly an extinct taxon.

Distribution : Endemic to Maharashtra, Bombay (Salsette Island), Pune (Khandala)

(2) *CR – Critically Endangered* : A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

Ceropegia odorata Hook. f. (ASCLEPIADACEAE)

Distribution ; Endemic to Gujarat, Rajasthan and Maharashtra.

Dipcadi saxorum Blatt. (LILIACEAE)

Distribution: Endemic to Maharashtra

Lindernia quinqueloba (Blatt. & Hallb.) Mukherjee
(SCROPHULARIACEAE)

Distribution : Endemic to Maharashtra : Bombay–Bhandup.

3) *En – Endangered* : A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

Bhidea burnsiana Bor (POACEAE)

Distribution : Endemic to Karnataka and Maharashtra.

Chamaecrista kolabensis (Kothari, Moorthy & Nayar) V. Singh
(CAESALPINIACEAE)

Distribution : Endemic to Maharashtra : Raigad, Bombay (Borivali.)

Dichanthium compressum (Hook. f.) Jain & Deshpande (POACEAE)

Distribution : Endemic to Maharashtra : Pune, Bombay.

Ipomoea salsettensis Sant. & Patel (CONVOLVULACEAE).

Distribution : Endemic to Maharashtra : Bombay (Bhandup, Borivali, Trombay, Vihar lake).

Limnophila polystachyoides Blatt. (SCROPHULARIACEAE).

Distribution : Endemic to Karnataka and Maharashtra : Bombay (Salsette island).

4) *VU* – *Vulnerable* : A taxon is vulnerable when it is not Critically Endangered or Endangered but is facing high risk of extinction in the wild in the medium term future.

Ceropegia attenuata Hook. (ASCLEPIADACEAE).

Distribution : Endemic to Goa, Karnataka, Maharashtra and Rajasthan.

Lindernia estaminodiosa (Blatt. & Hallb.) Mukherjee (SCROPHULARIACEAE).

Distribution : Endemic to Maharashtra.

5) *LR* – *Lower Risk* : A taxon is at lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable.

Chlorophytum borivilianum Sant. & Fernand. (LILIACEAE)

Distribution : Endemic to Maharashtra and Rajasthan.

Crotalaria fillipes Bth. var. **trichophora** (Bth. ex Baker) T. Cooke (FABACEAE).

Distribution : Endemic to Bengal, Bihar and Maharashtra.

Curcuma inodora Blatt. (ZINGIBERACEAE).

Distribution : Endemic to Maharashtra.

Erinocarpus nimmonii Grah. ex Dalz. (TILIACEAE).

Distribution : Endemic to Goa, Gujarat, Karnataka, Maharashtra and Tamilnadu.

Ischaemum santapaui Bor (POACEAE).

Distribution : Endemic to Gujarat, Maharashtra and Nagar-Haveli.

Other taxa which were till recently considered to be endemic to Maharashtra State have been excluded from this category due to their discovery in new localities outside the State or due to merger of some with other taxa which are not endemic to the State.

These are as follows :

Barleria prattensis Sant. (ACANTHACEAE).

Pleocaulis ritchiei (Cl.) Bremek (ACANTHACEAE).

Cucumis setosus Cogn. (CUCURBITACEAE).

Eriocaulon minutum Hook. f. (ERIOCAULACEAE).

Ischaemum diplopogon Hook. f. (POACEAE).

Triplopogon ramosissimus (Hook.) Bor (POACEAE).

Hygrophila phlomoides Nees var. **roxburghii** C. B. Cl.

(ACANTHACEAE). This is an East Indian plant occurring in Assam and Pegu in Burma, etc. but it has been collected for the first time in Borivali National Park growing in abundance in and around the Dahisar river. Obviously it is of rare occurrence, since it has not been reported in any other floras.

Cistachne tubulosa (Schrenk) Wight (OROBANCHACEAE)
Recently in April 2002 an Orobanchioid root-parasite was rediscovered after a span of about more than 9 decades. It is an interesting plant found at Gorai beach, Borivali (Salsette island). It was first collected by W. Burns in 1909 at Dahanu in Thane District of Maharashtra. So far this plant has been reported from Pakistan, Rajasthan and Cutch in Gujarat.

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CONCLUSIONS

Sanjay Gandhi National Park in Borivali is indeed a botanical paradise in the greater Mumbai among the concrete jungle. It is a well preserved green spot. In other words it is the heart of Brihanmumbai keeping this mega city alive. It is well known for its salubrious climate where people can breath fresh air, its tranquility which is disturbed only by the melodious notes of the beautiful birds. The forest treks through the shady paths can be enjoyed by the people of all age groups. The recreation park or centre for the common people consisting of a mini train ride, Lion and Panther safaries, caged animals and birds and peddle boating through Dahisar river are some of the most exciting and enjoyable things for the children. And of course for the youth the National Park is the most thrilling and romantic place ! Just imagine that this park suddenly vanished in thin air and visualize the monotonous, time-bound and boring life of the people without any entertainment, wouldn't it be just miserable ?

The National Park has a tremendous potential for economic, medicinal and horticultural plants, this should never be mistaken as a hint for commercial exploitation of these plants with aforesaid potentialities, rather it should be considered as a unit of education of natural sciences, as it is an exemplary treasure of biodiversity. The forest wealth in our country is as such very poor, i.e. about 11%, i.e. 22%, less than that required for the natural environmental equilibrium, such green belts are of rare occurrence, this situation is of grave concern. Therefore, it is our prime duty to know the importance of forests in our life and try with utmost sincerity for their preservation.

The National Park, covering an area of 103.09 sq. km is a spur of Sahyadri range or Western Ghats that shoots off westerly. The altitude of the terrain ranges from 0 to 486 m above the mean sea level. It shelters two fresh water lakes viz. Tulsi and Vihar and a river known as Dahisar river along with many nallas nurturing many amphibians, reptiles and fishes. The Bassein salt water creek traverses through the National Park in the north, sustaining marine water life. Along both the banks of Bassein creek a luxuriant halophytic growth including many mangroves is seen at Ghodbundar. The hilly terrain of the park is covered mostly with moist deciduous forests interspersed with semi-evergreen patches and sheltering many mammals and birds. The historically famous Kanheri caves are located in this hilly region. The panoramic views form Kanheri cave hill top and Gawali kada at Chena forest beat, the lush green forests with colourful flowers, roaring water

streams during rainy season and the bird watching etc. are some of the unforgettable memories one carries with. Thus the National park is a destination for a botanist, a zoologist, an archeologist and a horticulturist.

The barron hills in and around the park can be and should be covered by the way of plantation of those species which survive well in moist climate with heavy rainfall. These are **Alstonia scholaris** (L.) R. Br., **Bombax ceiba**, L., **Bridelia retusa** (L.) Spr., **Careya arborea** Roxb., **Dillenia pentagyna** Roxb., **Garuga pinnata** Roxb., **Grewia tiliifolia** Vahl, **Haldina cordifolia** (Roxb.) Ridsd., **Heterophragma quadriloculare** (Roxb.) K. Schum., **Kydia calycina** Roxb., **Lagerstroemia parviflora** Roxb., **Madhuca longifolia** var. **latifolia** (Roxb.) Chevalier, **Manilkara hexandra** (Roxb.) Dub., **Miliusa tomentosa** (Roxb.) Finet & Gagnep., **Mitragyna parvifolia** (Roxb.) Korth., **Schleichera oleosa** (Lour.) Oken, **Spondias pinnata** (L.f.) Kurz, **Sterculia urens** Roxb., **Streblus asper** Lour., **Tectona grandis** L.f., **Terminalia bellirica** (Gaertn.) Roxb., **Trewia polycarpa** Bth., **Ziziphus oenoplia** (L.) Mill., **Z. xylopyra** (Retz.) Willd.

In the hilly terrain and on the hill tops seedlings of evergreen trees should be introduced by artificial plantations these are :

Alseodaphne semicarpifolia Nees, **Callicarpa tomentosa** (L.) Murr., **Garcinia indica** Choiss., **Ixora brachiata** Roxb., **Litsea deccanensis** Gamble, **L. glutinosa** (Lour.) Robins., **L. lutea** Bth. & Hook. f., **Mammea suriga** (Buch.-Ham. ex Roxb.) Kosterm., **Manilkara hexandra** (Roxb.) Dub., **Memecylon umbellatum** Burm. f., **Olea dioica** Roxb., **Saraca asoca** (Roxb.) de Wilde.

The wildlife in the park needs more protection and an increase in their number will be appreciated, either by their captive breeding or by the way of their introduction into the park. Herbivorous animals like rabbits, squirrels, monkeys, deer, antelopes should be introduced on trial basis. This may keep the number of predators constant or may even increase it. Forests without wild animals sound dull and passive so as to appear lifeless. The present ambit of the Lion and Panther safaries should be extended with modifications to match with their counterparts in the advanced countries. Emphasis should be given to the scientific education centers, film shows on wild life and nature. Educative lectures to create awareness of conserving wildlife and protecting the environment should be conducted periodically. Scientific and local names should be given to all the trees of the park to develop a scientific background for looking at the nature.

Many of the points raised below are already known but awaiting their implementation. As already mentioned in the earlier chapter uncontrollable population in India is the main root cause for all negative consequences and the failure to achieve goals on most frontiers. It has the adverse impact on the economy of the country. Population in India has already crossed one hundred crores. Situation is grim and alarming! Just imagine the future of the nation with such a vast population with limited resources and scanty water supply. Wouldn't it be horrible? The government should tackle this monstrous problem seriously with top most priority, failing which it would add only to the poverty, illiteracy, unemployment and crimes. It is like an activated bomb which should be diffused before it bursts! i.e. the population explosion! Growing slums and concrete jungles are slowly encroaching forest lands. The illicit felling of trees for fuel and money making is the result of growing population. Lucrative incentives with many facilities should be declared to the family planners and restrictions of various kinds including heavy economic sanctions should be imposed on the defaulters. Decentralization of the mega-cities should be encouraged.

Pollution is another ever growing devil, be it air pollution which causes global warming, water pollution or noise pollution. It has adverse effects on the clean environment. Silence zones should be declared in and around the park to curb the noise pollution.

Use of plastic or plastic bags which are non-biodegradable should be totally banned at least in the forest areas. Welcome steps are being taken by the Deputy Conservator of forests, Sanjay Gandhi National Park, Borivali in displaying the placards reading 'say no to plastic' and also in demolishing any such constructions which will spoil the clean environment in the park. But the awareness about the importance of the forests in human life and clean environment should start from the beginning. Government should introduce these subjects in schools from the lower classes.

Stone quarrying operations around the periphery of the park at some places are prominently visible. The vertical cliffs of barren rocks produced due to these operations can nurture only lichens and mosses and are rendered useless for plant growth. No such new quarry operations should be allowed and the existing ones should be allowed to operate under a strict vigil of the government. Similarly excavations of any kind should not be allowed. Constructions of any type should not be allowed in the core area of the park.

It is a welcome move by the State Government that the park authorities will be empowered with modern handy weapons to apprehend the culprits and for self-protection. They should be well equipped with latest instruments of communications for a quick and better rapport. More staff should be employed to guard the different forest beats which we feel is insufficient at present. Vigilance squads should be set up for surprise checks. At least some nominal amount should be charged as an entry fee for the park, which will be a constant revenue and it can be utilized for the better maintenance of the park.

Periodic check-ups should be conducted by the forest authorities for keeping the trees free from insect attacks causing complete destruction of the trees, by spraying insecticides. During the dry season, care must be taken to extinguish forest fires before they become uncontrollable. Over-enthusiasm by college students in plant collection should not be allowed. Natural erosion of the soil due to torrential rains exposing the roots of the trees, finally causing their fall should be checked by the forest authorities by covering the exposed roots with the soil and erecting permanent bunds in erosion prone areas to stop soil erosion.

The mangrove belt along the banks of the Bassein creek passing through the National Park is one of the main constituents of the forest types, sincere efforts must be made for preservation of mangrove vegetation with equal care and concern, which shelter many migratory birds and other animals.

There have been instances on records where panthers escaping out of the park were overrun and killed by the vehicles plying on roads around the National Park or the Panthers attacking local residents or their domestic animals around the National Park. Therefore to avoid this menace construction of a permanent fencing boundary wall was a long felt need and finally it has been approved by the State Government. This is a welcome gesture.

Owing to the destruction of forests due to illicit felling of trees, killing of animals due to poaching, this national wealth is at a great risk. The natural environmental equilibrium has much been disturbed due to our ignorance, carelessness and short-sightedness. Let us all wake up and strive hard to compensate for the losses caused so far to wild life and plants. Let us sincerely pass the resolution on the threshold of the new century 'Live and let live'.

ABBREVIATIONS

apud : with near, in the writings of.

auct. non : *auctorum non* : not of other authors.

auct. plur. : *auctores plurimus* : of several authors.

bis : (adv.) : twice.

BLAT : Blatter Herbarium, St. Xavier's College, Bombay.

BSI : Herbarium of Botanical Survey of India, Western Circle, Pune -1.

ca : *circa* : about.

Distrib. : Distribution of collections with collector and field numbers.

emend. : *emendavit* : emended.

et : and or &.

et al. : *et aliorum.* : and others

ex : published by.

excl. : *exclusus* : excluding.

f. (after author's name) *filius* : the son.

f : figure.

Fls. & Frts. : Flowering and fruiting period.

Ibid. : *Ibidem* : the same, in the same place.

Ic : Icon, Icones : Plates.

ICBN. : International Code of Botanical Nomenclature, Utrech.

Illus. : *Illustrationes* : Illustrations.

Ined. : *Ineditus* : unpublished.

neque : (adv. & conj.) : not, and not, also not.

nom. confus. : *nomem. confusum* : confused names.

nom. cons. : *nomem conservandum* : name conserved.

nom. illegit. : *nomen illegitimum* : Illegitimate name.

nom. superfl. : *nomen superfluum* : superfluous name.

Obs. : *Observationes* : Observation.

Omn. : *Omnis* = all.

op. cit. : *opere citato* : In the place cited.

Plur : *Plurimus* : of many.

p. p. : *pro parte* : partly.

quoad : (adverb) : as to, with respect to.

sens. lat : *sensu lato* : in a wide sense.

sens. strict. : *sensu stricto* : in a narrow sense.

s. n. : *sine numero* : without collector's number.

Sphalm. : *Sphalmate* : by mistake.

ssp. : subspecies.

syn. synonymon : synonym.

t. : *tabula* : plate.

tantum : (adv.) : only.

var. : *variatus* : variety.

★★★

SYSTEMATIC ENUMERATION

KEY TO THE FAMILIES

1. Embryo with two cotyledons (rarely one by reduction); stems with central pith and/or surrounded by concentric rings of woody tissue, vascular arranged in a ring, bark separable; flowers usually 4-5 merous; venation reticulate ... **DICOTYLEDONAE**
2. Flowers usually dichlamydeous i.e. perianth well differentiated into calyx and corolla :
 3. Petals free; stamens free from petals ... **POLYPETALAE**
(Petals absent in some members of *Aizoaceae*, *Combretaceae*, *Flacourtiaceae*, *Lythraceae*, *Molluginaceae*, *Ranunculaceae*, *Sterculiaceae*)
 4. Sepals free, ovaries superior or immersed in the disc :
 5. Torus short or elongated, not expanded ... **THALAMIFLORAE**
 6. Stamens many (more than 10) :
 7. Carpels many or sometimes reduced to one, free or slightly cohering :
 8. Plants aquatic :
 9. Ovules-2, seeds exalbuminous ... **NELUMBONACEAE**
 9. Ovules many, seeds albuminous ... **NYMPHAEACEAE**
 8. Plants terrestrial :
 10. Climbers ... **RANUNCULACEAE**
 10. Trees or shrubs :
 11. Perianth 2-seriate, 5-merous, sepals persistent, imbricate ... **DILLENACEAE**
 11. Perianth 3-seriate, 3-merous, sepals deciduous ... **ANNONACEAE**
 7. Carpels two or more, united :
 12. Fruits circumscissile by operculum ... **PORTULACACEAE**
 12. Fruits not circumscissile by operculum :
 13. Stamens united :
 14. Anthers 1-celled :

15. Leaves simple	...	MALVACEAE
15. Leaves compound	...	BOMBACACEAE
14. Anthers 2-celled	...	STERCULIACEAE
13. Stamens free :		
16. Ovaries raised on gynophore	...	CAPPARACEAE
16. Ovaries sessile :		
17. Leaves compound	...	CLEOMACEAE
17. Leaves simple, entire or variously lobed :		
18. Petals present :		
19. Venation palmate	...	TILIACEAE
19. Venation pinnate :		
20. Leaves pinnately lobed; flowers bisexual	...	PAPAVERACEAE
20. Leaves entire; flowers unisexual or polygamous		CLUSIACEAE
18. Petals absent	...	FLACOURTIACEAE
6. Stamens few, up to 10.		
21. Carpels free	...	MENISPERMACEAE
21. Carpels united :		
22. Leaves minute, scaly	...	TAMARICACEAE
22. Leaves well developed :		
23. Flowers zygomorphic :		
24. Inner sepals petaloid, stamens 8, connate at base	...	POLYGALACEAE
24. Sepals not petaloid, stamens 5, free	...	VIOLACEAE
23. Flowers actinomorphic :		
25. Fruits circumscissile by operculum	...	PORTULACACEAE
25. Fruits not circumscissile by operculum:		
26. Leaves opposite or whorled :		
27. Flowers in axillary fascicles	...	ELATINACEAE
27. Flowers in dichotomous cymes or few, in forks of branches	...	CARYOPHYLLACEAE
26. Leaves alternate :		
28. Stamens tetradenamous	...	BRASSICACEAE
28. Stamens not tetradenamous :		
29. Ovaries raised on gynophores	...	CAPPARACEAE

29. Ovaries sessile :
30. Stamens united at base ... STERCULIACEAE
30. Stamens free ... TILIACEAE
5. Torous dialated into a fleshy disc :
31. Leaves simple :
32. Flowers zygomorphic ... BALSAMINACEAE
32. Flowers actinomorphic :
33. Stems scandent, climbing or twining :
34. Leaves opposite ... MALPIGHIACEAE
34. Leaves alternate :
35. Perianth 1-seriate ... OPILIACEAE
35. Perianth 2-seriate, rarely 1-seriate :
36. Inflorescence usually leaf-opposed;
plants usually tendril-bearing ... VITACEAE
36. Inflorescence not leaf-opposed;
plants without tendrils :
37. Calyx accrescent in fruits ... OLACACEAE
37. Calyx not accrescent in fruits :
38. Fruits dehiscent ... CELASTRACEAE
38. Fruits not dehiscent :
39. Flowers in umbels ... HIPPOCRATEACEAE
39. Flowers in cymes
or in panicles ... RHAMNACEAE
33. Stems erect :
40. Calyx accrescent in fruits ... OLACACEAE
40. Calyx not accrescent in fruits :
41. Inflorescence of leaf-opposed
corymbose cymes ... LEEACEAE
41. Inflorescence not leaf-opposed :
42. Stamens 5 ... RHAMNACEAE
42. Stamens 8-10 ... ANACARDIACEAE
31. Leaves compound :
43. Flowers zygomorphic ... SAPINDACEAE
43. Flowers actinomorphic :
44. Herbs ... OXALIDACEAE
44. Shrubs or trees :
45. Seeds winged ... MORINGACEAE

- 45. Seeds not winged :
- 46. Leaves pellucidely punctate ... RUTACEAE
- 46. Leaves not pellucidely punctate :
- 47. Stamens monadelphous ... MELIACEAE
- 47. Stamens free :
- 48. Flowers in leaf-opposed corymbose-cymes :
- 49. Leaves digitately compound ... VITACEAE
- 49. Leaves pinnately compound ... LEEACEAE
- 48. Flowers in panicles :
- 50. Ovary 1-loculed; ovule 1 ... ANACARDIACEAE
- 50. Ovary 4-loculed; ovules 2 per locule ... BURSERACEAE
- 4. Sepals united; ovary usually included in the calyx tube or inferior : ... **CALYCIFLORAE**
- 51. Flowers zygomorphic :
- 52. Flowers papilionaceous ... FABACEAE
- 52. Flowers not papilionaceous :
- 53. Flowers unisexual ... BEGONIACEAE
- 53. Flowers bisexual ... CAESALPINIACEAE
- 51. Flowers actinomorphic :
- 54. Ovary apocarpous ... CRASSULACEAE
- 54. Ovary syncarpous :
- 55. Leaves reduced; stems a phylloclade ... CACTACEAE
- 55. Leaves well developed; stems not a phylloclade :
- 56. Plants insectivorous ... DROSERACEAE
- 56. Plants not insectivorous :
- 57. Fruits of two separable mericarps ... APIACEAE
- 57. Fruits not as above :
- 58. Fruits dehiscing transversely ... AIZOACEAE
- 58. Fruits if dehiscent, not transversely dehiscing :
- 59. Leaves whorled or rosulate : (also alternate in Haloragaceae) :
- 60. Plants aquatic :

- | | | |
|--|-----|------------------|
| 61. Petioles swollen | ... | TRAPACEAE |
| 61. Petioles not swollen | ... | HALORAGACEAE |
| 60. Plants terrestrial | ... | MOLLUGINACEAE |
| 59. Leaves opposite or alternate : | | |
| 62. Leaves opposite : | | |
| 63. Connectives thickened into two horned structure beneath | ... | MELASTOMATACEAE |
| 63. Connectives not thickened into two horned structure beneath : | | |
| 64. Ovary superior : | | |
| 65. Petals present | | |
| 66. Placentation axile | ... | LYTHRACEAE |
| 66. Placentation parietal | ... | TURNERACEAE |
| 65. Petals absent : | | |
| 67. Herbs | ... | MOLLUGINACEAE |
| 67. Trees | ... | SONNERATIACEAE |
| 64. Ovary inferior : | | |
| 68. Leaves with an intramarginal vein; stamens indefinite (more than 10) | ... | MYRTACEAE |
| 68. Leaves without an intramarginal vein; stamens definite 8-10 : | | |
| 69. Fruits winged or angled | ... | COMBRETACEAE |
| 69. Fruits neither winged nor angled : | | |
| 70. Fruits dehiscent; seeds many | ... | VAHLIACEAE |
| 70. Fruits indehiscent, seed-1 | ... | RHIZOPHORACEAE |
| 62. Leaves alternate : | | |
| 71. Stamens more than 20 : | | |
| 72. Flowers in heads or spikes; ovary superior | ... | MIMOSACEAE |
| 72. Flowers neither in heads nor in spikes; ovary inferior : | | |
| 73. Stems succulent and with spiny areoles | ... | CACTACEAE |
| 73. Stems not succulent, spiny areoles absent : | | |
| 74. Stamens connate at the base into a ring : | | |
| 75. Flowers 5-8 cm across; fruits globular, many-seeded | ... | LECYTHIDACEAE |
| 75. Flowers 0.8-1.2 across, fruits angular, 1-seeded. | ... | BARRINGTONIACEAE |

- 74. Stamens not connate at the base into a ring ... ALANGIACEAE
- 71. Stamens up to 10 :
 - 76. Plants with tendrils :
 - 77. Flowers unisexual ... CUCURBITACEAE
 - 77. Flowers bisexual ... PASSIFLORACEAE
 - 76. Plants without tendrils :
 - 78. Fruits dehiscent; many-seeded ... ONAGRACEAE
 - 78. Fruits indehiscent, 1-seeded ... COMBRETACEAE
- 3. Petals usually united; stamens inserted ... **GAMOPETALAE**
 - 79. Ovary inferior or semi-inferior :
 - 80. Leaves stipulate, stipules inter or intrapetiolar ... RUBIACEAE
 - 80. Leaves exstipulate :
 - 81. Flowers in involucre heads, anthers syngeneisicous ... ASTERACEAE
 - 81. Flowers not in involucre heads, anthers not syngeneisicous :
 - 82. Flowers actinomorphic or zygomorphic; anthers free :
 - 83. Styles with cup-shaped indusium ... GOODENIACEAE
 - 83. Styles without indusium ... SPENOCLACEAE
 - 82. Flowers zygomorphic; anthers connivent into a ring ... LOBELIACEAE
 - 79. Ovary superior :
 - 84. Leafless, achlorophyllous parasites :
 - 85. Flowers in cymose clusters ... CUSCUTACEAE
 - 85. Flowers solitary, terminal ... OROBANCHACEAE
 - 84. Plants leafy, green, not parasitic :
 - 86. Plants insectivorous with leaf-bladders ... LENTIBULARIACEAE
 - 86. Plants not insectivorous; leaf-bladders absent :
 - 87. Carpels more than 2 :
 - 88. Flowers usually unisexual ... EBENACEAE
 - 88. Flowers bisexual :
 - 89. Calyx with stalked, peltate glands ... PLUMBAGINACEAE
 - 89. Calyx without such glands
 - 90. Ovary 1-celled ... MYRSINACEAE
 - 90. Ovary 2-8-celled ... SAPOTACEAE

91. Flowers zygomorphic :
92. Plants with pneumatophores ; seed germination viviparous ... AVICENNIACEAE
92. Plants without pneumatophores ; seed germination not viviparous :
93. Inflorescence a verticillaster; styles gynobasic ... LAMIACEAE
93. Inflorescence not a verticillaster; styles not gynobasic :
94. Seeds winged; leaves compound ... BIGNONIACEAE
94. Seeds not winged; leaves simple (leaves trifoliolate compound in *Vitex*) :
95. Fruits elastically dehiscent; inflorescence with conspicuous bracts and bracteoles :
96. Stems twining ... THUNBERGIACEAE
96. Stems not as above ... ACANTHACEAE
95. Fruits not elastically dehiscent; bracts and bracteoles inconspicuous if present :
97. Flowers with extra floral glands at base of pedicel :
98. Placentation axile ... PEDALIACEAE
98. Placentation parietal ... MARTYNIACEAE
97. Flowers without extra floral glands at base of pedicel :
99. Fruits capsular ... SCROPHULARIACEAE
99. Fruits drupaceous ... VERRENACEAE
91. Flowers actinomorphic :
100. Leaves alternate :
101. Inflorescence usually secund :
102. Fruits capsular ... HYDROPHYLLACEAE
102. Fruits drupaceous with 4 nutlets :
103. Ovary entire or shallowly 4-lobed :
104. Styles 1 or 2, entire or once forked :
105. Plants herbaceous ... HELIOTROPICEAE
105. Plants always shrubs or trees ... EHRETIACEAE
104. Styles twice forked ... CORDIACEAE
103. Ovary deeply 4-lobed ... BORAGINACEAE

- 101 Inflorescence not secund :
106. Plants aquatic, free floating ... MENYANTHACEAE
106. Plants terrestrial :
107. Ovules usually 1-4; plants erect or twining ... CONVOLVULACEAE
107. Ovules more than 4; plants erect or ascending ... SOLANACEAE
100. Leaves opposite and/or whorled (*Tectona* & *Callicarpa*) :
108. Stamens 2 ... OLEACEAE
108. Stamens 4 or more :
109. Plants with milky latex or greenish-yellow sap :
110. Pollen masses aggregated into pollinia; styles 2
111. Filaments connate into a tube; pollen masses waxy ... ASCLEPIADACEAE
111. Filaments free; pollen masses granular... PERIPLOCACEAE
110. Pollen masses not aggregated into pollinia; style 1 ... APOCYNACEAE
109. Plants without milky latex; sap watery :
112. Placentation parietal ... GENTIANACEAE
112. Placentation not parietal :
113. Fruits capsular :
114. Calyx 5-partite; corolla urceolate ... LOGANIACEAE
114. Calyx campanulate; corolla cylindrical or campanulate ... BUDDLEJACEAE
113. Fruits drupaceous :
115. Ovary 1-celled, ovule solitary ... SALVADORACEAE
115. Ovary 2-celled, ovules 2 per cell ... VERBENACEAE
2. Flowers monochlamydous i.e. perianth not differentiated into calyx and corolla ... MONOCHLAMYDEAE
116. Plants aquatic, submerged :
117. Plant body thalloid, attached to rocks ... TRISTICHACEAE
117. Plant body well differentiated, rooted ... CERATOPHYLLACEAE
116. Plants terrestrial :
118. Plants parasitic with haustorial connections with host plant ... LORANTHACEAE
118. Plants not parasitic :
119. Leaves reduced to minute scales ... CASUARINACEAE
119. Leaves well developed :

120. Flowers zygomorphic :
121. Ovary superior ... ULMACEAE
121. Ovary inferior ... ARISTOLOCHIACEAE
120. Flowers actinomorphic :
122. Stipules ochreate ... POLYGONACEAE
122. Stipules if present, not ochreate :
123. Perianth absent :
124. Flowers in cyathia ... EUPHORBIACEAE
124. Flowers in spikes ... PIPERACEAE
123. Perianth present :
125. Leaves stipulate :
126. Ovary 2 or more-celled, rarely
1-celled, with 2 ovules in each cell. ... EUPHORBIACEAE
126. Ovary 1-celled, 1-ovuled :
127. Styles and style branches 2 or if
style single and undivided
then stamen 1 ... MORACEAE
127. Style single; stamens 3-5 ... URTICACEAE
125. Leaves exstipulate :
128. Perianth scarious, dry ... AMARANTHACEAE
128. Perianth not as above :
129. Leaves opposite ... NYCTAGINACEAE
129. Leaves alternate :
130. Stamens in 4 whorls
of 3 each, staminal
glands present :
131. Stems twining ... CASSYTHACEAE
131. Stems not twining ... LAURACEAE
130. Stamens 5, uniseriate,
staminal glands absent ... CHENOPODIACEAE
1. Embryo with one cotyledon; stems without central pith,
vascular bundles scattered, outer ring firmly attached;
flowers usually 3-merous, venation usually parallel ... MONOCOTYLEDONEAE
132. Plants woody :
133. Leaves pinnately or palmately divided ... ARECACEAE
133. Leaves entire :
134. Leaves spirally arranged and with
spiny margins ... PANDANACEAE

134. Leaves 2-ranked, not spiny ... POACEAE
132. Plants herbaceous :
135. Perianth absent or represented by scales, bracts or hairs etc.
136. Plants thalloid; perianth absent ... LEMNACEAE
136. Plants well differentiated; perianth represented by scales, bracts or hairs etc.
137. Inflorescence a spadix ... ARACEAE
137. Inflorescence other than spadix :
138. Flowers in the axil of glumaceous bracts :
139. Style 1, seeds 2-3-angled ... CYPERACEAE
139. Style 2, seeds smooth, not angular ... POACEAE
138. Flowers not in the axil of glumaceous bracts ... TYPHACEAE
135. Perianth well developed, either differentiated into sepals and petals or tepals only :
140. Flowers actinomorphic :
141. Ovary superior :
142. Inflorescence of compact terminal head, peduncles spirally ribbed ... ERIOCAULACEAE
142. Inflorescence not in terminal head, peduncles not spirally ribbed :
143. Inflorescence an umbel ... SMILACACEAE
143. Inflorescence not an umbel :
144. Plants usually xeromorphic; leaves mostly fibrous, thick ... AGAVACEAE
144. Plants not xeromorphic; leaves not as above :
145. Ovary apocarpus :
146. Flowers unisexual ... ZANNICHELLIACEAE
146. Flowers bisexual :
147. Perianth lobes 2 or 4 - merous :
148. Fruits simple ... APONOGETONACEAE
148. Fruits syncarpic (compound) ... POTAMOGETONACEAE
147. Perianth lobes trimerous ... ALISMATACEAE
145. Ovary syncarpous :

149. Plants aquatic; fruits enclosed by persistent calyx. ... PONTEDERIACEAE
149. Plants terrestrial; fruits not enclosed by calyx :
150. Flowers in racemes; stamens 6 :
151. Leaves reduced to minute scales ... ASPARAGACEAE
151. Leaves well developed ... LILIACEAE
150. Flowers in panicles; stamens 2-3 ... COMMELINACEAE
141. Ovary inferior :
152. Plants aquatic ... HYDROCHARITACEAE
152. Plants terrestrial :
153. Plants twining ... DIOSCOREACEAE
153. Plants erect :
154. Flowers unisexual; stamens 5 : ... MUSACEAE
154. Flowers bisexual; stamens 6 :
155. Ovary 1-celled; placentation ¹parietal ... TACCACEAE
155. Ovary 3-celled; placentation axile :
156. Inflorescence of racemes or flowers rarely solitary; perianth divided to the base ... HYPOXIDACEAE
156. Inflorescence of umbels; perianth at most divided to half its length ... AMARYLLIDACEAE
140. Flowers zygomorphic :
157. Ovary superior ... COMMELINACEAE
157. Ovary inferior :
158. Pistils and stamens united to form gynostegium; pollen masses united into pollinia ... ORCHIDACEAE
158. Pistils and stamens not united to form gynostegium; pollen masses not combined into pollinia :
159. Stamens petaloid; calyx not tubular ... CANNACEAE
159. Stamens not petaloid; calyx tubular ... ZINGIBERACEAE

RANUNCULACEAE

CLEMATIS L.

1. Flowers ca. 2 cm across; anther connectives much produced ... *C. hedyсарifolia*
1. Flowers 3-4 cm across; anther connectives not produced ... *C. heynei*

Clematis hedysarifolia DC. Syst. Nat 1: 148.1818 & Prodr.1: 6.1824 (*excl.* Bot. Reg. t.599); Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 4: 1872; Cooke, Fl. Pres. Bombay 1: 3 : 1958 (Repr. ed.); M. A. Rau in Sharma *et al.* Fl. India 1: 66: 1993.

Climbers. Stems woody, extensive. Leaves pinnately compound; leaflets 3-5, 3. 5-9. 5 × 2.0-3. 5 cm, ovate-lanceolate, ovate-elliptic, cordate or rounded at base, acuminate at apex, margins entire or irregularly toothed. Flowers white or creamy, in many-flowered, axillary panicles. Achenes 0.2-0.3 cm long, ovoid, compressed, hairy with feathery tails.

Fls. & Frts. : October-January.

Illus. : Gupta in Bull. Natn. Bot. Gard. Lucknow 54: t 12.1961; Talbot, For. Fl. Bombay Pres. & Sind 1: 5, t. 4.1909.

Distrib. : Occasional climbers on bushes, 167756

Clematis heynei M. A. Rau in Sharma *et al.* Fl. India 1: 67: 1993. *C. triloba* Heyne *et* Roth, Nov. Pl. Sp. 251.1821 *non* Thunb.1794; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 3 : 1872; Cooke, Fl. Pres. Bombay 1: 2.1958 (Repr. ed.). 'Mor-vel'

Herbaceous climbers. Stems extensive, often trailing, young parts tomentose. Leaves simple or ternate, entire or 1-7-lobed, 5-8 cm long, ovate-acute to orbicular, petioles twining. Flowers white, in axillary corymbose-panicles. Achenes ovoid, compressed, silky-villous with hairy tails.

Fls. & Frts. : September-November.

Illus. : Gupta in Bull. Natn. Bot. Gard. Lucknow 54: t.18.1961; Talbot, For. Fl. Bombay Pres. & Sind 1: 3, t. 3.1909.

Distrib. : Koppikar (1974).

DILLENACEAE

DILLENIA L.

Dillenia pentagyna Roxb. Pl. Cor. 1: 21, t. 20.1795; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 38.1872; Cooke, Fl. Pres. Bombay 1: 6.1958 (Repr. ed.); N. C. Majumdar in Fasc. Fl. India 2 : 7.1979 & in Sharma *et al.* Fl. India 1: 156.1993. 'Karmal', 'Karvel'.

Trees, 5–10 m tall, deciduous. Leaves 30–70 × 20–30 cm, obovate–lanceolate, tapering at base, acute at apex, margins serrate–dentate, crowded at ends of the branches. Flowers yellow, fragrant, showy, pedicelled, fascicled on leafless branches. Fruits 1.5–2.0 cm across, more or less globose of five follicles, orange when ripe, pedicelled. Seeds elliptic or oblong, smooth.

Fls. & Frts. : March–May.

Illus. : Ic. Roxb. Fasc. 1, t. 2.1964 (Repr. ed).

Distrib. : Frequent in moist deciduous forests. 167778, 167880.

ANNONACEAE

- | | | |
|--|-----|------------|
| 1. Flowers pinkish; monocarps (fruits) 5–6 in a cluster | ... | MILIUSA |
| 1. Flowers greenish; monocarps (fruits) 35–40 in a cluster | ... | POLYALTHIA |

MILIUSA Leschen.

Miliusa tomentosa (Roxb.) Sinclair in Gard. Bull. Singapore 14: 378.1955; Sant. in Bull. Bot. Surv. India 3 : 20 (1961) 1962; Mitra in Sharma *et al.* Fl. India 1: 221.1993. *Uvaria tomentosa* Roxb. Pl. Cor. 1: 31, t. 35.1795. *Saccopetalum tomentosum* Hook. f. & Thoms. Fl. Ind. 152.1855 & in Hook. f. Fl. Brit. India 1: 88.1872; Cooke, Fl. Pres. Bombay 1: 17.1985 (Repr. ed.). 'Humb'.

Trees up to 20 m tall; young branches tomentose. Leaves 10–15 × 5–7 cm, ovate–oblong, acute, subacute or rounded at base. Flowers pedicelled; pedicels slender, peduncles 1–many–flowered, leaf–opposed or subterminal. Fruits 5–15–carpellate, 2.5 cm long, subglobose, stalked, succulent and purple.

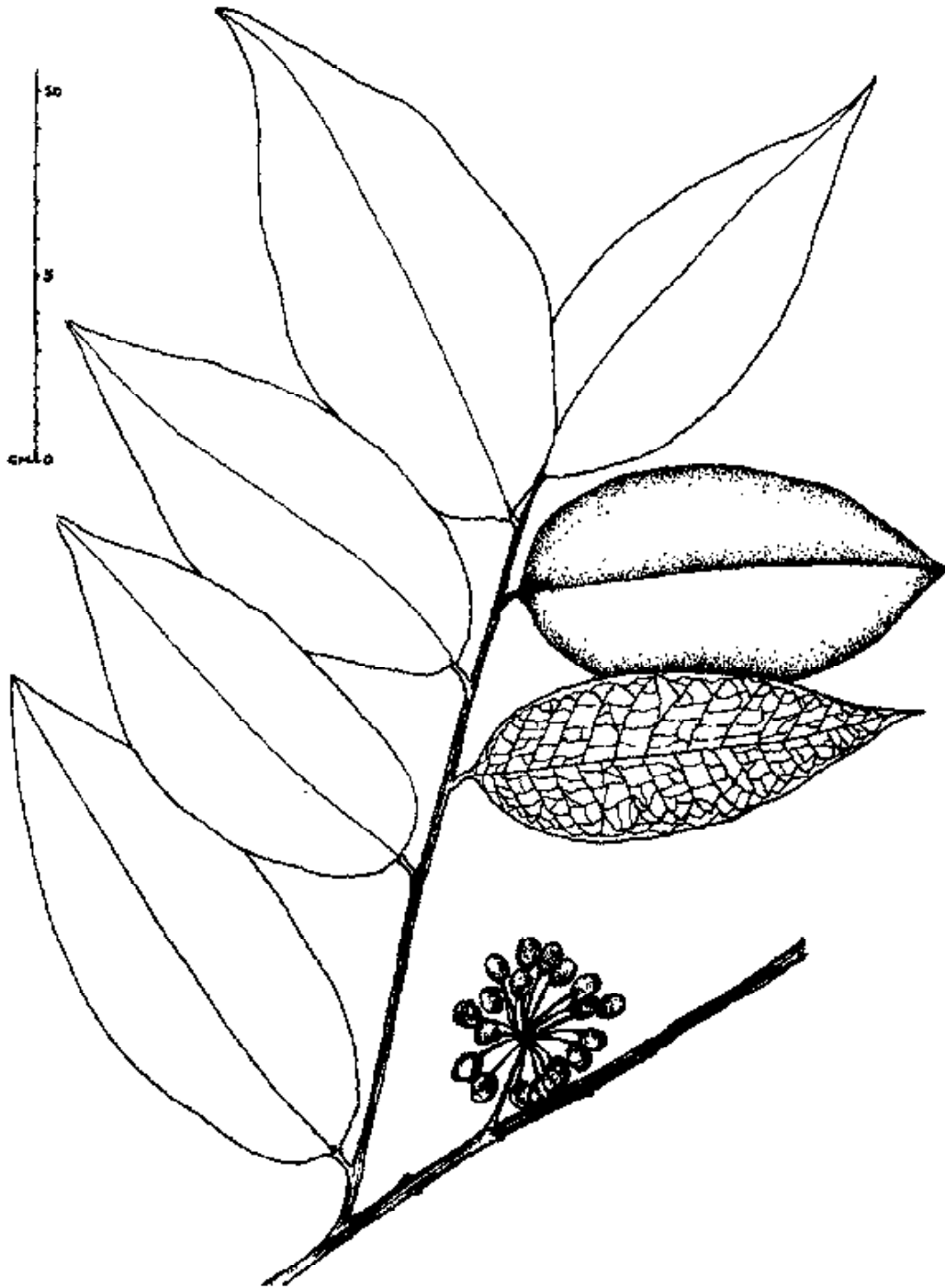
Fls. & Frts. : February–April.

Illus. : Matthew, Fur. Illus Fl. Tamilnadu Carnatic 4: t 5.1988, Talbot, For. Fl. Bombay Pres. & Sind 1: 30, t. 21.1909. (*Saccopetalum tomentosum*).

Distrib. : Frequent in moist deciduous forests. 167460, 167494, 168973.

POLYALTHIA Bl.

Polyalthia cerasoides (Roxb.) Bth. & Hook. f. ex Bedd. Fl. Sylv. t.1.1869; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 63.1872; Cooke,



f.1. *Polyalthia cerasoides* (Roxb.) Bedd.

Fl. Pres. Bombay 1: 14.1958 (Repr. ed.); Mitra in Sharma *et al.* Fl. India 1: 270.1993. *Uvaria cerasoides* Roxb. Pl. Cor. 1: 30 t. 33.1795. 'Hum', 'Humb'.

Small trees, 5.4 cm tall; branchlets rufous-tomentose. Leaves 6-13 × 2.0-3.5 cm, oblong-lanceolate, rounded or subacute at base, acute to acuminate at apex. Flowers greenish, 1-3 together on short, woody branches. Carpels many, 0.8-0.9 cm long, ovoid, stalked, apiculate.

Fls. & Frts. : March-April.

Illus. : King. in Ann. Roy. Bot. Gard. Calcutta 5(2) : t. 86B, 1883.

Distrib. : Tulsi Lake, Bhiva s. n. (BLAT)

CULTIVATED SPECIES :

Annona reticulata L. Sp. Pl. 537.1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 78.1872; Cooke, Fl. Pres. Bombay 1: 15.1958 (Repr. ed.); Mitra in Sharma *et al.* Fl. India 1: 207.1993. 'Ram-phal'.

Trees, 3-4m tall; Leaves oblong-lanceolate. Flowers 2-4, greenish-yellow. Fruits 8-15 cm across, subglobose or heart-shaped, areoles pentagonal, lightly marked. Seeds smooth, blackish.

Fls. & Frts. : Nearly throughout the year.

Illus. : Matthew, Illus. Fl. Tamihnadu Carnatic t. 5.1982.

Distrib. : Cultivated. Koppikar (1874).

Annona squamosa L. Sp. Pl. 537.1753 ; Hook. f. & Thoms. in. Hook. f. Fl. Brit. India 1: 78.1872; Cooke, Fl. Pres. Bombay 1: 15.1958 (Repr. ed.); Mitra in Sharma *et al.* Fl. India 1: 207.1993. 'Sita-phal'.

Shrubs or small trees up to 6 m tall. Leaves 5 × 2.5-3.0 cm, elliptic-oblong-lanceolate. Flower solitary, leaf-opposed or on extra-axillary branchlets. Fruits globose or cordate, tuberculate, areoles well marked, 5-6 gonous. Seeds brownish-black, smooth, shiny.

Fls. & Frts. : May-July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 27. t.17.1909.

Distrib. : Cultivated. 167397.

MENISPERMACEAE

- 1. Flowers trimerous :
 - 2. Anther cells dehiscing longitudinally; stylar scars on drupe sub-terminal ... TINOSPORA
 - 2. Anther cells dehiscing transversely; stylar scars on drupe sub-basal :
 - 3. Flowers in short fascicles or cymose inflorescence; drupes 0.4–0.6 cm across ... COCCULUS
 - 3. Flowers in long panicles (30–60 cm long); drupes 2.0–2.5 cm across ... DIPLOCLISIA
- 1. Flowers tetramerous :
 - 4. Pistillate inflorescence with foliaceous bracts ... CISSAMPELOS
 - 4. Pistillate inflorescence without such bracts ... CYCLEA

CISSAMPELOS L.

Cissampelos pareira L. var. **hirsuta** (Buch.–Ham. ex DC.) Forman in Kew Bull. 22 : 356.1968; Gang. in Sharma *et al.* Fl. India 1: 317.1993. *C. hirsuta* Buch.–Ham. ex DC. Syst. Nat. 1: 535.1817. *C. pareira* L. Sp. Pl. 1031.1753 p.p; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 103.1872; Cooke, Fl. Pres. Bombay 1: 24.1958. (Repr. ed.). 'Pahad-vel'.

Herbaceous climbers. Leaves 2. 5–4.0 × 4.0–6. 5 cm, orbicular or reniform or cordate–peltate, cordate or truncate at base, retuse at apex. Flowers unisexual; male flowers in pendent sub–corymbose cymes up to 5. 8 long; female flowers in clusters. Drupes ca.0.3–0.5 cm. ovoid.

Fls. & Frts. : July–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic. t. 12.1982.

Distrib. : Frequent. 167791, 167959, 167858.

COCCULUS DC. (*nom. cons.*)

Cocculus hirsutus (L.). Theob. in Mason, Burma ed. Theob. 2 : 657.1883; Mabberly in Taxon 34: 155.1985; Gang. in Sharma *et al.* Fl. India 1: 318.1993. *Menispermum hirsutum* L. Sp. Pl. 341.1753. *Cocculus villosus* (Lam.) DC. Syst. Nat. 1: 525.1817; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 101.1872; Cooke, Fl. Pres. Bombay 1:22.1958 (Repr. ed.). 'Vasan-Vel'.

Straggling shrubs; stems and branches hirsute. Leaves 3–7 × 1.5 cm, ovate–oblong, subdeltoid or subhastate, truncate or sub cordate at base, obtuse, subacute or retuse and apiculate at apex, villous. Flowers unisexual. Drupes ca. 0.3–0.4 cm long, keeled, laterally compressed, transversely ridged, black.

Fls. & Frts. : November–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 13.1982.

Distrib. : Common on bushes. 167767.

CYCLEA Arn. ex Wight

Cyclea peltata (Lam.) Hook. f. & Thoms. *Fl. Ind.* 201.1855 & in Hook. f. *Fl. Brit. India 1*: 104.1872, *p.p.*; Cooke, *Fl. Pres. Bombay 1*: 25.1958 (Repr. ed.); Gang. in Sharma *et al.*, *Fl. India 1*: 325.1993. *Menispermum peltatum* Lam. *Encycl.* 4: 96.1797. *Cyclea burmanni* (DC.) Hook. f. & Thoms. *op. cit.* & in Hook. f. *op. cit.*, Cooke, *op. cit.* 'Parkar'

Climbing shrubs. Leaves 5–10 × 4.5–6.5 cm, cordate, peltate, elongate–deltoid, often sinuate beneath middle, truncate at base, acuminate at apex, mucronate. Flowers unisexual; male flowers in axillary panicles 6–7 cm long; female flowers in axillary panicles 6–8 cm long. Drupes obovoid, dorsally tubercled, pilose.

Fls. Frts. : September–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 14.1982.

Distrib. : Frequent on bushes. 167758.

DIPLOCLISIA Miers

Diploclisia glaucescens (Bl.) Diels in *Engl. Pflanzenr.* 46: 225, t. 77. A–L.1910; Pramanik in Sharma *et al.* *Fl. India 1*: 327.1993. *Cocculus glaucescens* Bl. *Bijdr.* 25.1825. *C. macrocarpus* Wight & Arn. *Prodr.* 13.1834; Hook. f. & Thoms. in Hook. f. *Fl. Brit. India 1*: 101.1872; Cooke, *Fl. Pres. Bombay 1*: 22.1958 (Repr. ed.). 'Waten-vel'.

Lianas, 20–30 m long. Leaves 5–10 × 4.5–11.8 cm, suborbicular or broadly ovate, rounded or cordate at base, obtuse at apex, glaucous beneath. Flowers unisexual, yellowish–green, in drooping panicles ca. 30 cm long on old wood. Drupes ca. 2.0–2.5 × 1.5 cm, obovoid, shortly beaked, red.

Fls. & Frts. : January–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t.15–961 c. d.1982.

Distrib. : Kanheri Caves, L. J. Sedgwick, 28690. (BLAT)

TINOSPORA Miers

- | | | |
|--|-----|----------------------|
| 1. Leaves glabrous beneath | ... | <i>T. cordifolia</i> |
| 1. Leaves tomentose or villous beneath | ... | <i>T. sinensis</i> |

Tinospora cordifolia (Willd.) Miers ex Hook. f. & Thoms. Fl. Ind. 184.1855 & in Hook. f. Fl. Brit. India 1: 97.1872; Cooke, Fl. Pres. Bombay 1: 20.1958 (Repr. ed.). *Menispermum cordifolium* Willd. Sp. Pl. 4: 826.1806. 'Gul-vel'

Woody climbers, up to 10 m long, deciduous; stems grooved, bark corky. Leaves 4.5–8.0 × 5.0–7.0 cm, cordate, broadly ovate, acuminate at apex, petioles pulvinate. Flowers unisexual; male flowers in pseudoracemes, axillary or on leafless branches 10–20 cm long; female inflorescence up to 3.5 cm long. Drupes 0.5–0.6 × 0.4–0.5.0 cm, globose, dorsally convex, ventrally flat.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t. 485 & 486.1843. *Cocculus cordifolius* (Willd.) DC. Syst. Nat. 1: 518.1824; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.19.1982.

Distrib. : Common. 167422, 167950.

Tinospora sinensis (Lour.) Merr. in Sunyatsenia 1: 193.1934 & in Trans. Am. Philos. Soc. Philad. n. s. 24. 148.1935; Pramanik in Sharma *et al.* Fl. India 1: 349.1993. *Campylus sinensis* Lour. Fl. Cochinch. 113.1790. *Tinospora malabarica* (Lam.) Miers in Ann. & Mag. Nat. Hist. Soc. (ser. 2) 7: 38.1851 & Contrib. 3 : 32.1864; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 96.1872; Cooke, Fl. Pres. Bombay 1: 19.1958; (Repr. ed.).

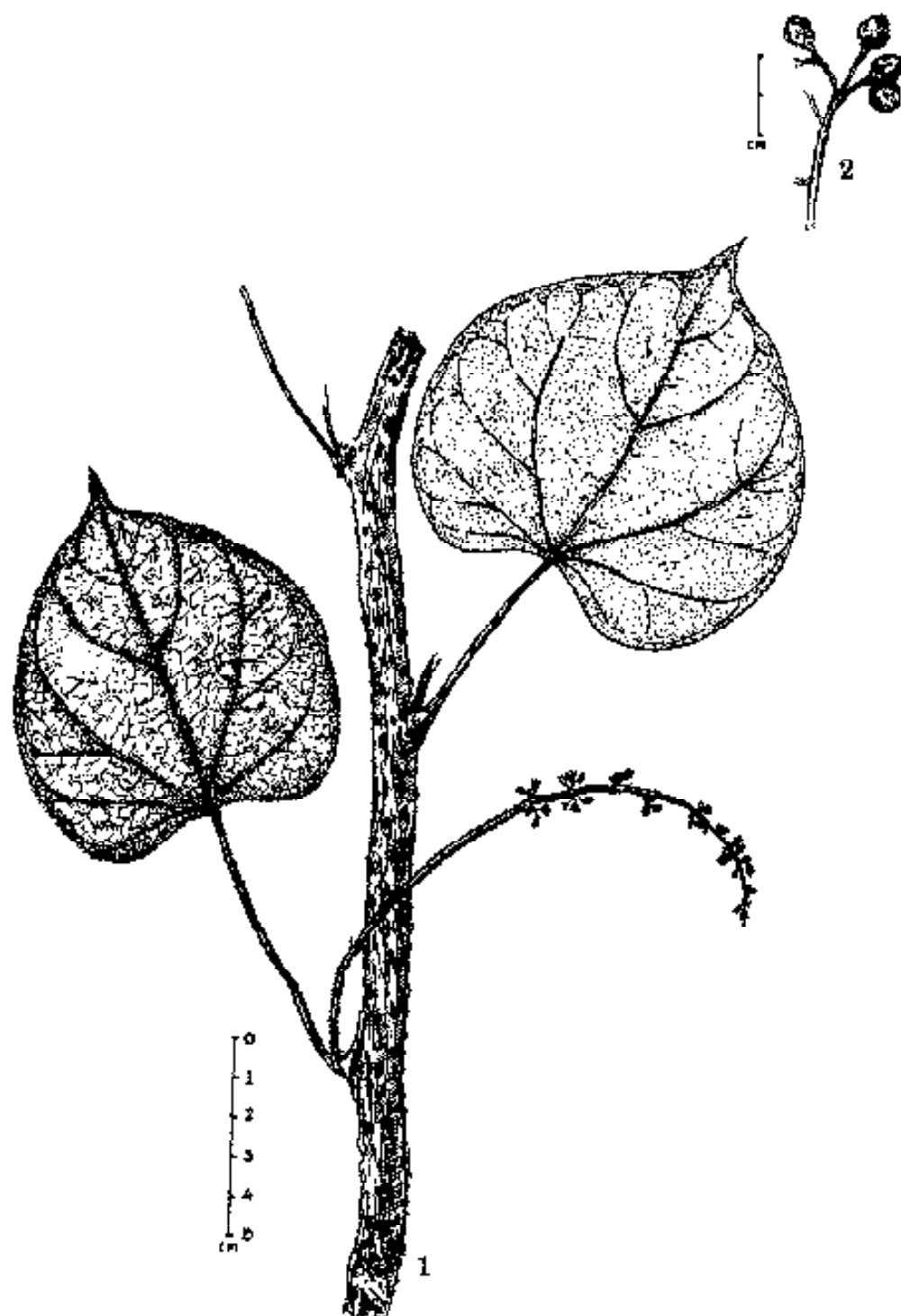
Extensive, deciduous, straggling shrubs with smooth and shining, light coloured, papery, bark warty. Leaves 6–14 × 8–10 cm, broadly ovate, cordate at base, acuminate at apex. Flowers green, unisexual, in 8–12 cm long racemes. Drupes 1–3, usually 2, ovoid, red on thick stalks.

Distrib. : Borivli, P. S. Herbert. 704. 2136 (BLAT)

NYMPHAEACEAE

NYMPHAEA L. (*nom. cons.*)

- | | |
|--|---------------------|
| 1. Leaf margins entire or slightly sinuate-dentate, leaves glabrous beneath; anthers acute at apex | <i>N. nouchali.</i> |
| 1. Leaf margins sharply sinuate, toothed, leaves velvety pubescent beneath; anthers obtuse at apex : | |



f.2. *Tinospora cordifolia* (Willd.) Miers ex Hook. f. & Thoms.

1. Habit. 2. Drupes.

2. Sepals 5–10-ribbed, obtuse at apex ... *N. rubra*
 2. Sepals not ribbed, acute at apex ... *N. pubescens*

Nymphaea nouchali Burmf. Fl. Ind. 120.1768; Subram. Aquat. Ang. 6: 1962; Mitra in Sharma *et al.* Fl. India 1: 430.1993. *N. stellata* Willd. Sp. Pl. 2 : 1153.1799; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 114.1872; Cooke, Fl. Pres. Bombay 1: 27.1958 (Repr. ed.). 'Kamal'

Herbs, aquatic, rootstock submerged, tuberous. Leaves 15–25 cm across, orbicular or reniform, peltate, deeply cordate at base, pubescent beneath; petioles long, depending upon depth of water, submerged. Flower solitary, showy, 8–20 cm across, red or pink, on long peduncle. Fruits ca. 8 cm across, globose, fleshy. Seeds ovoid, arillate.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t.178.1839. (*Nymphaea stellata*); Subram. *op. cit.*, 113. f. 1. & Matthew, *Illus. Fl. Tamilnadu Carnatic* 6: t. 22.1982.

Distrib. : In Park lake and ponds. 168487.

Nymphaea pubescens Willd. Sp. Pl. 2 : 1154.1799; Mitra in Sharma *et al.* Fl. India 1: 431.1993. *N. lotus non* L.1753; Hook. f. & Thoms. Fl. Ind. 241.1885 & in Hook. f. Fl. Brit. India 1: 114: 1822, *p. p.* *N. lotus var. pubescens* (Willd.) Hook. f. & Thoms. *op. cit.* & Hook. f. *op. cit.*; Cooke, Fl. Pres. Bombay 1: 27.1958 (Repr. ed.). 'Kamal'

Aquatic herbs; rootstock erect, tuberous, roundish. Leaves 15–25 cm across, orbicular to reniform-sub-sagittate, deeply cordate, sinuate at base, sinus 5–8 cm deep, margins sharply and irregularly dentate with sharp teeth, glabrous and nigro-punctate above, velvety-pubescent and prominently nerved beneath, petiole very long. Flowers white, pink or red, 7–20 cm across, solitary on long peduncles. Petal ca. 12. Stamens numerous. Nutlet ca. 3 cm across, fleshy, globose. Seeds ovoid, arillate.

Fls. & Frts. : Throughout the year

Illus. : Subram. *op. cit.* 114. f. 2.1962.

Distrib. : Salsette, G. L. Shah, 1962,

Nymphaea rubra Roxb. ex Salisb. Parad. Lond. t. 14.1805; Mitra in Sharma *et al.* Fl. India 1: 432.1993; Almeida, Fl. Maharashtra 1. 28.1996. *N. lotus auct. non* L.1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 114.1872, *p. p.*

Aquatic herbs with tuberous rootstock. Leaves 15–25 cm across, orbicular or reniform, peltate, petioles submerged and long, lamina

glabrous and nigro-punctate above, velvety-pubescent and prominently nerved beneath, margins sinuate-toothed, Flowers 8–20 cm across, solitary, red, white or pale rose. Fruits 3 cm across, globose. Seeds ovoid and arillate.

Fls. & Frts : Mostly throughout the year.

Distrib. Almeida, *op. cit.* Malad.

NELUMBONACEAE

NELUMBO Adans.

Nelumbo nucifera Gaertn. Fruct. 1: 73, t.19. f 2.1788; Subram. Aquat. Ang. 8: 116. 1962; Mitra in Sharma *et al.* Fl. India 1: 441.1993. *Nelumbium speciosum* Willd. Sp. Pl. 2. 1258.1799; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 116.1872; Cooke, Fl. Pres. Bombay 1: 28.1958 (Repr. ed.). 'Kamal'

Rhizomatous, aquatic herbs; rhizomes elongated branched and creeping. Leaves alternate, 0.3–0.9 m across, glossy and glaucous beneath, orbicular, peltate prominently nerved in a radiating manner. Flowers showy, 10–25 cm across, white or rosy, solitary on a long peduncle; petals and stamens numerous; stigmas peltate. Carpels ca. 25 cm long, ovoid, glabrous; smooth.

Fls & Frts : July–October.

Illus. : Subram. *op. cit.*; Matthew, *Illus*, Fl. Tamilnadu. Carnatic 2 : t. 21.1982.

Distrib. : In Park lakes. 168487. G. L. Shah, 1994.

PAPAVERACEAE

ARGEMONE L.

Argemone mexicana L. Sp. Pl. 508.1753; Hook. f & Thoms. in Hook. f. Fl. Brit. India 1: 117.1872; Cooke, Fl. Pres. Bombay 21: 29.1958. (Repr. ed.); Debnath & Nayar in Sharma *et al.* Fl. India 2 : 2, f. 1.1993. 'Pivla dhotra'.

Herbs, prickly, 30–120 cm tall; stems divaricately branched. Leaves 6–15 × 3–8 cm, pinnatifid, amplexicaul, sessile, segments inciso-dentate, spiny on margins, glaucous. Flowers yellow, terminal. Capsules 2–4 × 1 cm, oblong-elliptic, prickly. Seeds reticulate, scrobiculate, blackish brown.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic.* t. 23.1982.

Distrib. : In wastelands and near nallas. 168477.

BRASSICACEAE (CRUCIFERAE)

- | | | |
|-------------------------------------|-----|-----------|
| 1. Calyx saccate | ... | BRASSICA |
| 1. Calyx not saccate : | | |
| 2. Pods turgid; seeds 2-seriate | ... | RORIPPA |
| 2. Pods compressed; seeds 1-seriate | ... | CARDAMINE |

BRASSICA L.

- | | | |
|---|-----|------------------|
| 1. Pods erect, adnate to inflorescence axis with stout beak | ... | <i>B. juncea</i> |
| 1. Pods spreading away from inflorescence axis with thin beak | ... | <i>B. nigra</i> |

Brassica juncea (L.) Czern. & Coss. in *Consp. Fl. Chark.* 8.1859; Hook. f. & T. Anders. in *Hook. f. Brit. India* 1: 157. 1872; Cooke, *Fl. Pres. Bombay* 1: 37.1958 (Repr. ed.); Hajra *et al.* in *Sharma et al. Fl. India* 2 : 134.1993. *Sinapis juncea* L. *Sp. Pl.* 668.1753. '*Mohri*', '*Rai*'.

Herbs, 40–100 cm tall; stems erect, hispid. Leaves radical and cauline; radical leaves 10–22 × 5–8 cm, lyrate to pinnatifid, upper leaves 4–10 × 2–4 cm, oblanceolate to obovate, attenuate to decurrent at base, obtuse or subacute at apex, margins irregularly dentate. Flowers yellow, in terminal, 20 cm long racemes. Fruits (siliquae) 2. 5–5. 5 × 0.25 cm, subterete, torulose, beaked. Seeds ovoid, minutely pitted.

Fls. & Frts. : July–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 25.1982.

Distrib. : Borivli, *P. S. Herbert.* 1429 (as an escape) (*BLAT*)

Brassica nigra (L.) Koch in *Roehl. Deutschl. Fl. ed.* 3, 4: 713.1833; Hook. f. & T. Anders. in *Hook. f. Fl. Brit. India* 1: 156.1872; Hajra *et al.* in *Sharma et al. Fl. India* 2 : 136.1993. *Sinapis nigra* L. *Sp. Pl.* 668.1753. '*Kali-rai*'.

Herbs, 45–60 cm tall. Leaves radical and cauline; radical ones 5–10 cm long, lyrate lobed; cauline ones 2–4 × 0.6–1.2 cm, linear-lanceolate, entire or pinnately lobed. Flowers yellow, in 40–50 cm long, terminal racemes. Pods 2. 5–4.0 cm long, linear. Seeds glabrous, finely punctate.

Fls. & Frts. : Throughout the year.

Distrib. : As an escape. 167843, 168936.

CARDAMINE L.

Cardamine trichocarpa Hochst. ex A. Rich. Tent. Fl. Abyss. 1: 18, 1847; Hajra & Chowdhary in Sharma *et al.* Fl. India 2 : 117: 1993. *C. subumbellata* Hook. ex Hook. f. & T. Anders. in Hook. f. Fl. Brit. India 1: 138.1872; Cooke, Fl. Pres, Bombay 1: 32.1958 (Repr. ed.).

Herbs up to 20 cm long. Stems prostrate or suberect. Leaves imparipinnate, 5-7 lobed; lobes 1.0-1.3 × 1.0-1.5 cm, ovate-elliptic, obtuse at base, subacute at apex, margins sinuate. Flowers yellow, in terminal and leaf-opposed corymbose-racemes. Fruits (siliquae) 1.5-2.0 cm long, linear, compressed, pubescent. Seeds *ca.* 2 × 1 mm, oblong.

Fls. & Frts. : July-December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 26.1982.

Distrib. : Borivli, C. Saldanha, 6598 & P. S. Herbert, 2782 (BLAT).

RORIPPA Scop.

Rorippa indica (L.) Hiren. in Cat. Afr. Pl. Welw. pt. 1: 26. Aditt. & Corr.1896; Hajra & Chowdhary in Sharma *et al.* Fl. India 2 : 129; f. 22.1993. *Sisymbrium indicum* L. Mant. 1: 93.1767. *Nasturtium indicum* (L.) DC. Syst. Nat. 2 : 199.1821; Hook. f. & T. Anders. in Hook. f. Fl. Brit. India : 134.1872; Cooke, Fl. Pres. Bombay 1: 31.1958 (Repr. ed.).

Herbs, 10-30 cm tall. Stems slender, trailing or suberect. Leaves 5-10 cm long, pinnatipartite, ovate-lanceolate, lower leaves petioled; upper ones sessile. Flowers yellow, in 10-25 cm long racemes. Pods 1.0-1.5 cm long, linear. Seeds spherical, glabrous, reddish-brown.

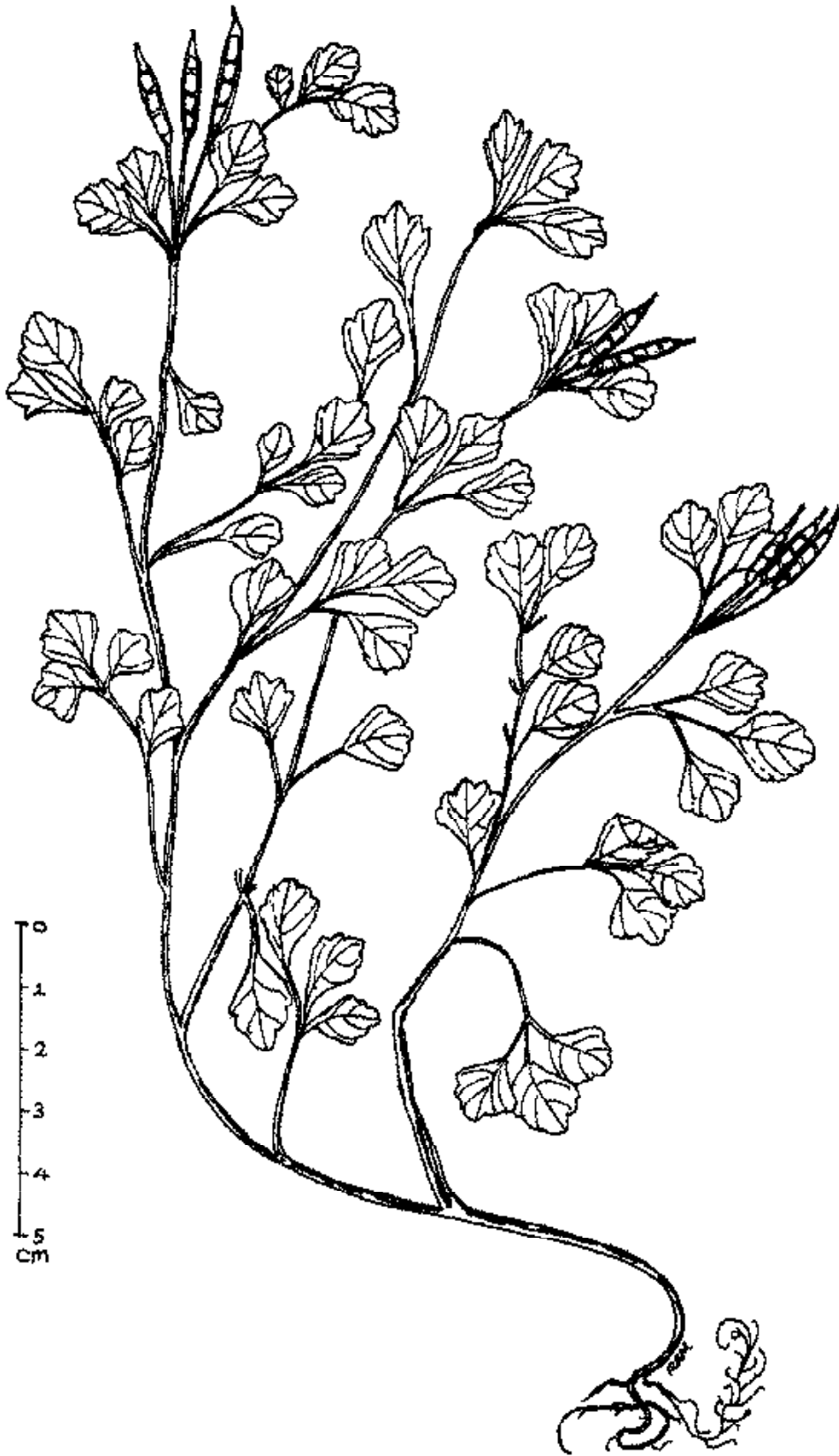
Fls. & Frts. : November-February.

Illus. : Tadulingam & G. V. Naryana, Handb. S. Indian Weeds 72, t. 27.1955. Repr. ed. (*Nasturtium indicum*).

Distrib. : Infrequent. 167452.

CULTIVATED SPECIES :

Brassica rapa L. Sp. Pl. 666.1753. ssp. **campestris** (L.) Clapham in Fl. Brit. Isle ed. 2 : 124.1962; Hajra *et al.* in Sharma *et al.* Fl. India 2



f.3. *Cardamine trichocarpa* Hochst. ex A. Rich.

: 138, f. 23.1993. *B. campestris* L. Sp. Pl. 666.1753; Hook. f. & T. Anders. in Hook. f. Fl. Brit. India 1: 156.1872; Cooke, Fl. Pres. Bombay 1: 36.1958 (Repr. ed.). 'Rai'.

Annual herbs often with auricled, pinnatifid basal leaves. Flowers yellow in corymbose-racemes. Pods linear. Seeds globose, reticulate, purplish-brown.

Fls. & Frts. : October-December.

Illus. : Hajra et al. in Sharma et al., op. cit.

Distrib. : Almeida, Fl. Maharashtra (1996).

Raphanus sativus L. Sp. Pl. 669.1753; Hook. f. & T. Anders in Hook. f. Fl. Brit. India 1: 166.1872; Cooke, Fl. Pres. Bombay 1: 37.1958 (Repr. ed.); Hajra et al. in Sharma et al. Fl. India 2 : 145.1993 var. *sativus* 'Mula'.

Herbs with edible roots Lower leaves lyrate, pinnatifid, Flowers in racemes. Siliqua oblong, ellipsoid.

Fls. & Frts. : November-April.

Distrib. : Cultivated as vegetable, G. L. Shah, 1969.

var. **caudatus** (L.) Hook. f. & T. Anders. in Hook. f. Fl. Brit. India 1: 166.1872; Cooke, Fl. Pres. Bombay 1: 37.1958 (Repr. ed.) Hajra et al. in Sharma et al. Fl. India 2 : 146.1993. 'Gajar'.

Fls. & Frts. : November-April.

Distrib. : Cultivated for its reddish and sweet roots, G. L. Shah, (1984).

CAPPARACEAE

- | | | |
|--|-----|----------|
| 1. Leaves trifoliolate | ... | CRATEVA |
| 1. Leaves simple : | | |
| 2. Plants mostly armed; stamens indefinite | ... | CAPPARIS |
| 2. Plants unarmed; stamens 4 | ... | CADABA |

CADABA Forssk.

Cadaba fruticosa (L.) Druce in Rep. Bot. Exch. C. B. Cl. Soc. Brit. Isles 3 : 415: 1914; Raghavan in Sharma et al. Fl. India 2 : 250.1993. *Cleome fruticosa* L. Sp. Pl. 671.1753. *Cadaba indica* Lam. Encycl. 1: 544.1785; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 172.1872; Cooke, Fl. Pres. Bombay 1: 45.1958 (Repr. ed.).

Straggling shrubs; younger stems pubescent. Leaves 1-4 × 0.5-1.3 cm, elliptic-oblong, rounded at base, obtuse at apex, margins entire. Flowers in few-flowered, secund racemes; sepals pubescent outside; petals dirty white, clawed, spathulate. Stamens much exerted. Gynophore 1-9-2. 2 cm long; ovary without style. Fruits 2. 5-4.0 × 0.3 cm, dehiscent, cylindric and torulose. Seeds many, arillate.

Fls. & Frts. : November-March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 50, f. 31.1909.

CAPPARIS L.

- | | | |
|--|-----|---------------------|
| 1. Flowers in dense umbels | ... | <i>C. sepiaria</i> |
| 1. Flowers solitary or 2-3-fascicled : | | |
| 2. Leaves with a stout mucro | ... | <i>C. zeylanica</i> |
| 2. Leaves without a mucro | ... | <i>C. spinosa</i> |

Capparis sepiaria L. Syst. (ed. 10) 72 : 1071.1759; Hook. f. Fl. Brit. India 1: 177.1872; Cooke, Fl. Pres. Bombay 1: 51.1958 (Repr. ed.); Jacobs in Blumea 12 : 489.1965; Raghavan in Sharma *et al.* Fl. India 2 : 289. 1993. '*Kanthar*'.

Shrubs. Stems straggling, stout, armed. Leaves 1. 2-4.0 × 1. 5-2. 5 cm, ovate-oblong or elliptic-oblong or obovate, obtuse, emarginate, acute, stipular spines hooked. Flowers white, 10-20, pedicellate. Fruits 0.7-1.0 cm across, globose, smooth, black when ripe.

Fls. & Frts. : February-May.

Illus. : Mahesh. Illus. Fl. Delhi f. 13.1966.

Distrib. : Frequent on hedges and other shrubs in forests. 167462.

Capparis spinosa (L.) Sp. Pl. 503.1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 178.1872; Cooke, Fl. Pres. Bombay 1: 47.1958 (Repr. ed.); Jacobs in Blumea 12 : 418.1965; Raghavan in Sharma *et al.* Fl. India 2 : 294.1993. '*Kalavri*'.

Shrubs; branches diffuse or prostrate, terete. Leaves 0.3-3.0 cm across, orbicular to ovate to obovate, rounded or cuneate at base, retuse, acute or mucronate at apex, stipular spines 2, hooked, orange-coloured. Flowers white, axillary, solitary; pedicels 2.5-5.0 cm long. Anther-filaments purple, Gynophore 5-7 cm long. Berries 2.5-5.0 cm long, ovoid, ribbed, red when ripe. Seeds globose, smooth.

Fls. & Frts. : January–April.

Illus. : Talbot, For. Fl. Bombay Pres. Sind 1: 53, t. 32.1909.

Distrib. : Koppikar (1974).

Capparis zeylanica L. Sp. Pl. (ed. 2) 720.1762; Jacobs in Blumea 12: 508.1965; Raghavan in Sharma *et al.* Fl. India 2:98.1993. *C. horrida* L.f. Supl. Pl. 264.1781; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 178.1872; Cooke, Fl. Pres. Bombay 1: 47. 1958 (Repr. ed.). 'Wagati'.

Shrubs, straggling or climbing, 4–8 m tall, spiny, young parts tomentose. Leaves 2.6 × 1.5–4.5 cm, ovate or elliptic–lanceolate to elliptic–oblong, obtuse, acute or retuse, mucro 0.4 cm long, narrowed at base; stipular spines hooked. Flowers extra-axillary, solitary or 2–3 together. Fruits 3–5 × 2–5 cm, ovoid or subglobose. Seeds many.

Fls. & Frts. : November–April.

Illus. : Wight, Ic. t.173.1839 (*Capparis horrida*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 32.1982.

Distrib. : Frequent. 167710, 167732, 167781, 168422.

CRATEVA L. (CRATAEVA)

Crateva adansonii ssp. *odora* (Buch.–Ham.) Jacobs in Blumea 12 : 198.1964; Raghavan in Sharma *et al.* Fl. India 2 : 322.1993. *C. odora* Buch.–Ham. Trans. Linn. Soc. London. 15: 118.1827. *C. religiosa* Forst. f. var. *roxburghii* (R. Br.) Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 172.1872; Cooke, Fl. Pres. Bombay 1: 45.1958 (Repr. ed.).

Trees up to 6 m tall, deciduous. Leaves 3–foliolate; leaflets 5–12 × 1–4 cm, ovate, lanceolate or elliptic, oblique, subacute or obtuse at base, acuminate at apex. Flowers yellowish, in corymb. Berries 2.0–2.5 × 2 cm, globose. Seeds reniform.

Fls. & Frts. : March–May.

Illus. : Mahesh. Illus. Fl. Delhi f. 14.1966.

Distrib. : Borivli, P. S. Herbert, 558; H. Santapau, 41, 26. (BLAT).

CULTIVATED SPECIES :

Crateva magna (Lour.) DC. Prodr. 1: 243.1824; Raghavan in Sharma *et al.* Fl. India 2 : 324.1993. *Capparis magna* Lour. Fl. Cochinch. 1: 331.1790. *Crateva religiosa* Forst. f. var. *nurvla* (Buch.–Ham.) Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 172.1872; Cooke, Fl. Pres. Bombay 1: 44.1958 (Repr. ed.); Jacobs in Blumea 12 : 194.1964. 'Vayavarna'.

Trees up to 10 m tall, deciduous; branches greyish-brown. Leaves 3-foliolate; petioles 3-7 cm long; leaflets 10-20 × 5-7 cm, ovate to ovate-lanceolate, margins entire or slightly undulate, cuneate or acute at base, caudate at apex. Flowers greenish-white, dense, in terminal corymbs. Berries 4.5-4.0 cm, ovoid. Seeds smooth.

Fls. & Frts. : November-March.

Illus : Bedd. Fl. Sylv. S. India t. 116.1821(*C. religiosa*) auct. non Forst. f.

Distrib. : Rare, cultivated, on way to Shilottar on Bombay-Ahmedabad Road, 168493.

CLEOMACEAE

CLEOME L.

1. Androgynophores 5-16 mm long :
 2. Plants glabrous or if hairy then hairs not glandular; androgynophore 5-6 mm long ... *C. speciosa*
 2. Plants glandular hairy; androgynophore 9-16 mm long ... *C. gynandra*
1. Androgynophores up to 3 mm long :
 3. Plants viscid-hairy with stalked glandular hairs; ovary hairy ... *C. viscosa*
 3. Plants not as above; ovary glabrous :
 4. Stamens 35-60 ... *C. cheldonii*
 4. Stamens 6 :
 5. Petals 2-4 mm long ... *C. burmanni*
 5. Petals 8-12 mm long ... *C. rutidosperma*

Cleome burmanni Wight & Arn. Prodr. 22.1834; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 170.1872; Cooke, Fl. Pres. Bombay 1: 41.1958. (Repr. ed.); Raghavan in Sharma *et al.* Fl. India 2 : 304, f. 57.1993.

Annual herbs 15-40 cm tall; stems with minute scattered prickles, glabrous. Leaves 3-foliolate; leaflets ovate-oblong or obovate. Flowers white or purplish, axillary, solitary; gynophore 0.6-0.7 cm long. Capsules 3-5 × 0.6 cm, subterete, striate, glabrous, tapering at both ends, stalked. Seeds 10-15, subglobose, transversely ridged, reddish-brown.

Fls. & Frts. : July–October.

Illus. : Raghavan in Sharma *et al. op. cit.*

Distrib. : G. L. Shah. (1969).

Cleome chelidonii L. f. Suppl. Pl. 300.1781; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 170.1872; Cooke, Fl. Pres. Bombay 1: 42.1958 (Repr. ed.); Jacobs in Steenis, Fl. Males. 1, 6: 102.1960; Raghavan in Sharma *et al.* Fl. India 2 : 306, f.58 : 1993.

Herbs, 30–90 cm tall. Stems and branches sparsely glandular pubescent. Leaves 1–3-foliolate upwards and 5–7 foliolate basally; middle leaflets 1.5–3.0 × 0.5–1.5 cm; lateral ones 0.6–1.0 × 0.3–0.5 cm, obovate, cuneate at base, obtuse at apex. Flowers rosy, in 8–10 cm long racemes. Capsules 5–8 cm long, terete, beaked. Seeds yellowish–brown, warty.

Fls. & Frts. : July–February.

Illus. : Raghavan in Sharma *et al. op. cit.*

Distrib. : Vihar lake, H. Santapau, 18826–B. (BLAT)

Cleome gynandra (L.) Sp. Pl. 671.1753; Jacobs in Steenis, Fl. Males. 1: 6. 101.1960; Londhe in Singh & Karthik. Fl. Maharashtra 1: 221. 2000. *Gynandropsis pentaphylla* (L.) DC. Prodr. 1: 238.1824; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 171.1872; Cooke, Fl. Pres. Bombay 1: 42.1958 (Repr. ed.); Raghavan in Sharma *et al.* Fl. India 2 : 309. f. 59.1993. 'Pandhari–tilwan'.

Annual erect herbs 20–80 cm tall; stems and branches with white hairs. Leaves 3–5-foliolate, petiolate; leaflets 2–3. 5.0 × 1. 2.0–2.5 cm, elliptic, obovate, cuneate at base, obtuse to acuminate at apex, pubescent, margins crenate–dentate or subentire. Flowers first in corymbs, elongating into bracteate racemes; sepals glandular hairy, petals white, clawed, ovary glandular; styles 0, gynophore 1–2 cm long, Stamens purple. Capsules 5–8 × 0.4–0.5 cm. Seeds muricate, globose, brown.

Fls. & Frts. : June–October.

Illus. : Mahesh. Illus. Fl. Delhi f. 110.1966; Methew, Illus. Fl. Tamilnadu Carnatic 2 : t. 34.1982; Raghavan in Sharma *et al.* Fl. India *op. cit.*

Distrib. : G. L. Shah (1969).

Cleome rutidosperma (DC.) Prodr. 1: 241.1824; Jacobs in Steenis, Fl. Males. 1, 6: 104.1960; Raghavan in J. Econ. Tax. Bot. 5(2) : 463-466.1984 & in Sharma *et al.* Fl. India 2 : 313.1993.

Herbs 15-20 cm tall. Stems decumbent, ascending, not erect, branched. Leaves 3-foliolate; lower ones long-petioled; upper ones short-petioled or sessile; leaflets elliptic, rhomboid to elliptic-oblong, cuneate at base, acute at apex. Flower solitary, in upper axils, pedicellate. Fruits 0.5-1.0 cm long, compressed, beaked. Seeds suborbicular, reniform, arillate.

Fls. & Frts. : September-November.

Distrib. : Rare. 167927.

Cleome speciosa (Raf.) Fl. Ludovic 86.1817; Jacobs in Steenis, Fl. Males. 6: 101.1960; Raghavan in Sharma *et al.* Fl. India 2 : 316.1993. *Gynandropsis speciosa* (Raf.) DC. Prodr 1: 238.1824; Cooke, Fl. Pres. Bombay 1: 43.1958 (Repr. ed.).

Herbs, 0.6-1.2 m tall. Stems erect, branched, sparsely hairy. Leaves 3-5 foliolate; leaflets 2.0-3.5 × 1.0-2.5 cm, elliptic-obovate, cuneate at base, obtuse, acute at apex. Flowers rose-coloured, showy, in dense bracteate racemes. Capsules 5-8 × 0.5 cm with tapering ends, pubescent. Seeds muricate.

Fls. & Frts. : August-September.

Illus. : H. B. & K. Nov. Gen. Sp. Pl. 5: 84, t. 436 .1821.

Distrib. : Rare, growing in abundance near a village as an escape. 167851.

Cleome viscosa L. Sp. Pl. 672.1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 170.1872; Cooke, Fl. Pres. Bombay 1: 41.1958 (Repr. ed.); Jacobs in Steenis, Fl. Males. 1, 6: 103.1960. '*Pivli-tilwan*'.

Herbs, 30-80 cm tall. viscous-glandular. Leaves 3-5-foliolate, petiolate, 1.5-4.0 × 0.5-2.0 cm, elliptic-oblong, glabrous above pubescent beneath, sessile or subsessile. Flowers yellow, solitary, axillary, in terminal, lax racemes. Capsules 4-9 × 0.4-0.5 cm, linear-cylindric, glandular-hairy, shortly beaked, striate. Seeds subglobose, transversely striate.

Fls. & Frts. : June-December.

Illus. : Wight, t. 2.1838; [*Polanisia isocandra* (L.) Wight & Arn. Prodr. 22.1834.]; Mahesh. *Illus. Fl. Delhi* t. 9.1966.

Distrib. : Common along nallas, roadsides and villages.

VIOLACEAE

HYBANTHUS Jacq.

Hybanthus enneaspermus (L.) F. V. Muell. *Fragm. Phyt. Austr.* 10 : 81.1876; S. P. Banerjee & B. B. Pramanik in *Fasc. Fl. India* 12 : 2, f. 1-b.1983 & in Sharma *et al.* *Fl. India* 2 : 343, f. 64.1993. *Viola enneasperma* L. Sp. Pl. 937.1753. *Ionidium heterophyllum* Vent. *Jard. Malm.* t. 27.1803; Cooke, *Fl. Pres. Bombay* 1: 55.1958 (Repr. ed.). *I. suffruticosum* (L.) Roem. & Schult. *Syst. Veg.* 5: 394.1819; Hook. f. & Thoms. in Hook. f. *Fl. Brit. India* 1: 185. 1872.

Herbs, suffruticose, perennial, 15–30 cm tall; stems diffuse with ascending branches. Leaves 0.5–0.3 × 0.2–0.6 cm, elliptic to linear-lanceolate, attenuate at base, acute at apex, margins serrate. Flowers bright purple, solitary, axillary, 0.8 cm across. Capsules 0.4–0.6 cm across, subglobose. Seeds pale yellow, ovoid, longitudinally striate.

Fls. & Frts. : October–December.

Illus. : Wight, Ic. t. 308.1840 (*I. suffruticosum*); Matthew, *Illus. Fl. Tamilnadu Carnatic*, t. 37.1982.

Distrib. : Salsette, G. L. Shah, s. n. (1962).

FLACOURTIACEAE

- | | | |
|--|-----|------------|
| 1. Flowers unisexual; seeds exarillate | ... | FLACOURTIA |
| 1. Flowers bisexual; seeds arillate | ... | CASEARIA |

CASEARIA Jacq.

- | | | |
|--|-----|----------------------|
| 1. Leaves glabrous beneath; stipules long, lanceolate-subulate | ... | <i>C. graveolens</i> |
| 1. Leaves pubescent beneath; stipules minute, scaly | ... | <i>C. tomentosa</i> |

Casearia graveolens Dalz. in Hook. *J. Bot. & Kew Gard. Misc.* 4: 107.1852; C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 592.1879; Cooke, *Fl. Pres. Bombay* 1: 553.1958 (Repr. ed.); Mitra in Sharma *et al.* *Fl. India* 2 : 394.1993. '*Bokhada*'.

Shrubs or trees, 5–8 tall. Leaves 6–20 × 3.5–12.5 cm, broadly elliptic-oblong, obtuse or shortly acuminate at apex, margins crenate-serrate, coriaceous. Flowers greenish-yellow, in axillary clusters or on leafless branches. Fruits deep yellow when ripe, 1.5–2.5 cm long, ellipsoid to subglobose, 3-valved. Seeds ovoid, compressed.

Fls. & Frts. : January–April.

Illus. : Lakshminaras. & Sharma, Fl. Nasik. Dt. 75. f. 2.1991.

Distrib. : Borivli, P. S. Herbert, 1481; Vihar lake, H. Santapau, 15639. (BLAT)

Casearia tomentosa Roxb. Fl. India 2 : 421.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 593.1879; Cooke, Fl. Pres. Bombay 1: 554.1958 (Repr. ed.); Mitra in Sharma *et al.* Fl. India 2 : 397.1993. *C. elliptica* Willd. Sp. Pl. 2 : 628.1800; Ramam. in Sald. & Nicol. Fl. Hassan Dist. 162.1976, *nom. superf.* 'Chilla'.

Shrubs or trees 4–10 m tall, branches warty, pubescent. Leaves 6–16 × 2–5 cm, oblong-lanceolate, or elliptic, cuneate or oblique at base, obtuse, acute or acuminate at apex, margins serrulate or entire. Flowers greenish in dense, axillary capitate clusters. Capsules 1.5–2.0 cm long, 3–4-valved, ellipsoid, glabrous, many seeded.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t.1849. (1852); (*Casearia elliptica*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 40.1982.

Distrib. : Frequent. 167454, 1674481, 168992.

FLACOURTIA Commers. ex L.' Herit.

Flacourtia indica (Burm. f.) Merr. Interpr. Rumph. Herb. Amb. 377.1917; Sleumer in Steenis, Fl. Males. 1, 5: 76.1954 & Blumea 30 : 241.1985; Mitra in Sharma *et al.* Fl. India 2 : 402.1993. *Gmelina indica* Burm. f. Fl. Ind. 132, t. 39, f. 5.1768. *Flacourtia sepiaria* Roxb. Pl. Cor. 1: 48, t. 68.1796 & Fl. Ind. 3 : 835.1832; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 194.1872; Cooke, Fl. Pres. Bombay 1: 60.1958 (Repr. ed.). 'Tambat'.

Shrubs, thorny, 3–4 m tall, much branched. Leaves 1.5–3.5 × 1.0–1.3 cm, usually clustered at apex, subopposite or alternate near the base, ovate or obovate, attenuate at base, acute to obtuse at apex. Flowers greenish-yellow, in axillary fascicles or on leafless shoots. Drupes ca.0.4 cm across, globose, 3–5-seeded; seeds obovoid.

Fls. & Frts. : January–April.

Illus. : Wight, Ic. t. 85.1839; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 41.1982 (*Flacourtia ramontchi* L. Herit. Strip. Nov. 3 : 59, t. 30 & 30b.1785).

Distrib. : Kanheri Caves, H. Santapau, 10705 Borivli, P. S. Herbert, 523. (BLAT)

POLYGALACEAE

POLYGALA L.

Polygala arvensis Willd. Sp. Pl. 3(2) : 876.1802; Burt in Notes Roy. Bot. Gard. Edinb. 32 : 404.1973; Banerjee in Sharma *et al.* Fl. India 2 : 460, f. 87.1993. *P. chinensis auct. non* L.1753; Bennett in Hook. f. Fl. Brit. India 1: 204.1972 *p. p.*; Cooke, Fl. Pres. Bombay 1: 64.1958 (Repr. ed.). 'Phutani'

Herbs, stems 15–20 cm high, erect or ascending, slender. Leaves 1.5–3.0 × 0.3–0.4 cm, linear or oblong, subsessile, obtuse, mucronate at apex. Flowers yellow, in extra-axillary racemes 6–15 cm long. Capsules unequal sided, emarginate at apex, oblong, glabrescent. Seeds pyriform with appressed, silky hairs, strophiolate.

Fls. & Frts. : August–November.

Illus. : Mahesh. *Illust. Fl. Delhi*. f. 16.1966 (*P. chinensis*).

Distrib. : Common in open areas. 169101

CARYOPHYLLACEAE

POLYCARPON L.

Polycarpon prostratum (Forssk.) Aschers. & Schweinf. Ost. Bot. Zeitschr. 39: 128.1889 in *Obs.*; Majumdar in Sharma *et al.* Fl. India 2 : 553, f. 114.1993. *Alsine prostrata* Forssk. Fl. Aeg.–Arab. 207.1775. *Polycarpon loeflingiae* (Wight & Arn.) Bth. & Hook. f. ex Edgew. & Hook. f. in Hook. f. Fl. Brit. India 1: 245.1874; Cooke, Fl. Pres. Bombay 1: 69.1958 (Repr. ed.).

Herbs, branches pubescent, 10–20 cm long, prostrate or ascending. Leaves 0.6–2.0 × 0.5 cm, linear-oblong, spathulate, attenuate at base, subacute to obtuse at apex, decussate or whorled. Flowers small, in dense, terminal or axillary, dichotomous cymes. Capsules ca.0.2 cm long, ovoid or globose. Seeds many, subcylindric.

Fls. & Frts. : July–January.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 20.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 47.1982.

Distrib. : Aarey–Kanheri, *Y. A. Merchant*, 1171; Vihar lake, *H. Santapau*, 23486. (*BLAT*).

PORTULACACEAE

PORTULACA L.

- | | | |
|---|-----|----------------------|
| 1. Nodes with a ring of hairs | ... | <i>P. quadrifida</i> |
| 2. Nodes without any such ring of hairs | ... | <i>P. oleracea</i> |

Portulaca oleracea L. *Sp. Pl.* 445.1753; T. Dyer in *Hook. f. Fl. Brit. India* 1: 246.1874; Cooke, *Fl. Pres. Bombay* 1: 72.1958 (Repr. ed.); Geesink in *Blumea* 17: 292.1969; M. K. V. Rao in *Sharma et al. Fl. India* 3 : 4, f. 1. 1993. '*Ghol*'.

Herbs; annual; stems prostrate, reddish, swollen at nodes. Leaves fleshy, alternate or subopposite, 0.8–2.0 × 0.5–1.7 cm, obovate to spatulate, attenuate at base, obtuse at apex. Flowers yellow, rarely solitary, or 3–6 in terminal clusters. Capsules 0.6–0.8 cm long, ovoid. Seeds many, black, tubercled.

Fls. & Frts. : Throught the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic*, t. 49.1982.

Distrib. : *Koppikar* (1974).

Portulaca quadrifida L. *Mant. Pl.* 1: 73.1767; T. Dyer in *Hook. f. Fl. Brit. India* 1: 247.1874; Cooke, *Fl. Pres. Bombay* 1: 72.1958 (Repr. ed.); Geesink in *Blumea* 17: 290.1969; M. K. V. Rao in *Sharma et al. Fl. India* 3 : 6.1993.

Herbs; stems 7–20 cm long, filiform, diffuse, rooting at nodes, ascending. Leaves opposite, succulent, 0.3–0.6 cm long, ovate, acute stipules hairy. Flowers yellow, solitary. Capsules conical. Seeds finely tubercled.

Fls. & Frts. : November–December.

Illus. : Wight, *Illus. India Bot.* t. 109.1850; Tadulingam & G. V. Narayana *Handb. S. Indian Weeds* 92.1955 (Rev. ed.).

Distrib. : Not common. 168248.

TAMARICACEAE

TAMARIX L.

- | | | |
|---------------|-----|---------------------|
| 1. Stamens 5 | ... | <i>T. indica</i> |
| 1. Stamens 10 | ... | <i>T. ericoides</i> |

Tamarix ericoides Rottl. in Ges. Naturf. Fr. Berlin Neue Schr. 4: 214.1803; T. Dyer in Hook. f. Fl. Brit. India 1: 249.1874; Cooke, Fl. Pres. Bombay 1: 76.1958 (Repr. ed.); Shetty & Pande in Sharma *et al.* Fl. India 3 : 25.1993. '*Jahu*'.

Shrubs 1.0–2.5 m tall; stems branched, with dark fissured bark. Leaves minute, scale-like, ovate-lanceolate, sheathing at base. Flowers pale to bright rosy, in terminal, branched spikes. Capsules 0.8–1.1 cm long, conical. Seeds oblong, pilose.

Fls. & Frts. : November–January.

Illus. : Wight, Ic. t. 22.1838 (*Trichaurus ericoides* (Rottl.) Wight & Arn. Prodr. 40.1834); Talbot, For. Fl. Bombay Pres. & Sind 1: 87, f. 56.1909.

Distrib. : Occasional bushes, locally abundant on way to Karnala forest near a stream and at Ghodbundar, 167783.

Tamarix indica Willd. in Ges. Naturf. Freunde Berlin Neue Schr. 4. 214.1803; Shetty & Pandey in Sharma *et al.* Fl. India 3 : 25, f. 8.1993; K. M. Rao in Singh & Karthikeyan, Fl. Maharashtra 1: 267. 2000. *T. gallica* var. *indica* (Willd.) Ehrenb. in Linnaea 2 : 276: 1827; T. Dyer in Hook. f. Fl. Brit. India 1 : 248.1874; Cooke, Fl. Pres. Bombay 1: 75.1958 (Repr. ed.). *T. gallica auct. non L.* 1753; T. Dyer in Hook. f. *op. cit.* '*Jahu*'.

Shrubs or trees 3–4 m tall. Leaves 0.25–0.4 cm long, triangular semiamplexicaule at base, subulate, acuminate at apex. Flowers in lateral and terminal racemes, many, bracteate, sepals triangular-ovate; petals oblong with notched tips, rose-coloured. Ovary bottle-shaped, trigonous. Capsules 0.3–0.4 cm long, tapering, glabrous. Seeds densely white-hairy at apex.

Fls. & Frts. : November–March.

Distrib. : Navalkar (1956) (*T. gallica* L.).

ELATINACEAE

BERGIA L.

1. Plants glandular pubescent; stamens 5 ... *B. ammannioides*
 1. Plants glabrous; stamens 10 ... *B. capensis*

Bergia ammannioides Roxb. ex Roth, Nov. Pl. Sp. 219.1821; T. Dyer in Hook. f. Fl. Brit. India 1: 251.1874; Cooke, Fl. Pres. Bombay 1: 77.1958 (Repr. ed.); Bhattacharya in Sharma *et al.* Fl. India 3 : 33.1993.

Herbs, 15–45 cm tall; stems erect or decumbent, glandular-pubescent. Leaves 0.6–1.8 × 0.4–0.8 cm, oblanceolate to elliptic, attenuate at base, acute at apex, margins serrulate. Flowers minute in dense, axillary, subsessile or pedicelled fascicles. Capsules ca.0.2 cm across, subglobose or globose. Seeds numerous, ovoid, polished.

Fls. & Frts. : November–December.

Illus. : Ic. Roxb. Fasc. 1, t. 11.1964 (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 52.1982.

Distrib. : Borivli, *P. S. Herbert*, 1819 (*BLAT*)

Bergia capensis L. Mant. 2 : 241.1771; Cooke, Fl. Pres. Bombay 1: 78.1958 (Repr. ed.); Bhattacharya in Sharma *et al.* Fl. India 3 : 34, f. 11.1993. *B. verticillata* Willd. Sp. Pl. 2 : 770.1779; T. Dyer in Hook. f. Fl. Brit. India 1: 252.1874.

Herbs 15–30 cm tall; stems succulent, rooting at lower nodes. Leaves 2.5–3.5 × 0.6–0.9 cm, elliptic, lanceolate, acute at base and apex, margins serrate, stipules triangular, acute, caducous. Flowers in sessile or subsessile, axillary fascicles; sepals 5, lanceolate, petals 5, ovate oblong. Capsules 5-valved, globose, apiculate; seeds cylindrical; transversely rugose and dark brown.

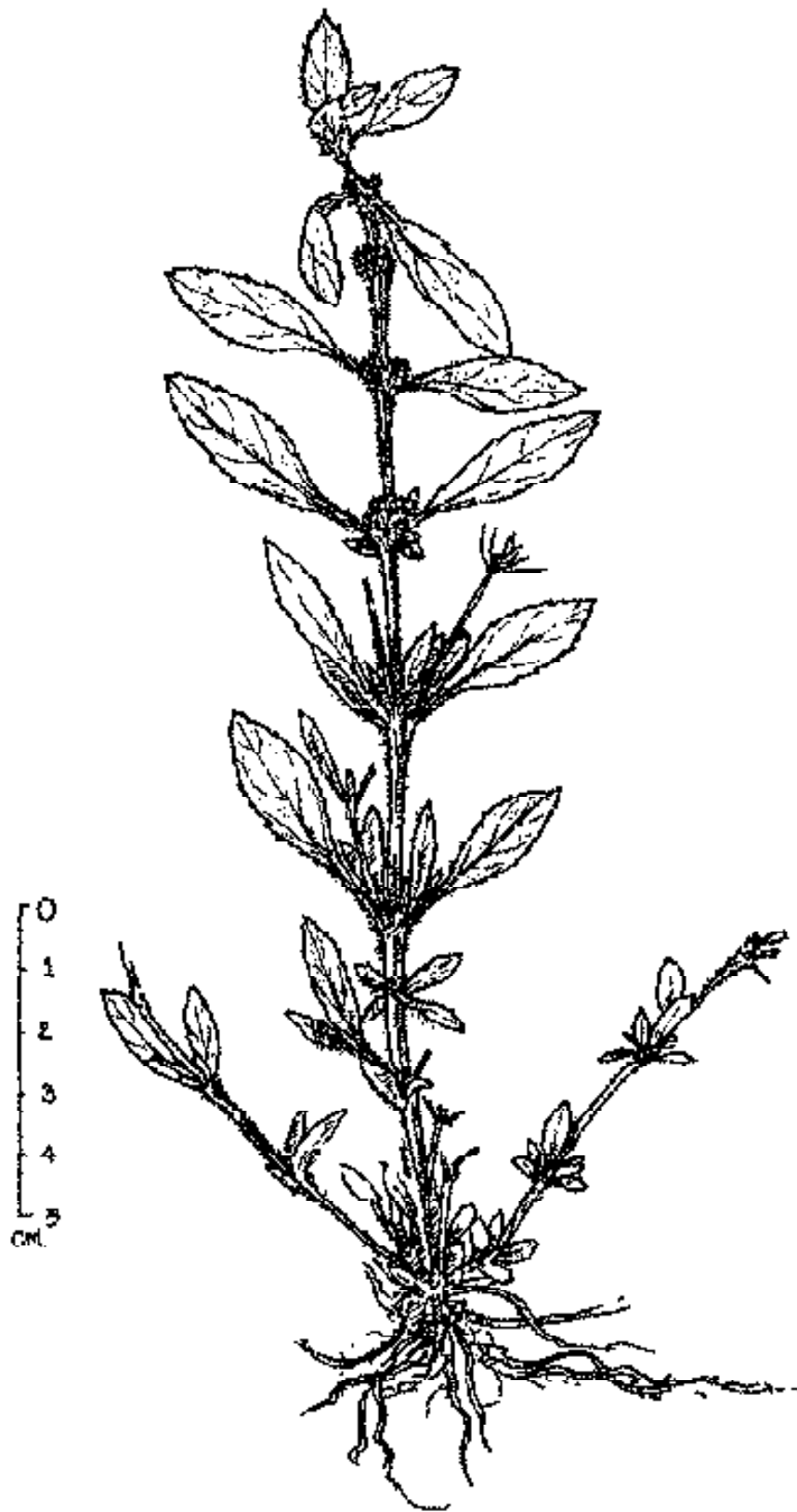
Fls. & Frts. : October–November.

Illus. : Subram. Aquat. Ang. 10.118, f. 6.1962.

Distrib. : *G. L. Shah* (1969).

CLUSIACEAE

1. Calyx opening into 2 sepals ... MAMMEA
 1. Calyx with 4 or more sepals :
 2. Stigma with a long slender style :



f.4. *Bergia ammannioides* Roxb. ex Roth

3.	Flower solitary, axillary	...	MESUA
3.	Flowers many in panicles	...	CALOPHYLLUM
2.	Stigma sessile or subsessile	...	GARCINIA

CALOPHYLLUM L.

Calophyllum inophyllum L. Sp. Pl. 513.1753; T. Anders. in Hook. f. Fl. Brit. India 1: 273.1874; Cooke, Fl. Pres. Bombay 1: 84.1958 (Repr. ed.); Kosterm. in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 90.1980; N. P. Singh in Sharma *et al.* Fl. India 3 : 92.1993. '*Undi*'.

Trees 10–12 m tall; branches with persistent leaf-scars. Leaves 10–15 × 4.8–5 cm, oblong-ovate, decussate, acute at base, rounded at apex. Flowers white, in axillary, subcorymbose, 6–7 cm long, 10–20-flowered racemes. Drupes 3.5 × 3.0 cm, globose, yellowish 1-seeded.

Fls. & Frts. : December–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 55.1982.

Distrib. : Salsette, *Graham* (1839).

GARCINIA L.

Garcinia indica (Du Petit-Thou.) Choisy in DC. Prodr. 1: 561.1824; T. Anders. in Hook. f. Fl. Brit. India 1: 261.1874; Cooke, Fl. Pres. Bombay 1: 80.1958 (Repr. ed.); N. P. Singh in Sharma *et al.* Fl. India 3 : 113 .1993. *Brindonia indica* Du Petit.-Thou. in Dict. Sci. Nat. 5: 339.1804. '*Amsul*', '*Kokam*'.

Trees 3–5 m tall. Leaves 8–12 × 2.5–3.5 cm, oblong-lanceolate, margins entire, obtuse at apex. Flowers unisexual; male flowers in axillary and terminal fascicles; female flowers sessile or shortly pedicellate, solitary or 2–3 together. Fruits 2.5–3.0 cm across, globose, dark purple. Seeds 5–8, compressed, embedded in pulp.

Fls. & Frts. : November–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 91, f. 57. 1909.

Distrib. : Locally frequent on Kanheri hill top. 167447.

MAMMEA L. *emend.* De Wilde

Mammea suiriga (Buch.-Ham. ex Roxb.) Kosterm. in Comm. For. Res. Inst. Indonesia Bogor 72 : 73, f.19.1961; N. P. Singh in Sharma *et*

al. Fl. India 3 : 132.1993. *Calophyllum suriga* Buch.-Ham. ex Roxb. Fl. Ind. 2 : 608.1832; T. Anders. in Hook. f. Fl. Brit. India 1: 276.1874. *Ochrocarpus longifolius* Bth. & Hook. f. ex T. Anders. in Hook. f. *op. cit.* 220; Cooke, Fl. Pres. Bombay 1 : 84.1958 (Repr. ed.). 'Nag-kesar', 'Surangi'.

Trees 10–20 m tall. Leaves 12–20 × 5–6 cm, oblong, rounded at base, obtuse or shortly pointed at apex, coriaceous. Flowers white, streaked with red, polygamous, numerous, in short fascicles on leafless lateral shoots. Fruits 2.5 cm long, obliquely ovoid with persistent, hard style, 1-seeded.

Fls. & Frts. : February–March.

Illus. : Wight, Ic. 1999.1853; Kosterm. *op. cit.*

Distrib. : Borivli, *P. S. Herbert*, 642, 1506. (BLAT)

MESUA L. *emend.* Kosterm.

Mesua ferrea L. Sp. Pl. 515.1753; T. Anders. in Hook. f. Fl. Brit. India 1: 277.1874; Cooke, Fl. Pres. Bombay 1:86.1958 (Repr. ed.); Stevens in *Taxon* 35: 353.1986; N. P. Singh in *Sharma et al.* Fl. India 3 :136.1993. *M. speciosa* Choisy in DC. Prodr. 1: 562.1824. 'Nag-chapha'.

Trees 5–15 m tall with straight trunk, up to 3 m in girth. Leaves 5–15 × 1.5–4 cm, oblong-lanceolate, rounded or acute at base, acute to acuminate at apex, glaucous beneath. Flowers fragrant, ca. 8 cm across, solitary or in pairs, ebracteate; sepals 4, orbicular pilose; petals 4, white with wavy margins. Stamens numerous, yellow, ovary with peltate stigma. Drupes 2.5–3.0 cm across, ovoid, woody with enlarged, persistent sepals; 1–4 seeded.

Fls. & Frts. : March–May.

Illus. : Wight, Ic. t. 961.1845 (*M. speciosa*).

Distrib. : Almeida (1996). Ghodbundar, Malad.

MALVACEAE

1. Fruits schizocarpic :

2. Epicalyx present; staminal tube truncate
or 5-toothed at apex :

- | | | |
|----------------------------|-----|-----------|
| 3. Epicalyx foliaceous | ... | MALACITRA |
| 3. Epicalyx not foliaceous | ... | URENA |

2. Epicalyx absent; staminal tube divided at apex into a number of antheriferous filaments :
4. Fruits 0.5–0.6 cm across ... SIDA
4. Fruits 1.0–2.5 cm across ... ABUTILON
1. Fruits capsular :
5. Epicalyx foliaceous, laciniate ... GOSSYPIUM
5. Epicalyx neither foliaceous nor laciniate :
6. Style 1, unbranched ... THESPEIA
6. Styles more than 1, branched :
7. Staminal tube divided at apex into 5 spreading branches; styles 3-branched ... KYDIA
7. Staminal tube truncate or 5-toothed at apex; styles 5-branched :
8. Calyx spathaceous, deciduous ... ABELMOSCHUS
8. Calyx equally 5-lobed, not spathaceous; persistent :
9. Capsules winged ... FIORIA
9. Capsules not winged :
10. Epicalyx segments filiform ... BOMBYX
10. Epicalyx segments not filiform ... HIBISCUS

ABELMOSCHUS Medik.

Abelmoschus manihot (L.) Medik. ssp. **tetraphyllus** (Roxb. ex Horn.) Borss. in *Blumea* 14: 97.1966; Paul & Nayar in Nayar *et al.* *Fasc. Fl. India* 19: 75.1958; Paul in Sharma *et al.* *Fl. India* 3 : 306.1993. *Hibiscus tetraphyllus* Roxb. ex Horn. *Hort. Hafn.* 661.1815; Mast. in Hook. *Fl. Brit. India* 1: 341.1874; Cooke, *Fl. Pres. Bombay* 1:118.1958 (Repr. ed.), var. **tetraphyllus** '*Ran-bhendi*'.

Undershrubs, 1–2 m tall; branchlets glabrous or hispid, stellate-pubescent. Leaves 5–13 × 6–18 cm, broadly ovate, shallowly or deeply 3–7-lobed; lobes ovate-lanceolate to linear-spathulate, margins serrate to dentate. Flowers yellow, purplish within, 4–6 cm across, in terminal racemes. Capsules 3–6 cm long, ovoid-oblong, stipitate, 4–5 valved, strigose. Seeds reniform, globose, horizontally striate, hairy.

Fls. & Frts. : September–January.

Illus. : Ic. Roxb. *Fasc.* 3 t. 5.1968 (Repr. ed.) (*Hibiscus tetraphyllus*). Talbot, *For. Fl. Bombay Pres. & Sind* 1: 123, t. 74.1909;

Distrib. : Frequent along forest paths and road-sides. 167275, 1674266.

ABUTILON P. Mill.

1. Schizocarps ca. 1 cm across; mature carpels shaggy ... *A. bidentatum*
 1. Schizocarps 1.5–2.5 cm across; mature carpels glabrate ... *A. indicum*

Abutilon bidentatum Hochst. ex A. Rich. Tent. Fl. Abyss. 1: 68.1847; Mast.in Hook. f. Fl. Brit. India 1: 326.1874; Cooke, Fl. Pres. Bombay 1:102.1958 (Repr. ed.); Paul & Nayar *et al.* in Fasc. Fl. India 19:81, f.17.1988; Paul in Sharma *et al.* Fl. India 3 : 261, f.70.1993. *A. cornutum* Dalz. ex T. Cooke, Fl. Pres. Bombay 1: 98.1901 & [1. 104 1958 (Repr.ed).] *non* Sweet, 1830.

Suffruticose herbs, canescent, tomentose. Leaves 7–8 cm across, broadly ovate, deeply cordate at base, acute to acuminate at apex, margins crenate–denticulate, stipulate. Flowers solitary, axillary; sepals 5–lobed; petals yellow. Mericarps 13–16 (20), woody with acute to acuminate tips, awned, 3–seeded. Seeds pilose.

Fls. & Frts. : August–April.

Illus. : Paul & Nayar, *op.cit.*

Distrib. : Salsette. Almeida (1996).

Abutilon indicum (L.) Sweet, Hort. Brit. 54.1826; Mast. in Hook. f. Fl. Brit. India 1: 326.1874; Cooke, Fl. Pres. Bombay 1:102.1956 (Repr. ed.); Borss. in Blumea 14:170.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19 : 87.1988; Paul in Sharma *et al.* Fl. India 3 : 266.1993. *Sida indica* L. in Torner Cent. Pl. 2 : 26.1756 & Amoem. Acad. 4 : 324.1759. '*Petari*'.

Undershrubs 1–2 m tall; branchlets minutely stellate–pubescent. Leaves 2–5 × 2–6 cm, ovate–cordate, acuminate at apex, margins toothed, rarely trilobed, petiolate. Flowers yellow, solitary, axillary. Schizocarps globose; mericarps 15–20, mucronate, stellately hairy. Seeds ovoid or suborbicular.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 12.1838.

Distrib. : Occasional bushes. 167394.

BOMBYX Medik.

Bombyx micranthus (L.f.) Riedle in Rech. f. Fl. Iran 120 : 34.1976; Venkanna & Prasanna in Singh & Karthik., Fl. Maharashtra 1: 303. 2000. *Hibiscus micranthus* L. f. Suppl. 308.1781; Mast. in Hook.

f. Fl. Brit. India 1: 335.1874; Cooke, Fl. Pres. Bombay 1:113.1958 (Repr. ed.); Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 137, f. 29.1988; Paul in Sharma *et al.* Fl. India 3 : 330, f. 92.1993. *Hibiscus ovalifolius* (Forssk.) Vahl, Symb. Bot. 1: 40.1790.

Undershrubs 1–2 m tall; branchlets stellate-tomentose. Leaves 1.5–3.5 × 1.0–2.5 cm, ovate, subcordate at base, obtuse or acute at apex, petiolate, margins serrate. Flowers white, seldom tinged with pink, solitary, pedicellate; pedicels filiform, jointed above the middle. Capsules 0.5–0.6 cm across, globose, puberulous. Seeds 2–3, cottony.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 29.1966 (*Hibiscus micranthus*).

Distrib. : Common in open areas along forest paths 167741.

GOSSYPIUM L.

Gossypium barbadense L. Sp. Pl. 683.1753; Mast. in Hook. f. Fl. Brit. India 1: 347.1874; Cooke, Fl. Pres. Bombay 1:125.1958 (Repr. ed.); Borss. in Blumea 14: 127.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 114.1988; Paul in Sharma *et al.* Fl. India 3 : 388.1983. 'Kapasi', 'Kapus'.

Shrubs, 1.5–2.0 m tall; stems much branched. Leaves 5–13 × 4–15 cm, broadly ovate, 3–5-lobed; lobes acuminate, nigro-punctate beneath. Flowers yellow, axillary, solitary; involucre bracts prominent in fruits. Capsules 3–5 cm long, ovoid, acuminate, reddish-brown, 3–4-valved, woody, minutely tubercled. Seeds cottony, reniform.

Fls. & Frts. : October–April.

Illus. : Wight, Illus. India Bot. t. 28 a, b & c.1840; Matthew, Illus. Fl. Tamilnadu Carnatic. 2 : t. 61.1982.

Distrib. : Rare, the only plant on Vasai creek probably as an escape. 167408.

FIORIA Mattei

Fioria vitifolia (L.) Mattei, Boll. Reale. Orto. Bot. Giardino Color. Palermo 2 : 71.1916; Paul & Nayar *et al.* Fasc. Fl. India 19: 109, f. 23.1988; Paul in Sharma *et al.* Fl. India 3 : 310, f. 87. 1993. *Hibiscus vitifolius* L. Sp. Pl. 696.1753; Mast. in Hook. f. Fl. Brit. India 1: 338.1874; Cooke, Fl. Pres. Bombay 1: 115.1958 (Repr. ed.); Borss. in Blumea 14: 82.1966. 'Van-kapus'.

Undershrubs 1.0–1.5 m tall; stems weak, young parts stellately tomentose. Leaves 2.5–12.0 × 2–10 cm, diminishing in size upwards, ovate-cordate, 3–7-lobed, subcordate at base, acute at apex, margins crenate-serrate, petioles 2–10 cm long. Flower solitary, axillary, yellow with purple base within. Capsules 5-winged, ca. 1.5 cm across, beaked. Seeds faintly tubercled, ca. 0.3 cm long.

Fls. & Frts. : October–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic*. 2 : t. 62.1982.

Distrib. : On hill slopes 167348.

HIBISCUS L. (*nom. cons.*)

1. Epicalyx present :

2. Stipules foliaceous, auricled ... *H. suratteais*

2. Stipules not as above :

3. Corolla 4.5 cm across or more ... *H. hispidissimus*

3. Corolla 1.5–2.5 cm across ... *H. talbotii*

1. Epicalyx absent : ... *H. lobatus*

Hibiscus hispidissimus Griff. *Not. Pl. Asiat.* 4: 521.1854; Pradeep & Sivar. in *Taxon* 40 : 637.1991. *H. furcatus* Roxb. ex DC. *Prodr.* 1: 448.1824 *non* Willd. 1809; Mast. in Hook. f. *Fl. Brit. India* 1: 335.1874; Cooke, *Fl. Pres. Bombay* 1:112.1958 (Repr. ed.). *H. aculeatus* Roxb. *Fl. Ind.* 3 : 206.1832 *non* Walter 1788; Paul & Nayar in Nayar *et al.* *Fasc. Fl. Ind.* 19:123.1988; Paul in Sharma *et al.* *Fl. India* 3 : 323.1993. 'Ambadi'.

Undershrubs up to 1 m tall; branchlets prickly, stellately pubescent. Basal leaves 3–5-foliolate; upper leaves 3–6 × 1–3 cm, lanceolate, obtuse at base, acuminate at apex, margins serrate. Flower-buds with tuft of hair at apex; flowers bright yellow with purple centre, solitary, axillary. Capsules 1.5 × 1.0 cm, globose, beaked. Seeds trigonous, warty, glandular.

Fls. & Frts. : July–October.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1 : 119, t. 71.1909; Ic. *Roxb. Fasc.* 2. t. 3.1968 (Repr. ed.).

Distrib. : Borivli, P. S. Herbert, 2362. (BLAT).

Hibiscus lobatus (J. A. Murr.) O. Ktze. *Rev. Gen. Pl.* 3 : 19.1898; Borss. in *Blumea* 14: 77.1966; Paul & Nayar in Nayar *et al.* *Fasc. Fl. India* 19:133.f. 27.1988; Paul in Sharma *et al.* *Fl. India* 3 : 336, f.

95.1993. *Solandra lobata* J. A. Murr. Comm. Soc. Reg. Sci; Goetting 6: 20, t. 1: 1785. *Hibiscus solandra* L' Herit. Strip. Nov. 1: 103, t 49.1788; Mast. in Hook. f. Fl. Brit. India 1: 336.1874; Cooke, Fl. Pres. Bombay 1:114.1958 (Repr. ed.).

Annual herbs, 50–80 cm tall. Leaves polymorphic; lower ones 2–4 × 1.8–3.5 cm, orbicular–ovate, obtuse or acute at apex, margins crenate, hairy on both surfaces; upper ones deeply 3–lobed, uppermost, 3–fid. Flowers white, in lax, terminal racemes. Capsules ca. 1.0 × 0.8 cm, ovoid, shortly beaked, hairy. Seeds many, ovoid.

Fls. & Frts. : August–November.

Illus. : Paul & Nayar, *op. cit.*

Distrib. : Salsette, G. L. Shah (1962).

Hibiscus surattensis L. Sp. Pl. 696.1753; Mast. in Hook. f. Fl. Brit. India 1: 334.1874; Cooke, Fl. Pres. Bombay 1: 112.1958 (Repr. ed.); Borss. in Blumea 14: 57.1966; Paul & Nayar *et al.* in Nayar, Fasc. Fl. India 19. 153, f. 32.1988; Paul in Sharma *et al.* Fl. India 3 : 327, f 91.1993.

Herbs, stems erect or trailing, covered with recurved prickles. Leaves 5–10 × 4–8 cm, orbicular or ovate, palmately 3–5 lobed, truncate at base, acute at apex, upper leaves palmipartite, margins crenate–serrate; stipules broad, leafy, toothed. Flowers axillary, solitary; epicalyx segments 9–12, spatulate with filiform to linear appendages near apex; calyx campanulate, 5–fid accrescent, hairy; corolla yellow with dark purple centre. Staminal column antheriferous throughout. Ovary densely hairy. Capsules ovoid to globose, 0.1.2–1.5 × 1.0–1.2 cm, hispid. Seeds reniform, glabrescent.

Fls. & Frts. : November–December.

Illus. : Wight, Ic. t.197.1839; Paul & Nayar, *op. cit.*

Distrib. : Salsette, Jacquemont Voy. 794; Almeida (1996). In wasteland and on canal banks. 167348.

Hibiscus talbotii (Rakshit) Paul & Nayar in Bull. Bot. Surv. India 22 : 198 (1980) 1982 & in Nayar *et al.* Fasc. Fl. India 19: 156.1988; Paul in Sharma *et al.* Fl. India 3 : 331.1993. *H. hirtus* var. *talbotii* Rakshit in Sci. & Cult. 27:193, f. 2.1961 & Bull. Bot. Surv. India 12 :170 (1970) 1972. 'Dupari'.

Herbs 0.5–1.0 m tall; stems erect, woody at base. Leaves 6–10 × 2.5–3.5 cm, ovate–lanceolate, ovate–oblong, acute or acuminate at apex,

margins crenate-serrate or toothed, lower leaves often with shortly lobed margins. Flowers white, rarely pink, axillary, solitary and in terminal racemes. Capsules 0.7-1.1 cm across, ovoid or subglobose, hairy. Seeds reniform, hairy.

Fls. & Frts. : October-January.

Illus. : Rakshit, *op. cit.*

Distrib. : Borivli, *P. S. Herbert*, 289. (*BLAT*).

KYDIA Roxb.

Kydia calycina Roxb. Pl. Cor. 3 : 12, t. 215.1811 & Fl. Ind. 3 : 188.1832; Mast. in Hook. f. Fl. Brit. India 1: 348.1874; Cooke, Fl. Pres. Bombay 1: 100.1958 (Repr. ed.); Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19:160.1988; Paul in Sharma *et al.* Fl. India 3 : 344.1993. 'Petari', 'Warang'.

Trees 10-15 m tall, branchlets stellately woolly. Leaves 5-9 × 4-10 cm, entire or palmately 3-lobed, ovate-orbicular, coriaceous, cordate or truncate at base, obtuse at apex, margins faintly crenate-dentate, tomentose. Flowers white, axillary and or in terminal panicles up to 30 cm long. Capsules globose. Seeds reniform, striate, brownish-black.

Fls. & Frts. : August-December.

Illus. : Wight, Ic. tt. 879-80.1844-45; Ic. Roxb. Fasc. 2 : t.6.1968 (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic. 2 : t. 63.1982.

Distrib. : Frequent. 157725.

MALACHRA L.

Malachra capitata (L.) L. Syst. Nat. ed. 12,2 : 458.1767; Mast. in Hook. f. Fl. Brit. India 1: 329.1874; Cooke, Fl. Pres. Bombay 1: 105.1958 (Repr. ed.); Borss. in Blumea 14:146.1966; Paul & Nayar in Nayar, Fasc. Fl. India 19: 163. f. 33.1988; Paul in Sharma *et al.* Fl. India 3 : 367, 104.1993. *Sida capitata* L. Sp. Pl. 688.1753. 'Ran-bhendi'

Undershrubs up to 1 m tall. Stems erect, leafy; branchlets stellately tomentose. Leaves 3.2-7.0 × 3.5-5.0 cm, orbicular or ovate, palmately 3-5 lobed or angled, cordate at base, obtuse at apex, margins crenate. Flowers yellow, in capitate, axillary cymes. Schizocarps 0.6-0.7

across, globose, wrinkled; mericarps trigonous, cuneate, nerved. Seeds smooth, ovoid or subreniform, brownish-black.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic*. 2 : t. 64.1982; Paul & Nayar, *op. cit.*

Distrib. : Fairly common in open areas of the forests. 167294.

SIDA L.

- | | | |
|---|-----|-----------------------|
| 1. Plants with stipular spines | ... | <i>S. spinosa</i> |
| 1. Plants without stipular spines : | | |
| 2. Carpels shortly 2-lipped, 2-lobed or muticous : | | |
| 3. Stems trailing | ... | <i>S. cordata</i> |
| 3. Stems sub-erect : | | |
| 2. Carpels distinctly 2-awned | ... | <i>S. mysorensis</i> |
| 4. Awns as long as carpels, retrorsely barbed | ... | <i>S. cordifolia</i> |
| 4. Awns shorter than carpels, not retrorsely barbed : | | |
| 6. Leaves almost glabrous | ... | <i>S. acuta</i> |
| 6. Leaves hoary-pubescent | ... | <i>S. rhombifolia</i> |

Sida acuta Burm. f. *Fl. Ind.* 147.1768, *emend.* K. Schum. *Fl. Bras.* 12. 3 : 326.1891; Cooke, *Fl. Pres. Bombay* 1: 98.1958 (Repr. ed.); Borss. in *Blumea* 14: 186.1966; Paul & Nayar in Nayar *et al.* *Fasc. Fl. India* 19: 202, f. 49.1988; Paul in Sharma *et al.* *Fl. India* 3 : 281, f. 76.1993. *S. carpinifolia* Mast. in Hook. f. *Fl. Brit. India* 1: 323.1874 non L.f.1781. 'Jangli-methi'.

Undershrubs up to 1 m tall; young parts stellate-pubescent. Leaves 1.5–6.0 × 0.5–2.3 cm, elliptic-oblong to oblong-lanceolate, oblique, obtuse at base, acuminate at apex, margins sharply serrate. Flowers light yellow, solitary, or in clusters. Schizocarps 0.5–0.6 cm across, globose, mericarps tetrahedral, 2-awned, linear, usually 6. Seeds 3-gonous, smooth, black.

Fls. & Frts. : August–February.

Illus. : Wight, *Ic.* t. 95.1838; Matthew, *Illus. Fl. Tamilnadu Carnatic*, 2: t. 68.1982; Paul & Nayar, *op. cit.*

Distrib. : Koppikar (1974).

Sida cordata (Burm. f.) Borss. in Blumea 14: 182.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19 : 206, f. 50.1988; Paul in Sharma *et al.* Fl. India 3 : 283, f. 77.1993. *Melochia cordata* Burm. f. Fl. Ind. 143.1768. *S. humilis* var. *veronicifolia* (Lam.) Mast. in Hook. f. Fl. Brit. India 1: 322.1874. *S. veronicifolia* Lam. Encycl. 1: 5.1783; Cooke, Fl. Pres. Bombay 1: 97.1958 (Repr. ed.).

Herbs, 40–60 cm long. Leaves 1.3–4.0 × 1.3 cm, ovate–cordate, basal ones suborbicular, margins crenate–serrate, acuminate at apex. Flowers yellow, solitary, paired or in lax racemes; pedicels jointed above the middle. Schizocarps 0.4–0.5 cm across; mericarps 5, tetrahedral, hairy at apex, shortly beaked. Seeds ovoid, trigonous, brown.

Fls. & Frts. : October–November.

Illus. : Matthew, Fur. Illus. Fl. & Tamilnadu Carnatic 4: t. 45.1988; Paul & Nayar, *op. cit.*

Distrib. : Frequent in open areas. 167793.

Sida cordifolia L. Sp. Pl. 684.1753; Mast. in Hook. f. Fl. Brit. India 1: 324.1874; Cooke, Fl. Pres. Bombay 1: 99.1958 (Repr. ed.); Borss. in Blumea 14: 199.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 207.1988; Paul in Sharma *et al.* Fl. India 3 : 285.1993. 'Bala'.

Undershrubs up to 60 cm tall. Stem branched, densely stellate–tomentose. Leaves 1.3–5.5 × 1–3 cm, ovate, cordate, subcordate or rounded at base, acute or obtuse at apex, margins serrate–crenate. Flowers yellow, solitary, axillary or 5–7 in clusters. Schizocarps 0.5–0.6 × 0.6 cm, transversely rugulose; mericarps 8–10, 3–gonous, 2–awned. Seeds 3–gonous or ovoid.

Fl. & Frts. : October–March.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 46.1988.

Distrib. : Vihar lake, H. Santapau, 65, 21. (BLAT).

Sida mysorensis Wight & Arn. Prodr. 59.1834; Mast. in Hook. f. Fl. Brit. India 1. 322.1874; Borss. in Blumea. 14: 180.1966; Paul & Nayar in Nayar *et al.* in Fasc. Fl. India 19: 209, f. 51.1988; Paul in Sharma *et al.* Fl. India 3 : 286, f. 78.1993; *S. glutinosa* Roxb. Fl. Ind. 3 : 172.1832 *non* Commers. ex Cav. 1785; Cooke, Fl. Pres. Bombay 1: 97.1958 (Repr. ed.).

Undershrubs 1.0–1.5m tall; stems erect, rigid, stellate–tomentose. Basal leaves 3–6 × 2.5–4.5 cm, ovate, cordate or subcordate at base, acuminate at apex, margins serrate; upper leaves oblong–lanceolate. Flowers pedicellate, solitary, axillary or in 5–7–flowered, lax racemes.



f. 5. *Sida cordata* (Burm. f.) Borss.

Schizocarps 0.2–0.3 cm broad, obovate; mericarps 5, 3-gonous, smooth, dark brown.

Fls. & Frts. : August–December.

Illus. : Paul & Nayar, *op. cit.*; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 47.1988.

Distrib. : Borivli, *P. S. Herbert*, 171, 199 (*BLAT*).

Sida rhombifolia L. Sp. Pl. 684.1753 emend. Mast. in Hook. f. Fl. Brit. India 1: 323.1874; Borss. in *Blumea* 14: 193, t. 21 a–c.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 212, f 52.1988; Paul in Sharma *et al.* Fl. India 3 : 289, f. 79.1993. *Sida rhombifolia*.var. *rhomboidea*. (Roxb. ex Flamingo) Mast. in Hook. f. *op. cit.* 324.

1. Pedicels as long as petioles; corolla 2.0–2.5 cm across ... *ssp. rhombifolia*
 1. Pedicels no longer than petioles; corolla less than 2 cm across ... *ssp. retusa*

ssp. rhombifolia

Undershrubs, 0.5–1.0 m tall; stems slender, stellately hairy. Leaves 4–6 × 0.9–5.5 cm, ovate–rhomboid to elliptic–oblong, acute at base, acute or obtuse at apex, margins crenate. Flowers reddish–yellow, axillary, solitary and clustered at the ends of branches. Schizocarps 0.3–0.6 cm across; mericarps 5, shortly 2-awned, hairy. Seeds smooth.

Fls. & Frts. : July–December.

Distrib. : Borivli, *P. S. Herbert*, 288, 290 (*BLAT*).

ssp. retusa (L.) Borss. in *Blumea* 14: 198, f. 21 e–h.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 216, f. 53.1988; Paul in Sharma *et al.* Fl. India 3 : 289.1993. *S. retusa* L. Sp. Pl. ed. 2, 91.1763. *S. rhombifolia* var. *retusa* (L.) Mast. in Hook. f. Fl. Brit. India 1: 324.1874; Cooke, *Fl. Pres. Bombay* 1: 99.1988 (Repr. ed). '*Jangli-methi*'.

Undershrubs, 60–75 cm tall, stellately tomentose. Leaves 1.5–4.5 × 0.5–3.7 cm, ovate–elliptic or rhomboid, cuneate at base, truncate or obtuse at apex, margins bidentate–biserrate near apex, woolly beneath. Flowers yellow, solitary or in cymose clusters, pedicels jointed above middle. Schizocarps 0.3–0.5 cm across, globose; mericarps 7–10, tomentose, beaked; seeds ovoid, smooth, black.

Fls. & Frts. : October–December.

Illus. : Borss. *op. cit.*; Paul & Nayar, *op. cit.*

Distrib. : Frequent. 167207, 167931.

Sida spinosa L. Sp. Pl. 683.1753; Mast. in Hook. f. Fl. Brit. India 1: 323.1874; Cooke, Fl. Pres. Bombay 1: 98.1958 (Repr. ed.); Borss. in Blumea 14: 191.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 218, f. 55.1988; Paul in Sharma *et al.* Fl. India 3 : 292, f. 80 c-e.1993.

Undershrubs up to 1 m tall; stems suberect, branched, stellate-tomentose, Leaves 1.5-4.0 × 1.2 cm, elliptic-ovate or oblong, obtuse at base and apex, margins serrate. Flowers yellow, solitary or 2-5 in a cluster, pedicellate. Schizocarps 0.4 cm long, rugulose; mericarps 5, 3-gonous, 2-awned, tomentose. Seeds ovoid, or 3-gonous, smooth, black.

Fls. & Frts. : October-November.

Illus. : Mahesh. Illus. Fl. Delhi f. 23.1966; Paul & Nayar, *op. cit.*

Distrib. : Borivli, P. S. Herbert., 501, 1639. (BLAT).

THESPESIA Soland. ex Corr. (*nom. cons.*)

- | | | |
|---|-----|--------------------|
| 1. Midribs glandular; seeds numerous per cell | ... | <i>T. lampas</i> |
| 1. Midribs eglandular; seeds 2-4 per cell | ... | <i>T. populnea</i> |

Thespesia lampas (Cav.) Dalz. & Gibs. Bombay Fl. 19.1861; Mast. in Hook. f. Fl. Brit. India 1: 345.1874; Borss. in Blumea 14: 116.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 222, f. 58.1988; Paul in Sharma *et al.* Fl. India 3 : 350, f. 98.1993. *Hibiscus lampas* Cav. Diss. 3 : 154, t. 56, f. 2.1787. *Thespesia macrophylla* Blume, Bijdr. 73.1825; Cooke, Fl. Pres. Bombay, 1: 121.1958 (Repr. ed.). 'Ran-bhendi'.

Undershrubs, 1.0-1.5 m tall; branchlets stellate-tomentose or glabrescent. Leaves 6-13 × 5-12 cm. lower ones orbicular, apically palmately 3-lobed, upper ones ovate, cordate at base, acuminate at apex, petioles 3-5 cm long. Flowers yellow, in axillary, 3-flowered peduncles; peduncles *ca.* 8 cm long. Capsules 2-5 × 1-5 cm, ovoid, beaked, woody, dehiscent. Seeds many, ovoid, angular, black.

Fls. & Frts. : August-October.

Illus. : Wight, Ic. t. 5.1838 (*Hibiscus lampas.*); Talbot, For. Fl. Bombay Pres. & Sind 1: 124, t. 75.1909; Paul & Nayar, *op. cit.*

Distrib. : Frequent in open areas and on hill slopes. 167381, 168450.

Thespesia populnea (L.) Soland. ex Corr. in Ann. Mus. Herb. Paris 9: 290, t. 8, f. 1.1807; Mast. in Hook. f. Fl. Brit. India 1: 345.1874; Cooke, Fl. Pres. Bombay 1: 121.1958 (Repr. ed.); Borss. in Blumea 14: 106.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 225.1988; Paul in Sharma *et al.* Fl. India 3 : 352.1993. *Hibiscus populneus* L. Sp. Pl. 694.1753. 'Bhendiche zad'.

Trees, 6–8 m tall. Leaves 6–14 × 5–11 cm, ovate, orbicular, cordate at base, acuminate at apex; petioles 4–6 cm long. Flowers yellow with purple base, ca. 8 cm across, solitary, pedicellate; pedicels ca. 4 cm long. Capsules 2.4–2.7 cm across, with peltate scales, globose, mucronate, indehiscent. Seeds obovoid.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 125, t. 76.1909; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 69.1982.

Distrib. : Frequent along Ghodbundar creek. 167381.

URENA L.

Urena lobata L. Sp. Pl. 692.1753; *sensu lat.* Mast. in Hook. f. Fl. Brit. India 1: 329.1874; Cooke, Fl. Pres. Bombay 1: 106.1958 (Repr. ed.); Borss. in Blumea 14: 140.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 228, f. 59.1988; Paul in Sharma *et al.* Fl. India 3 : 380, f. 109.1993. 'Van-bhendi'.

- | | | |
|---|-----|---------------------|
| 1. Leaves shallowly lobed; epicalyx in fruits cupular | ... | <i>ssp. lobata</i> |
| 1. Leaves deeply lobed; epicalyx segments linear to lanceolate, spreading or reflexed in fruits | ... | <i>ssp. sinuata</i> |

ssp. lobata.

Undershrubs, 0.3–1.2 m tall, erect. Leaves ca. 6–8 × 8–10 cm, orbicular, shallowly lobed, cordate to cuneate at base, acute or obtuse at apex, margins crenate–dentate or 2–serrate. Flowers rose–coloured, axillary 2–3 in clusters. Schizocarps globose, pubescent; mericarps 5, 3–gonous, glochidiate. Seeds reniform, angular.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 27.1966.

Distrib. : Fairly common. 167215.

ssp. sinuata (L.) Borss. in Blumea 14: 142.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 230, f. 60.1988; Paul in Sharma *et al.* Fl.

India 3 : 382, f. 110.1993. *U. sinuata* L. Sp. Pl. 692.1753; Mast. in Hook. Fl. Brit. India 1: 329.1874; Cooke, Fl. Pres. Bombay 1: 106.1958 (Repr. ed.). 'Ran-kapas'.

Undershrubs, 30–60 cm tall; branchlets stellate-tomentose, Lower leaves 1.5–8.5 cm broad, orbicular or broadly ovate, palmately lobed, upper ones ovate-elliptic. Flowers rosy with purple throat, axillary 2–3 in a clusters; calyx deeply divided. Schizocarps globose, pubescent, covered with blunt spines; mericarps 5, 3-gonous, glochidiate. Seeds reniform, angular.

Fls. & Frts. : August–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 51.1988.

Distrib. : Vihar lake, 18384 (BLAT).

CULTIVATED SPECIES :

Abelmoschus esculentus (L.) Moench. Method. 617.1794; Borss. in Blumea 14: 100.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 71.1988; Paul in Sharma *et al.* Fl. India 3 : 385.1993. *Hibiscus esculentus* L. Sp. Pl. 696.1753; Mast. in Hook. f. Fl. Brit. India 1: 343.1874; Cooke, Fl. Pres. Bombay 1: 119.1958 (Repr. ed.). 'Bhendi'.

Undershrubs, 0.5–1.0 m tall; stems hispid-hairy. Leaves 3–5-lobed, hairy. Flowers yellow with purple base within, solitary, axillary. Capsules 6–12 cm long, angled.

Fls. & Frts. : Almost throughout the year.

Distrib. : Salsette, G. L. Shah (1962).

Hibiscus cannabinus L. Syst. Nat. (ed. 10) 2: 1149.1759; Mast. in Hook. f. Fl. Brit. India 1: 339.1874; Cooke, Fl. Pres. Bombay 1: 116.1958 (Repr. ed.); Borss. in Blumea 14: 63.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 127.1988; Paul in Sharma *et al.* Fl. India 3 : 324.1993. 'Ambadi'.

Prickly undershrubs, 1–2 m tall. Lower leaves deeply 3–5-lobed; lobes elliptic-oblong to elliptic-lanceolate, margins serrate. Flowers yellow, solitary. Capsules ovoid, beaked, bristly. Seeds mottled with stellate scales.

Fls. & Frts. : January–February.

Distrib. : 168916.



f.6. *Hibiscus cannabinus* L.

Hibiscus sabdariffa L. Sp. Pl. 695.1753; Mast. in Hook. f. Fl. Brit. India 1: 340.1874; Cooke, Fl. Pres. Bombay 1: 117.1958 (Repr. ed.); Borss. in Blumea 14: 64.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 148.1988; Paul in Sharma *et al.* Fl. India 3 : 391.1993. 'Tambadi-ambadi'.

Shrubs, 1–2 m tall; stems erect, purple. Leaves palmately 3–5-lobed, margins serrate. Flowers pink, with dark centre, solitary, axillary. Capsules ovoid, subglobose, pubescent, beaked.

Fls. & Frts. : October–December.

Distrib. : Native of Tropical Africa and Asia). Borivli, P. S. Herbert, 910, 1145 (BLAT).

Hibiscus schizopetalus (Mast.) Hook. f. in Curtis Bot. Mag. 3 : 36, t. 6524.1880; Bor & Raiz. Beaut. India Climbers. Shrub. 236.1954; Borss. in Blumea 14: 73.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 150.1988; Paul in Sharma *et al.* Fl. India 3 : 392.1993.

Shrubs, 1.5–3.0 m tall. Leaves, ovate, obovate–elliptic. Flowers red, solitary, axillary, pedicellate, drooping with showy dissected petals.

Fls & Frts. : Throughout the year.

Distrib. : (Native of Africa.) Borivli, P. S. Herbert., 232. (BLAT).

Malvaviscus arboreus Dillon ex Cav. var. **penduliflorus** (Mocino & Sesse ex DC.) Shery. in Ann. Miss. Bot. Gard. 29: 223.1942; Borss. in Blumea 14: 133.1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19.179.1988; Paul in Sharma *et al.* Fl. India 3 : 394.1993. *M. penduliflorus* Mocino & Sesse ex DC. Prodr. 1: 445.1824.

Shrubs; stems often scrambling or trailing. Leaves entire or palmately lobed. Flowers scarlet, showy, axillary and solitary.

Fls. & Frts. : Throughout the year

Distrib. : Native of Tropical America. (Ghodbandar, Almeida 1996).

BOMBACACEAE

BOMBAX L.

- | | | | |
|----|--|-----|-------------------|
| 1. | Trunks profusely prickly; leaflets lanceolate;
anther filaments flattened | ... | <i>B. ceiba</i> |
| 1. | Trunks seldom prickly; leaflets obovate;
anther filaments filiform | ... | <i>B. insigne</i> |

Bombax ceiba L. Sp. Pl. 511.1753; Robyns in Taxon 10 : 157.1961 & Bull. Jard. Bot. Bruxelles 33 : 88, f. 7.1963; Nayar & Biswas in Sharma et al. Fl. India 3 : 398, f. 111.1993. *B. malabaricum* DC. Prodr. 1: 479.1824; Mast. in Hook. f. Fl. Brit. India 1: 349.1874; Cooke, Fl. Pres. Bombay 1: 127.1958. (Repr. ed.). 'Kate-savari'.

Trees up to 20 m tall; stems branched above, branches horizontal, prickly. Leaves palmately digitate, 5-7-foliolate; leaflets 5-12 × 1.5-4.0 cm, elliptic-lanceolate or oblong, cuneate to subcuneate at base. Flowers showy, red, fleshy, on leafless branches. Capsules 10-13 cm long, oblong, 5-valved, loculicidal. Seeds numerous, pyriform, covered by white cotton.

Fls & Frts. : February-May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 71.1982.

Distrib. : Common on hills slopes and plains 168998.

Bombax insigne Wall. Pl. Asiat. Rar. 1: 71. tt. 79 & 80.1830; Mast. in Hook. f. Fl. Brit. India 1: 349.1874; Cooke, Fl. Pres. Bombay 1: 128.1958 (Repr. ed.); Robyns in Bull. Jard. Bot. Bruxelles. 32: 112.1963. *Salmalia insignis* (Wall.) Schott & Engl. Melet. Bot. 35.1932. 'Shalmali'.

Trees; trunk unarmed, branches sometimes prickly. Leaves palmately compound, 3-7-foliolate; leaflets 10-15 cm long, obovate, attenuate at base, shortly acuminate at apex. Flowers solitary, scattered on leafless branches, pedicels jointed at the top; calyx urceolate, globose; corolla scarlet. Capsules 15-23 cm long, obtusely 5-angled, glabrous.

Fls & Frts. : February-May.

Distrib. : Santapau & G. L. Shah (1963).

CULTIVATED SPECIES :

Adansonia digitata L. Sp. Pl. 1190.1753; Mast, in Hook. f. Fl. Brit. India 1: 348.1874; Cooke, Fl. Pres. Bombay 1: 126.1958 (Repr. ed.); Nayar & Biswas in Sharma et al. Fl. India 3 : 404.1993. 'Gorakh-chinch'.

Deciduous trees, 15-20 m tall, trunk conical with great diameter at base, narrowed upwards. Leaves palmately, digitate; leaflets obovate-oblong or elliptic-oblong. Flower solitary, pendulous. Fruits ellipsoid-oblong, woody, greenish-tomentose. Seeds reniform.

Fls & Frts. : Apri–June.

Illus. : Schum. in Engl. & Prantl, *Pflanzenfam.* 3(6) : 59, f. 28.1892.

Distrib. : A native of tropical Africa introduced in India. *Koppikar* (1974).

Ceiba pentandra (L.) Gaertn. *Fruct. Sem. Pl.* 2 : 244, t. 133.1791; Robyns in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 1: 70.1980; Nayar & Biswas in Sharma *et al.* *Fl. India* 3 : 400, f. 112.1993. *Bombax pentandrum* L. *Sp. Pl.* 511.1753. *Eriodendron anfractuosum* DC. *Prodr.* 1: 479.1824; Mast. in Hook. f. *Fl. Brit. India* 1: 350.1874; Cooke, *Fl. Pres. Bombay* 1: 128.1958 (Repr. ed.). '*Pandhari Savar*'.

Trees, 15–20 m tall; stems green, branches horizontally whorled, Leaves 5–9–foliolate; leaflets oblanceolate, elliptic or oblong. Flowers white, in fascicles. Capsules fusiform, elliptic, indehiscent. Seeds subglobose, many, silky hairy.

Fls. & Frts. : February–May.

Illus. : Wight, *Ic. t.* 400.1840. (*Eriodendron anfractuosum*); Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 963d.1982.

Distrib. : Borivli, R. R. Fernandez, 1287 (BLAT).

STERCULIACEAE

- | | | |
|---|-----|------------|
| 1. Flowers unisexual; petals absent; stamens 10 or more : | | |
| 2. Follicles membranous | ... | FIRMIANA |
| 2. Follicles woody | ... | STERCULIA |
| 1. Flowers bisexual; petals present; stamens 5 : | | |
| 3. Fruits of spirally twisted follicles | ... | HELICTERES |
| 3. Fruits capsular, depressed–globose : | | |
| 4. Style and stigma 1; capsules 2–valved | ... | WALTHERIA |
| 4. Styles and stigmas 5; capsules 5–valved | ... | MELOCHIA |

FIRMIANA Marsili

Firmiana colorata (Roxb.) R. Br. in Bennett & Brown *Pl. Jav. Rar.* 235.1844; Kosterm. in Reinwardtia 5: 386.1961; Malick in Sharma *et al.* *Fl. India* 3 : 420, f. 117.1993. *Sterculia colorata* Roxb. *Pl. Cor.* 1: 26, t. 25.1795 & *Fl. Ind.* 3 : 146.1832; Mast. in Hook. f. *Fl. Brit. India* 1: 359.1874; Cooke, *Fl. Pres. Bombay* 1: 133.1958 (Repr. ed.). '*Kaushil*'

Trees, 10–15 m tall, deciduous, young parts stellate-tomentose to velvety. Leaves 6–16 × 5–15 cm, 3-lobed, cordate at base, acute to acuminate at apex, coriaceous, alternately crowded apically on branchlets. Flowers orange-red, polygamous, tomentose in terminal, woolly panicles; calyx funnel-shaped. Follicles 5, 4–7 cm, long stipitate, nerved, 2-seeded, ovoid, compressed, smooth, yellow.

Fls. & Frts. : February–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 74 1982; Malick in Sharma *et al. op. cit.*

Distrib. : Scattered in deciduous forests. 167476.

HELICTERES L.

Helicteres isora L. Sp. Pl. 963.1753; Mast. in Hook. f. *Fl. Brit. India* 1: 365.1874; Cooke, *Fl. Pres. Bombay* 1: 136.1958 (Repr. ed.); Malick in Sharma *et al. Fl. India* 3 : 426.1993. '*Murudsheng*'.

Shrubs 2.0–2.5 m tall; young branches stellately tomentose. Leaves 5–16 × 7–11 cm, obovate or orbicular, subcordate to subacute at base, acuminate, obtuse or subacute at apex, margins serrulate. Flowers crimson-red, in 5–8-flowered, axillary cymes; calyx clawed. Follicles 5, 5–6 × 0.8 cm, beaked, stellate-tomentose. Seeds numerous, truncate, wrinkled, angular.

Fls. & Frts. : August–December.

Illus. : Wight, *Ic. t.* 180.1839; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 76.1982.

Distrib. : Common. 167212, 168906.

MELOCHIA L.

Melochia corchorifolia L. Sp. Pl. 675.1753; Mast. in Hook. f. *Fl. Brit. India* 1: 374.1874; Cooke, *Fl. Pres. Bombay* 1: 142.1958 (Repr. ed.); Robyns in *Ann. Missouri Bot. Gard.* 51. 83.1964; Malick in Sharma *et al. Fl. India* 3 : 441.1993.

Undershrubs, 0.5–1.0 m tall; branchlets stellate-tomentose. Leaves 1.5–6.0 × 0.6–0.3 cm, ovate-lanceolate, ovate-oblong, obscurely 3-lobed, obtuse or truncate at base, acute at apex, margins serrate. Flowers pink, ca. 1 cm across, in capitate, sessile, terminal cymes. Capsules 0.3–0.5 cm across, subglobose. Seeds ovoid, angular, mottled black-grey.

Fls. & Frts. : September–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 30.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 80.1982.

Distrib. : Frequent in open, cleared parts of forests. 167295.

STERCULIA L.

- | | | |
|---|-----|-------------------|
| 1. Leaves palmately lobed : | | |
| 2. Follicles with sharp stinging hairs | ... | <i>S. urens</i> |
| 2. Follicles rusty-villous without stinging hairs | ... | <i>S. villosa</i> |
| 1. Leaves entire, not lobed | ... | <i>S. guttata</i> |

Sterculia guttata Roxb. ex DC. *Prodr.* 1: 482.1824; Mast. in Hook. f. *Fl. Brit. India* 1: 355.1874; Cooke, *Fl. Pres. Bombay* 1: 32.1958 (Repr. ed.); Malick in Sharma *et al.* *Fl. India* 3 : 462, f. 127.1993. 'Kukar'.

Trees, 15–20 m tall. Leaves 8–15 × 5–10 cm, ovate-oblong, obovate, truncate or subcordate at base, acuminate at apex, glabrous and glossy above, stellate-tomentose beneath. Flowers yellow, mottled with purple within, 1.5–2.5 cm across, 8–14 cm long in woolly, terminal racemes. Follicles 2–3-lobed; lobes 2–8 × 5–6 cm, ovoid, villous without. Seeds ellipsoid or oblong, black.

Fls. & Frts. : January–March.

Illus. : Wight, *Ic. t.* 487.1841; *Ic. Roxb. Fasc.* 2, 28, f. 13.1968 (Repr. ed.); Malick in Sharma *et al. op. cit.*

Distrib. : Borivli, *P. S. Herbert*, 444, 1155, (BLAT)

Sterculia urens Roxb. *Pl. Cor.* 1: 25, t. 24.1795 & *Fl. Ind.* 3 : 145.1832; Mast. in Hook. f. *Fl. Brit. India* 1: 355.1874; Cooke, *Fl. Pres. Bombay* 1: 131.1958 (Repr. ed.); Malick in Sharma *et al.* *Fl. India* 3 : 470.1993. 'Pandruk'.

Trees, 15–20 m tall, deciduous with greyish-white bark. Leaves 15–30 × 15–30, palmately 5–7-lobed, cordate at base, caudate-acuminate at apex, velvety beneath. Flowers yellow, polygamous, 2.5 × 1.5 cm, in glandular-pubescent, terminal panicles. Follicles 4–5, ovoid-oblong with ferruginous stiff hairs. Seeds 3–6, oblong, black.

Fls. & Frts. : December–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 137, f. 83.1909.

Distrib. : Frequent. 167721.

Sterculia villosa Roxb. ex DC. Prodr. 1: 483.1824; Mast. in Hook. f. Fl. Brit. India 1: 355.1874; Cooke, Fl. Pres. Bombay 1: 132.1958 (Repr. ed.); Malick in Sharma *et al.* Fl. India 3 : 472.1993. '*Sardol*'.

Trees, 5–6 m tall. Leaves 20–40 × 20–45 cm, 3–7-lobed; lobes deltoid-ovate, cordate at base, acuminate at apex. Flowers unisexual, pinkish, in 30–40 cm long, rusty-pubescent, branched panicles. Follicles ca. 5, 3–5 cm long, oblong, spreading, rusty-villous. Seeds oblong, black.

Fls. & Frts. : December–February.

Illus. : Ic. Roxb. Fasc. 2, t. 15.1968 (Repr. ed.).

Distrib. : Borivli, P. S. Herbert, 1146, 1349. (BLAT)

WALTHERIA L.

Waltheria indica L. Sp. Pl. 673.1753; Mast. in. Hook. f. Fl. Brit. India 1: 374.1874; Cooke, Fl. Pres. Bombay 1: 144.1958 (Repr. ed.); Malick in Sharma *et al.* Fl. India 3 : 473, f. 131.1993.

Perennial herbs, 45–75 cm tall; branchlets stellate-tomentose. Leaves 2–3 × 1.0–3.5 cm, elliptic or ovate-elliptic, obtuse-subcordate at base, acute or obtuse at apex, margins crenate-serrate, strongly nerved, woolly. Flowers 0.3–0.1 cm across, yellow, bisexual, in axillary clusters. Capsules 0.2–0.3 cm across, globose, enclosed in calyx, 1-seeded. Seeds obconical, smooth, black.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 83.1982; Malick in Sharma *et al. op. cit.*

Distrib. : Borivli, G. L. Shah (1962).

CULTIVATED SPECIES :

Pterospermum acerifolium (L.) Willd. Sp. Pl. 3 : 729.1800; Mast. in. Hook. f. Fl. Brit. India 1: 368.1874; Cooke, Fl. Pres. Bombay 1: 137.1958 (Repr. ed.); Chandra in Sharma *et al.* Fl. India 3 : 448.1993. *Pentapetes acerifolia* L. Sp. Pl. 698.1753. '*Muchkund*'.

Tall trees with straight upright branches and ash-coloured bark. Leaves orbicular to oblong, margins slightly lobed, cordate to peltate. Flowers mildly fragrant, 12–15 cm long, 5-angled, woody, covered with brown tomentum. Seeds winged.

Fls. & Frts. : December–April.

Illus. : Schum. in Engl. & Prantl, Pflanzenfam. 3(6) : 93, f. 48. H.1893.

Distrib. : Probably native of Eastern India, planted in gardens G. L. Shah (1984).

Pterospermum suberifolium (L.) Lam. Tab. Encycl. 3 : 136, t. 576. f. 2.1794; Mast. in Hook. f. Fl. Brit. India 1: 367.1874; Cooke, Fl. Pres. Bombay 1: 137.1958 (Repr. ed.); Chandra in Sharma *et al.* Fl. India 3 : 453.1993. *Pentapetes suberifolia* L. Sp. Pl. 698.1753. 'Muchkund'.

Trees ca. 10 m tall; branchlets stellate-tomentose. Leaves 4–10 × 3–6 cm, oblong-obovate, oblique to truncate-subcordate at base, acuminate at apex, margins irregularly angled. Flowers white, axillary, fragrant. Capsules ca. 4–5 × 2.5 cm, ovoid-oblong, tapering at both ends, white-tomentose. Seeds obconical, compressed, terminally winged.

Fls. & Frts. : December–February.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 148, f. 90.1909.

Distrib. : Borivli, Koppikar (1974).

Sterculia foetida L. Sp. Pl. 1008.1753; Mast. in Hook. f. Fl. Brit. India 1: 354.1874; Cooke, Fl. Pres. Bombay 1: 130.1958 (Repr. ed.); Malick in Sharma *et al.* Fl. India 3 : 459, 461, f. 126.1993. 'Jangli-badam'.

Trees, 20–30 m tall. Leaves digitately lobed; leaflets 5–7, elliptic, cuneate, acuminate. Flowers maroon in colour, caducous, in axillary panicles. Follicles ca. 10 cm long, boat-shaped, beaked, woody. Seeds ovoid-ellipsoid.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. tt.181.1839 & 364.1840; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 82.1982; Malick in Sharma *et al. op. cit.*

Distrib. : Cultivated tree near a mosque at Mulund forest beat 168982.

TILIACEAE

- | | | |
|---------------------------------|-----|-------------|
| 1. Fruits echinate or prickly : | | |
| 2. Flowers 0.5–1.0 cm across | ... | TRIUMFETTA |
| 2. Flowers 3.5–6.0 cm across | ... | ERINOCARPUS |
| 1. Fruits smooth : | | |
| 3. Fruits capsular | ... | CORCHORUS |
| 3. Fruits drupaceous | ... | GREWIA |

CORCHORUS L.

- | | | |
|---|-----|------------------------|
| 1. Capsules depressed globose, not beaked | ... | <i>C. capsularis</i> |
| 1. Capsules oblong to linear-oblong, beaked : | | |
| 2. Capsules winged | ... | <i>C. aestuans</i> |
| 2. Capsules not winged : | | |
| 3. Capsules glabrous, 10-ribbed | ... | <i>C. olitorius</i> |
| 3. Capsules hairy, not ribbed : | | |
| 4. Leaf-apex obtuse | ... | <i>C. fascicularis</i> |
| 4. Leaf-apex acuminate | ... | <i>C. urticifolius</i> |

Corchorus aestuans L. Syst. Nat. ed. 10, 2 : 1079.1759; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 485.1993; Pradhan in Singh & Karthik. Fl. Maharashtra 1: 377. 2000. *C. acutangulus* Lam. Encycl. 2 : 104.1786; Mast. in. Hook. f. Fl. Brit. India 1: 398.1874; Cooke, Fl. Pres. Bombay 1: 160.1958 (Repr. ed.).

Undershrubs, 45–70 cm tall; branchlets pubescent, diffusely branched. Leaves 5.5 × 1.2–2.3 cm, ovate, elliptic or oblong, obtuse or subacute at both ends, margins serrate. Flowers yellow, in leaf-opposed, 2–3-flowered cymes. Capsules 1.9–2.5 × 0.5 cm, 3-winged, beaked; beak divided. Seeds angular, minutely wrinkled, dark-brown.

Fls. & Frts. : September–October.

Illus. : Wight, Ic. t. 739.1845 (*C. acutangulus*); Mahesh. Illus. Fl. Delhi. f. 35.1966.

Distrib. : Frequent. 167258, 167299.

Corchorus capsularis L. Sp. Pl. 529.1753; Mast. in. Hook. f. Fl. Brit. India 1: 397.1874; Cooke, Fl. Pres. Bombay 1: 157.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 485.1993.



f.7. *Corchorus aestuans* L.

Herbs, 20–40 cm tall; stem erect, woody. Leaves 0.5–1.7 cm, ovate–lanceolate, rounded at base, acuminate at apex. Flowers yellow, axillary or extra-axillary, solitary or in groups of 2–3. Capsules ca. 1 cm across, depressed–globose, warty, 5-valved. Seeds wedge-shaped, brown.

Fls. & Frts. : September–October.

Illus. : Wight, Ic. t. 311.1840; Mahesh. *Illus. Fl. Delhi.* f. 37.1966.

Distrib. : Abundant along the banks of Vihar and Tulsi lakes. 167278, 167322.

Corchorus fascicularis Lam. *Encycl.* 2 : 104.1786; Mast. in Hook. f. *Fl. Brit. India* 1: 398.1874; Cooke, *Fl. Pres. Bombay* 1: 159.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* *Fl. India* 3 : 486.1993. 'Bahuphalli'.

Undershrubs ca. 60 cm tall; stems diffusely branched, woody at base. Leaves 2.0–3.5 × 0.6–1.3 cm, oblong–lanceolate, elliptic–oblong, acute to subacute at both ends, margins serrate. Flowers yellow, in axillary or extra-axillary, leaf-opposed fascicles. Capsules 1.0–1.5 cm long, shortly beaked, terete, strigose, 3-valved. Seeds wedge-shaped, black, smooth.

Fls. & Frts. : September–February.

Distrib. : Frequent in open areas.

Corchorus olitorius L. *Sp. Pl.* 529.1753; Mast. in Hook. f. *Fl. Brit. India* 1: 397.1874; Cooke, *Fl. Pres. Bombay* 1: 158.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* *Fl. India* 3 : 487.1993. 'Banpat'.

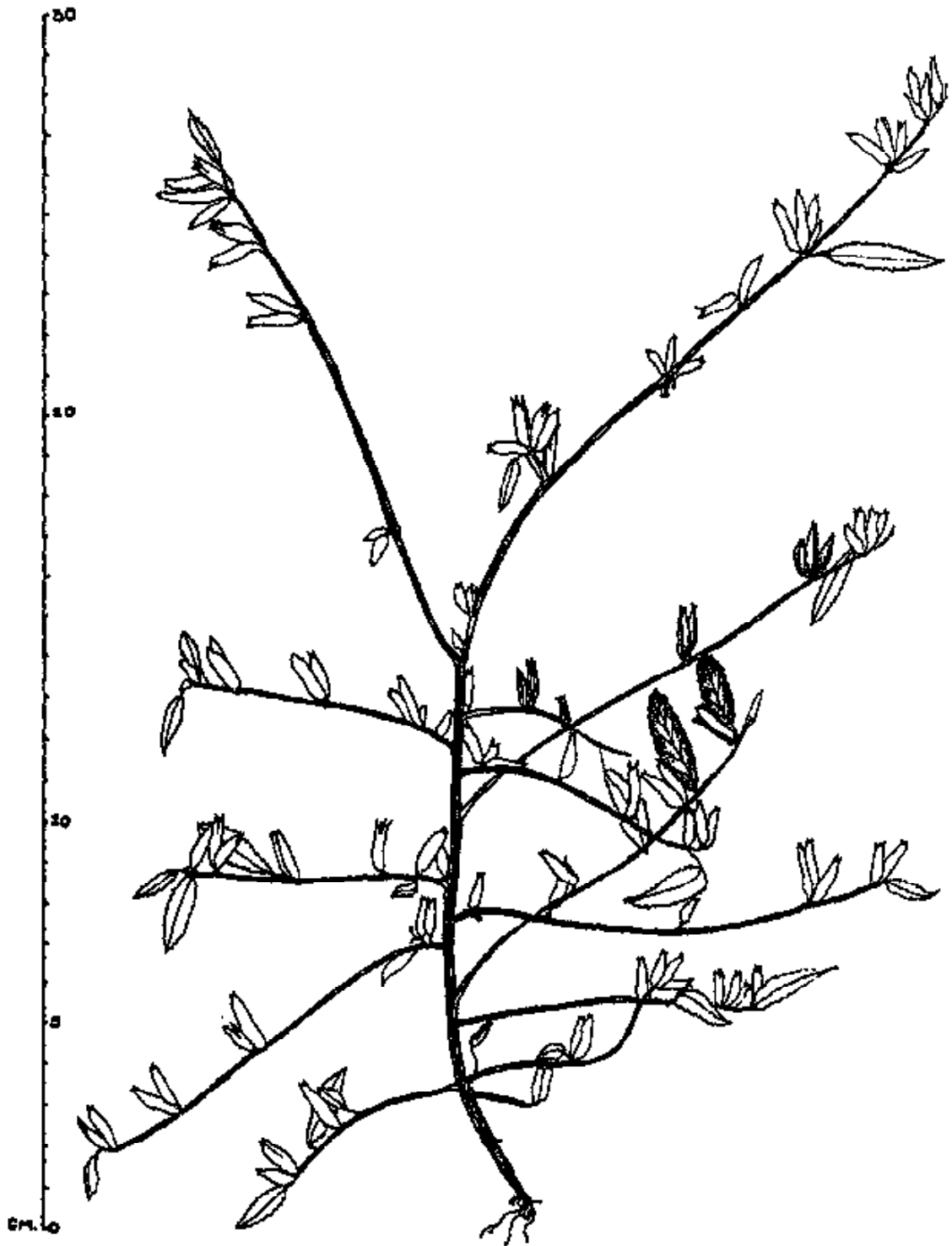
Herbs or undershrubs up to 75 cm tall. Leaves 3.2–7.5 × 2.5–3.5 cm, oblong, ovate to ovate–lanceolate or lanceolate, rounded at base, acuminate at apex, margins serrulate. Flowers yellow, in leaf-opposed, 2–5-flowered cymes. Capsules 4–6 cm long, beaked, 10-ribbed. Seeds trigonous, black.

Fls. & Frts. : September–December.

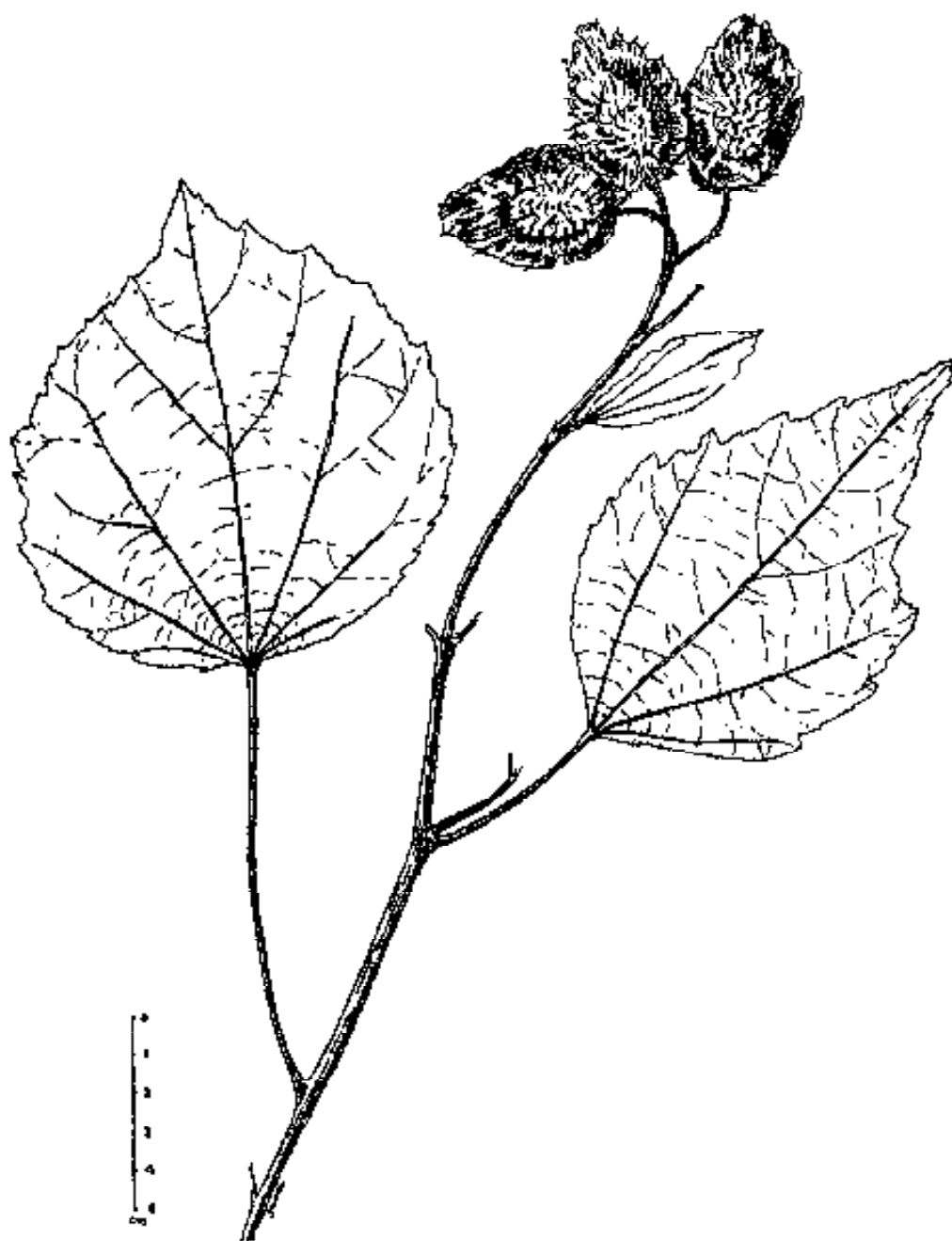
Illus. : Mahesh. *Illus. Fl. Delhi* f. 33.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 85.1982.

Distrib. : Occasional bushes. 17297, 167899.

Corchorus urticifolius Wight & Arn. *Prodr.* 73.1834 (*urticaefolius*); Mast. in Hook. f. *Fl. Brit. India* 1: 397.1874; Daniel & Chandrab. in Sharma *et al.* *Fl. India* 3 : 489.1993; Pradhan in Singh & Karthik. *Fl. Maharashtra* 1: 381. 2000.



f. 8. *Corchorus fascicularis* Lam.



f.9. *Erinocarpus nimmonii* Grah.

Undershrubs ca. 1 m tall. Leaves 2.5–5.0 × 1.5–3.0 cm, ovate, lanceolate or ovate-lanceolate, truncate or obtuse at base, acute at apex, with dentate margins, strigosely hairy. Flowers in leaf-opposed cymes. Capsules ca. 3 cm long, falcate, 3-angled, strigose-hairy.

Fls. & Frts. : July–January.

Distrib. : Malad, Almeida (1996).

ERINOCARPUS Nimmo ex Grah.

Erinocarpus nimmonii Grah. ex Dalz. in Dalz. & Gibs. Bombay Fl. 27.1861; Cooke, Fl. Pres. Bombay 1: 155.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* 3 : 490, f. 135.1993. *E. nimmoanus* Mast. in Hook. f. Fl. Brit. India 1: 394.1874. 'Cher'.

Trees, 4–5 m tall. Leaves up to 20 cm across, orbicular, 5–7-lobed, cordate at base, margins irregularly toothed. Flowers yellow, in lax, terminal panicles. Fruits 3.5–4.0 × 2–3 cm, triquetrous, angles winged, faces covered with slightly curved prickles, woody. Seeds oblong, 1 in each cell.

Fls. & Frts. : August–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 168, f. 104 & 105.1909.

Distrib. : Borivli, P. S. Herbert., 85, 933. 2389. (BLAT).

GREWIA L.

- | | | |
|---|-----|--------------------------|
| 1. Inflorescence a panicle | ... | <i>G. nervosa</i> |
| 1. Inflorescence not a panicle : | | |
| 2. Flowers polygamous : | | |
| 3. Shrubs; stamens numerous, 40 or more | ... | <i>G. hirsuta</i> |
| 3. Trees; stamens 16–20 | ... | <i>G. helicterifolia</i> |
| 2. Flowers bisexual : | | |
| 4. Petals entire or slightly emarginate at apex : | | |
| 5. Stipules leafy | ... | <i>G. tiliifolia</i> |
| 5. Stipules not leafy : | | |
| 6. Leaves glabrous to glabrescent beneath | ... | <i>G. orientalis</i> |

- | | | |
|--|-----|------------------------|
| 6. Leaves tomentose beneath | ... | <i>G. abutilifolia</i> |
| 4. Petals bifid or notched at apex : | | |
| 7. Petal-gland as long as petal | ... | <i>G. serrulata</i> |
| 7. Petal-gland one third to one half the length of petal : | | |
| 8. Stipules leafy | ... | <i>G. tiliifolia</i> |
| 8. Stipules not leafy : | | |
| 9. Leaves broadly ovate to suborbicular ;
drupes hairy | ... | <i>G. asiatica</i> |
| 9. Leaves ovate-oblong ; drupes glabrescent | ... | <i>G. flavescens</i> |

Grewia abutilifolia Vent. ex A. Juss. in Ann. Mus. Natl. Hist. Nat. 4: 92.1804; Mast. in. Hook. f. Fl. Brit. India 1: 390.1874, p.p; Cooke, Fl. Pres. Bombay 1: 152.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* Fl. India 3; 493.1993. *G. aspera* Roxb. Fl. Ind. 2 : 591.1832; Almeida, Fl. Maharashtra 1: 155.1996.

Shrubs, 3-5 m tall, branchlets tomentose. Leaves 6-12 × 6-8 cm, rhomboid, rotund or ovate-elliptic, sometimes faintly lobed, rounded, truncate or subcordate at base, acute to acuminate at apex, margins irregularly serrate, scabrous, stellately hairy beneath. Flowers white, turning yellow, in axillary, umbellate-cymes. Drupes ca. 1 cm across, subglobose, wrinkled, stellately hairy.

Fls. & Frts. : June-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 165; f. 102.1909; Matthew, *Illus.* Fl. Tamilnadu Carnatic 2 : t. 86.1982.

Distrib. : Frequent. 167712.

Grewia asiatica L. Mant. Pl. 122.1767; Mast. in Hook. f. Fl. Brit. India 1: 386.1874; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 494.1993. *G. subinaequalis* DC. Prodr. 1: 511.1824; Narayanasw. & Rolla Rao in J. Indian Bot. Soc. 29: 178.1950. '*Phalsi*'.

Trees, 5-7 m tall, tender parts greyish, white-tomentose. Leaves-6-16 × 15-12 cm, ovate, white-tomentose beneath. Flowers yellow, in axillary or extra-axillary cymes. Drupes 0.5-0.6 cm across, globose, 1-2-lobed, black when ripe, slightly hairy.

Fls. & Frts. : February-July.

Illus. : Narayanasw. & Rolla Rao, *op. cit.*

Distrib. : Vihar lake, G. L., Shah, 64 (BLAT).

Grewia flavescens A. Juss. in Ann. Mus. Natl. Hist. Nat. 4: 91.1804; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 498.1993.

G. pilosa Wight & Arn. Prodr. 1: 78.1834 non Lam.1789; Mast. in Hook. f. Fl. Brit. India 1: 388.1874; Cooke, Fl. Pres. Bombay 1: 151.1958 (Repr. ed.). 'Ghor-dhaman'.

Shrubs, 2–4 m tall with hairy branches. Leaves 3–8 × 1.5–3.5 cm, ovate-oblong, rounded or obliquely cordate at base, acute at apex, margins irregularly serrate. Flowers yellow, in short, axillary umbels; sepals glabrous without; petals pilose at apex. Anthers hairy on back. Ovary hairy. Drupes 0.6–1.0 cm across, glabrescent, entire or lobed.

Fls. & Frts. : July–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 162. f. 99.1909 (*G. pilosa*).

Distrib. : Malad, Almeida (1996).

Grewia helicterifolia Wall. ex G. Don, Gen. Hist. 1: 548.1831; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 500.1993. *G. polygama* auct. non Roxb. 1832; Mast. in. Hook. f. Fl. Brit. India 1: 391.1874; Cooke, Fl. Pres. Bombay 1: 153.1958 (Repr. ed.). 'Gauli'

Trees. Leaves 5–10 × 1.8–3.0 cm, oblong-lanceolate, rounded or subacute at base, acute at apex, margins irregularly serrate. Flowers polygamous, in axillary, pedunculate, umbellate-cymes. Drupes ca. 1.2 cm across, faintly 4-lobed, hairy.

Fls. & Frts. : September–November.

Distrib. : Kanheri Jungles, Graham (1839) (BLAT).

Grewia hirsuta Vahl, Symb. Bot. 1: 34.1790; Mast. in Hook. f. Fl. Brit. India 1: 391.1874; Cooke, Fl. Pres. Bombay 1: 153.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 501.1993.

Undershrubs, 1–3 m tall. Stems erect, branches fulvous hairy. Leaves distichous, 2.5–7.0 × 1.5–3.5 cm, ovate or lanceolate, rounded at base, acute at apex, margins serrate, lower surface densely villous. Flowers in axillary, umbellate cymes, yellow. Drupes 0.4–0.6 cm across, fleshy wrinkled, slightly 4-lobed, sparsely stellately hairy.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 76.1838.

Distrib. : Salsette jungles and on the Ghat. Graham (Cooke, *op. cit.*).

Grewia nervosa (Lour.) Panigr. in Taxon 34: 702.1985; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 502.1993; Pradhan in Singh &

Karthik. Fl. Maharashtra 1: 388. 2000. *Fallopia nervosa* Lour. Fl. Cochinch. 336.1790. *Grewia microcos* L. Syst. Nat. ed. 12, 2 : 602.1767; Mast. in Hook. f. Fl. Brit. India 1: 392.1874; Cooke, Fl. Pres. Bombay 1: 154.1958 (Repr. ed.). *Microcos paniculata* L. Sp. Pl. 514.1753. 'Shirul'.

Shrubs, 1–2.5 m tall; branchlets pubescent. Leaves 8–15 × 4–11 cm, elliptic-oblong, elliptic-lanceolate, oblique, rounded or acute at base, acuminate at apex. Flowers yellow, in terminal panicles. Drupes 0.8–1.1 cm long, obovoid, wrinkled, purplish-black.

Fls. & Frts. : May–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 167, f. 103.1909.

Distrib. : Frequent. 167365, 167810.

Grewia orientalis L. Sp. Pl. 964.1753; Mast. in Hook. f. Fl. Brit. India 1: 384.1874; Daniel & Chandrab. in Sharma et al. Fl. India 3 : 506.1993. *G. columnaris* J. E. Sm. in Rees, Cyclop. 17, n 5.1811; Mast. in Hook. f. op. cit. 383; Cooke, Fl. Pres. Bombay 1: 146.1958 (Repr. ed.).

Tall shrubs or small trees, stems much branched. Leaves 5–8 × 1.8–3.5 cm, elliptic-oblong, rounded at base, acute to acuminate at apex, margins crenate-serrate. Flowers white, in umbellate-cymes. Drupes ca. 1.2 cm across, subglobose, slightly 4-lobed, bristly hairy.

Fls. & Frts. : April–June.

Illus. : Wight, Ic. t. 44.1838 (*G. columnaris*).

Distrib. : Salsette, Graham (1839).

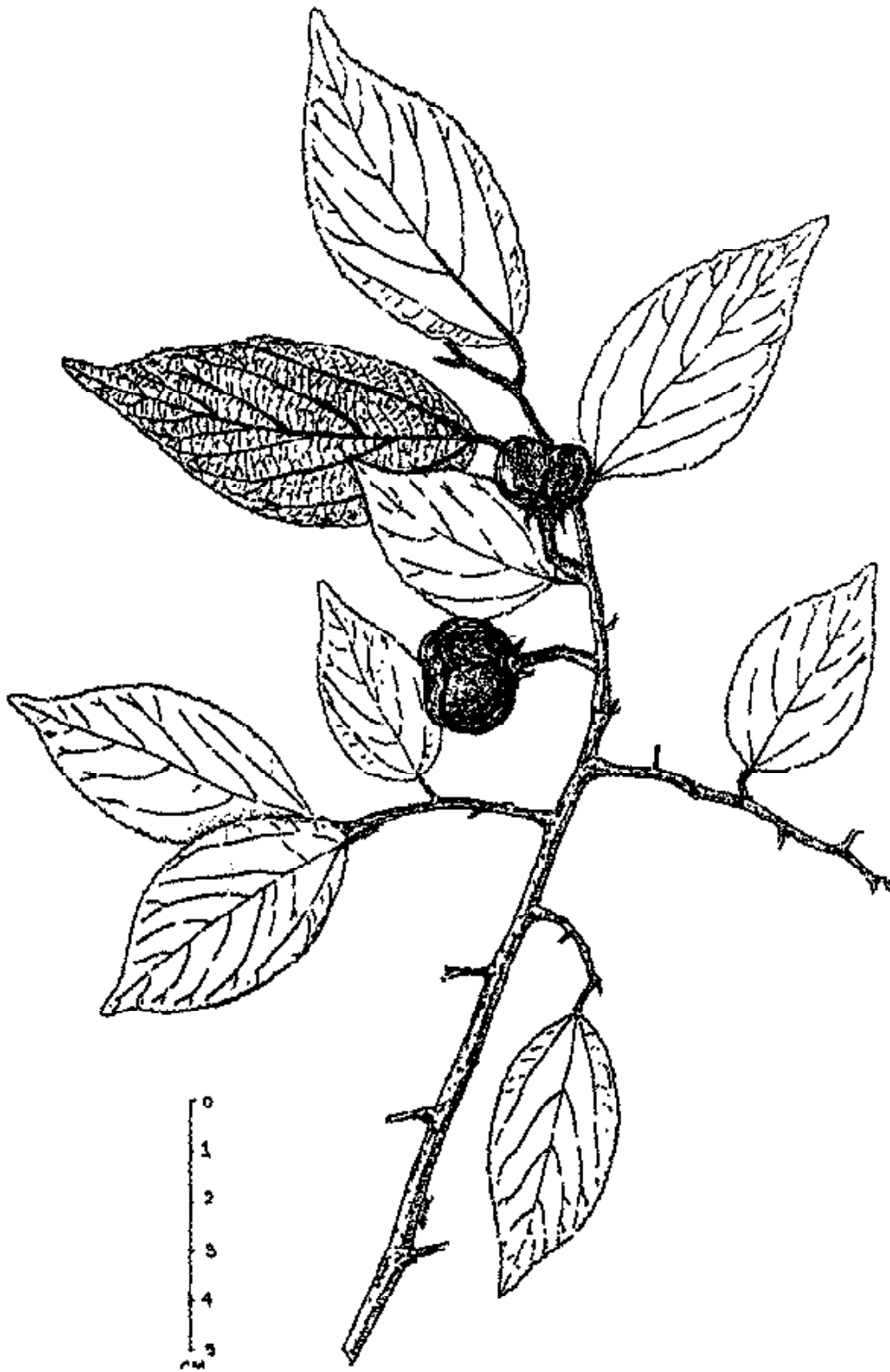
Grewia serrulata DC. Prodr. 1: 510.1824 Narayanasw. & Rolla Rao in J. Indian Bot. Soc. 29 : 179.1950; Daniel & Chandrab. in Sharma et al. Fl. India 3 : 509, f. 138.1993. *G. laevigata* auct. pl. non Vahl, 1790; Mast. in Hook. f. Fl. Brit. India 1: 389.1874; Cooke, Fl. Pres. Bombay 1: 152.1958 (Repr. ed.). 'Kala-dhaman'.

Trees, 4–6 m tall. Leaves 5–12 × 2.3–3 cm, lanceolate, acute at base, acuminate at apex, margins sharply serrate. Flowers yellow or white, in umbellate-cymes. Petals ca. 0.2 cm long. Drupes 0.5–1.0 cm across, deeply 2-lobed, glabrous.

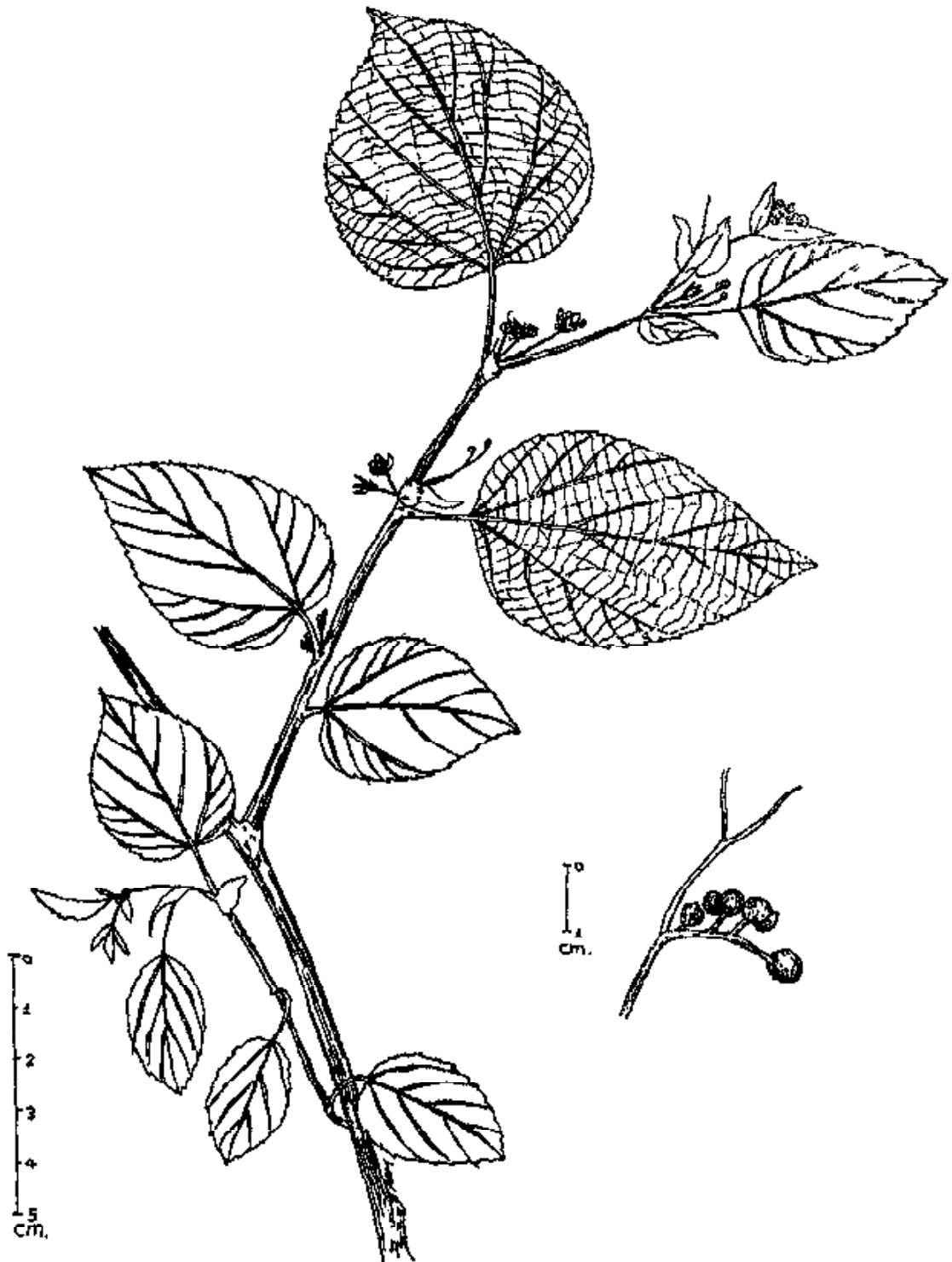
Fls. & Frts. : August–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 164, f. 101.1909.

Distrib. : Frequent. 167361, 167733, 167799.



f. 10. *Grewia orientalis* L.



f.11. *Grewia tilifolia* Vahl

Grewia tiliifolia Vahl, Symb. Bot. 1: 35.1790; Mast. in Hook. f. Fl. Brit. India 1: 386.1874 ('*tiliaefolia*'); Cooke, Fl. Pres. Bombay 1: 150.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* Fl. India 3: 511, f. 140.1993. *G. tiliifolia* Vahl var. *leptopetala* (Brandis) T. Cooke, Fl. Pres. Bombay 1: 142.1901 [1: 150.1958 (Repr. ed.)]. 'Dhaman'.

Trees, 10–13 m tall; branchlets pubescent. Leaves 6–11 × 4–7 cm, ovate–rotund, oblique, subcordate or truncate at base, subacute at apex, margins crenate or dentate. Flowers yellow, in axillary, pedunculate cymes. Drupes 0.7–0.8 cm across, globose, 2-lobed, sparsely hairy.

Fls. & Frts. : April–September.

Illus. : Talbot, For. Fl. Bombay. Pres. & Sind 1: 161, f. 98.1909.

Distrib. : Frequent. 167982.

TRIUMFETTA L.

- | | | |
|---|-----|----------------------|
| 1. Capsules including spines <i>ca.</i> 1 cm across : | | |
| 2. Capsules glabrous | ... | <i>T. annua</i> |
| 2. Capsules tomentose | ... | <i>T. pilosa</i> |
| 1. Capsules including spines up to 0.7 cm across : | | |
| 3. Spines glabrous | ... | <i>T. rhomboidea</i> |
| 3. Spines hairy : | | |
| 4. Leaves rhomboid–ovate, 3-lobed | ... | <i>T. pentandra</i> |
| 4. Leaves orbicular or obovate | ... | <i>T. malebarica</i> |

Triumfetta annua L. Mant. Pl. 1: 73.1767; Mast. in Hook. f. Fl. Brit. India 1: 396.1874; Daniel & Chandrab. in Sharma *et al.* Fl. India 3: 518.1993; Pradhan in Singh & Karthik. Fl. Maharashtra 1. 398. 2000.

Herbs, 30–60 cm tall. Leaves 3–8 × 2–6 cm, ovate, rounded at base, acuminate at apex, margins serrate, stellate–pubescent. Flowers yellow, in axillary fascicles. Capsules globose, glabrous, *ca.* 0.5 cm across, with hooked, *ca.* 0.4 cm long prickles. Seeds brown, rounded on one side, ovoid, dark brown.

Fls. & Frts. : September–October.

Distrib. : Frequent in open areas. 167211.

Triumfetta malebarica Koen. ex Rottb. Pl. Hort. Univ. Rar. Prog. 16.1773; Mabb. in Taxon 33 (3) : 439.1984; Pradhan in Singh &

Karthik. Fl. Maharashtra 1: 398.2000. *T. rotundifolia* Lam. Encycl. 3 : 421.1792; Mast. in Hook. f. Fl. Brit. India 1: 395.1874; Cooke, Fl. Pres. Bombay 1: 156.1958 (Repr. ed.); Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 521.1993.

Suffruticose herbs, 30–45 cm high; young branches densely hairy. Leaves 1.5–3.0 × 1.0–1.3 cm, obovate to orbicular, rounded at base, margins irregularly serrate, grey-tomentose beneath. Flowers in leaf-opposed cymes; sepals lorate-apiculate, tomentose; petals spathulate, yellow. Stamens 10–25. Capsules 0.5–0.6 cm long, ovoid to subglobose; spines pubescent with hooked tips.

Fls. & Frts. : July–December.

Distrib. : G. L. Shah (1969).

Triumfetta pentandra A. Rich. in Guill. *et al.* Fl. Seneg. Tent. 1: 93. t.19.1831; Daniel & Chandrab. in Sharma *et al.* Fl. India 3 : 519.1993; Pradhan in Singh & Karthik. Fl. Maharashtra 1: 399. 2000. *T. neglecta* Wight & Arn. Prodr. 1: 75.1834; Mast. in Hook. f. Fl. Brit. India 1: 396.1874. *T. rhomboidea* var. *pentandra* (A. Rich.) J. L. Ellis in Bull. Bot. Surv. India 24: 209.1983.

Annual herbs, 15–30 cm tall, hairy. Leaves 1.5–8.0 × 3.0–6.5 cm; basal leaves rhomboid-ovate, entire or palmately 3–10-lobed, upper leaves ovate-lanceolate, entire, margins crenate-serrate, stellately hairy beneath. Flowers in leaf-opposed, short-peduncled cymose clusters; sepals cucullate, awned, pubescent; petals yellow, spathulate. Stamens usually 5. Ovary pubescent, ovoid, stigma 2-fid. Capsules 4.0–4.5 × 3.4 cm, ovoid to oblong-ellipsoid, tomentose, 4-seeded, smooth. brown.

Fls. & Frts. : August–April.

Distrib. : Borivli, P. S. Herbert, 57, 780. (BLAT).

Triumfetta pilosa Roth, Nov. Pl. Sp. 223.1821; Mast. in Hook. f. Fl. Brit. India 1: 394 1874; Cooke, Fl. Pres. Bombay 1: 156.1958 (Repr. ed.); Daniel & Chandra. in Sharma *et al.* Fl. India 3 : 519.1993; Pradhan in Singh & Karthik. Fl. Maharashtra 1: 399. 2000. '*Nichardi*'.

Undershrubs, 1.0–1.5 m tall; branchlets densely hispid. Lower leaves lobed; upper ones 5–9 × 2.5–4.0 cm, oblong, ovate or lanceolate, subcordate or obtuse at base, acuminate at apex, margins serrate, stellate-hairy. Flowers yellow, in leaf-opposed, pedunculate, umbellate cymes. Stamens 10. Ovary globose, hairy, stigma 4-Lobed. Capsules 0.6–0.8 cm across, globose, ca. 0.7 cm long. Seeds 8, ovoid, dark-brown, polished.

Fls. & Frts. : October–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 87.1982.

Distrib. : Koppikar (1974).

Triumfetta rhomboidea Jacq. *Enum. Pl. Carib.* 22.1760; Mast. in Hook. f. *Fl. Brit. India* 1: 395.1874; Cooke, *Fl. Pres. Bombay* 1: 156.1958 (Repr. ed.); Sant. in *Bull. Bot. Surv. India* 3 : 21. (1961) 1962; Danial & Chandrab. in Sharma *et al.* *Fl. India* 3 : 520.1993; Pradhan in Singh & Karthik. *Fl. Maharashtra* 1: 399. 2000.

Herbs or undershrubs, 0.5–1.0 cm tall; branchlets stellate-pubescent. Lower leaves palmately 3-lobed, 3–8 cm across; rhomboid, to elliptic or lanceolate, truncate or cuneate at base, acute to acuminate at apex, margins irregularly serrate. Flowers yellow, in leaf-opposed cymes. Stames 8–15. Ovary irregularly hairy, globose. Capsules 0.4 cm across, tomentose, prickly.

Fls. & Frts. : August–January.

Illus. : Wight, *lc. t.* 320.1840, (*Triumfetta angulata* Lam. *Encycl.* 3 : 421.1789).

Distrib. : Frequent in open areas of the forests. 167206, 163718.

MALPIGHIACEAE

- | | | |
|---|-----|--------------|
| 1. Petals clawed; stamens unequal; styles 2 | ... | HIPTAGE |
| 1. Petals not clawed; stamens equal; styles 3 | ... | ASPIDOPTERYS |

ASPIDOPTERYS A. Juss.

Aspidopterys cordata (Heyne ex Wall.) A. Juss. in *Ann. Sci. Nat. Bot.* (ser. 2) 13 : 267.1840; Hook. f. *Fl. Brit. India* 1: 421.1824; Cooke, *Fl. Pres. Bombay* 1: 168.1958 (Repr. ed.); Shrivastava in Hajra *et al.* *Fl. India* 4: 5.1997. *Hiraea cordata* Heyne ex Wall. *Pl. As. Rar.* 1: 13.1829. 'Bur-vel'.

Climbers. Stems extensive; young parts tomentose. Leaves 8–12 × 5–15 cm, broadly ovate to suborbicular, cordate at base, broadly acuminate at apex, white-tomentose beneath. Flowers creamy-yellow, in lax, tomentose, axillary and terminal panicles. Samaras 1.4–2.1 cm across, orbicular, finely reticulate, pale-brown.

Fls. & Frts. : September–November.

Illus. : Gandhi in Sald. & Nicols. *Fl. Hassan Dt.* 409, f. B–Bb.1976.

Distrib. : Frequent on hills and plains. 167315, 167362.

HIPTAGE Gaertn.

Hiptage benghalensis (L.) Kurz in J. Asiat. Soc. Bengal, 43 : 136.1874; Blatt. in J. Bombay nat. Hist. Soc. 34: 893.1936; Bor & Raiz. Beutif. Climbers & Shrubs India 182.1954; Shrivastava in Hajra *et al.* Fl. India 4: 14, f. 4.1997. *Banisteria benghalensis* L. Sp. Pl. 427.1753. *Hiptage madablota* Gaertn. Fruct. Sem. Pl. 2 : 169, t. 116. f. 4.1794 *nom. illeg.*; Hook. f. Fl. Brit. India 1: 418.1874; Cooke, Fl. Pres. Bombay 1: 167.1958 (Repr. ed.). 'Madhumalati'.

Woody climbers, 10–20 m long; branchlets densely woolly. Leaves 6–16 × 3.5–9.0 cm, ovate–elliptic or elliptic–oblong, coriaceous, obtuse at base, acute to acuminate at apex. Flowers white, fragrant, in terminal and/or axillary racemes up to 15 cm long. Samaras unequally 3-winged, medium wing ca. 4 × 2 cm, lateral ones ca. 2.5 × 1 cm. Seed solitary, globose.

Fls. & Frts. : January–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 178, f. 110.1909.

Distrib. : Occasional bushes. 167486.

AVERRHOACEAE

CULTIVATED SPECIES :

Averrhoa carambola L. Sp. Pl. 428.1753; Edgew. & Hook. f. in Hook. f. Fl. Brit. India 1: 439.1874; Cooke, Fl. Pres. Bombay 1: 178.1958 (Repr. ed.); Kulkarni in Singh & Karthik, Fl. Maharashtra 1: 435. 2000. 'Kamaranga'. 'Karambola'

Trees, 6–8 m tall with drooping branches. Leaves imparipinnately compound; leaflets 3–7 × 2.3 cm, ovate–oblong to ovate–lanceolate, obliquely acute at base, acuminate at apex. Flowers white and purple usually in axillary racemes. Fruits oblong, greenish–yellow, acutely angled; seeds arillate.

Fls. & Frts. : March–August.

Distrib. : Planted for its edible fruits G. L. Shah. (1984).

OXALIDACEAE

- | | | |
|------------------------------|-----|-----------|
| 1. Leaves palmately compound | ... | OXALIS |
| 1. Leaves pinnately compound | ... | BIOPHYTUM |

BIOPHYTUM DC.

Biophytum sensitivum (L.) DC. Prodr. 1: 690.1824; Edgew. & Hook. f. in Hook. f. Fl. Brit. India 1: 436 :1874 p.p; Cooke, Fl. Pres. Bombay 1:177.1958 (Repr. ed.); Veldk. in Steenis, Fl. Males. 1.7:162.1971. *Oxalis sensitiva* L. Sp. Pl. 434.1753.

Herbs up to 15 cm tall. Leaves 4–6 cm long; leaflets 6–14 pairs, terminal pair largest, basal pairs diminishing in size, 0.4–0.7 × 0.2–0.4 cm, oblong, obovate, obliquely rounded at base, apiculate at apex. Flowers yellow, in 5–10 cm long, 7–10-flowered umbels; peduncles 3–8 cm long. Capsules 0.3–0.3 cm long, apiculate, glandular-pubescent along septa. Seeds concentrically 9-ridged, ovoid, acute.

Fls. & Frts. : August–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 96.1982

Distrib. : Frequent among grasses and sedges. 167994.

OXALIS L.

Oxalis corniculata L. Sp. Pl. 435.1753; Edgew. & Hook. f. in Hook. f. Fl. Brit. India 1: 436.1874; Cooke, Fl. Pres. Bombay 1:177.1958 (Repr. ed.); Veldk. in Steenis, Fl. Males. 1,7: 155.1971; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 437.2000. 'Ambushi'.

Herbs; branchlets creeping, rooting at nodes, diffuse. Leaves 3-foliolate; leaflets obovate, 0.4–1.6 × 0.5–1.7 cm; petioles 5–8 cm long. Flowers yellow, in axillary, pedunculate pseudo-umbels; peduncles 3–10 cm long. Capsules 1.3–1.5 × 0.2–0.4 cm, oblong, beaked. Seeds many, ovoid to ellipsoid, transversely ridged.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t.18.1838; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 97.1982.

Distrib. : Borivli, P. S. Herbert, 603, 2706–8. (BLAT).

BALSAMINACEAE

IMPATIENS L.

- | | | |
|---------------------|-----|---------------------|
| 1. Leaves alternate | ... | <i>I. balsamina</i> |
| 1. Leaves opposite | ... | <i>I. minor</i> |

Impatiens balsamina L. Sp. Pl. 938.1753; Hook. f. Fl. Brit. India 1: 453.1874; Cooke, Fl. Pres. Bombay 1:184.1958 (Repr. ed.); Mudaliyar & Prasad in Singh & Karthik. Fl. Maharashtra 1: 447.2000. *Terda'*.

1. Leaves over 7 cm long ... var. *balsamina*
 1. Leaves less than 5 cm long ... var. *agrestis*

var. balsamina.

Herbaceous annuals, 30–50 cm tall, Leaves 8–12 × 1.5–2.5 cm, linear–lanceolate or elliptic–oblong, margins serrate, attenuate at base, acuminate at apex, petioles up to 0.5 cm long. Flowers rosy–pink to purple, pedicellate, axillary, slender. Capsules ca. 1.0 × 0.5 cm, oblong–ellipsoid, tomentose. Seeds ovoid, tubercled.

Fls. & Frts. : July–October.

Distrib. : Abundant during monsoon. 167240, 167804.

var. *agrestis*. Hook. f. in Rec. Bot. Surv. India 4: 50.1906; Blatt. in J. Bombay nat. Hist. Soc. 36: 314: 1933, Mudaliyar & Prasad in Singh & Karthik. Fl. Maharashtra 1: 445.2000.

Branched herbs. Leaves sessile, ovate. Flowers rosy; spurs stout, incurved.

Fls. & Frts. : July–October.

Distrib. : Versova, Almeida (1996).

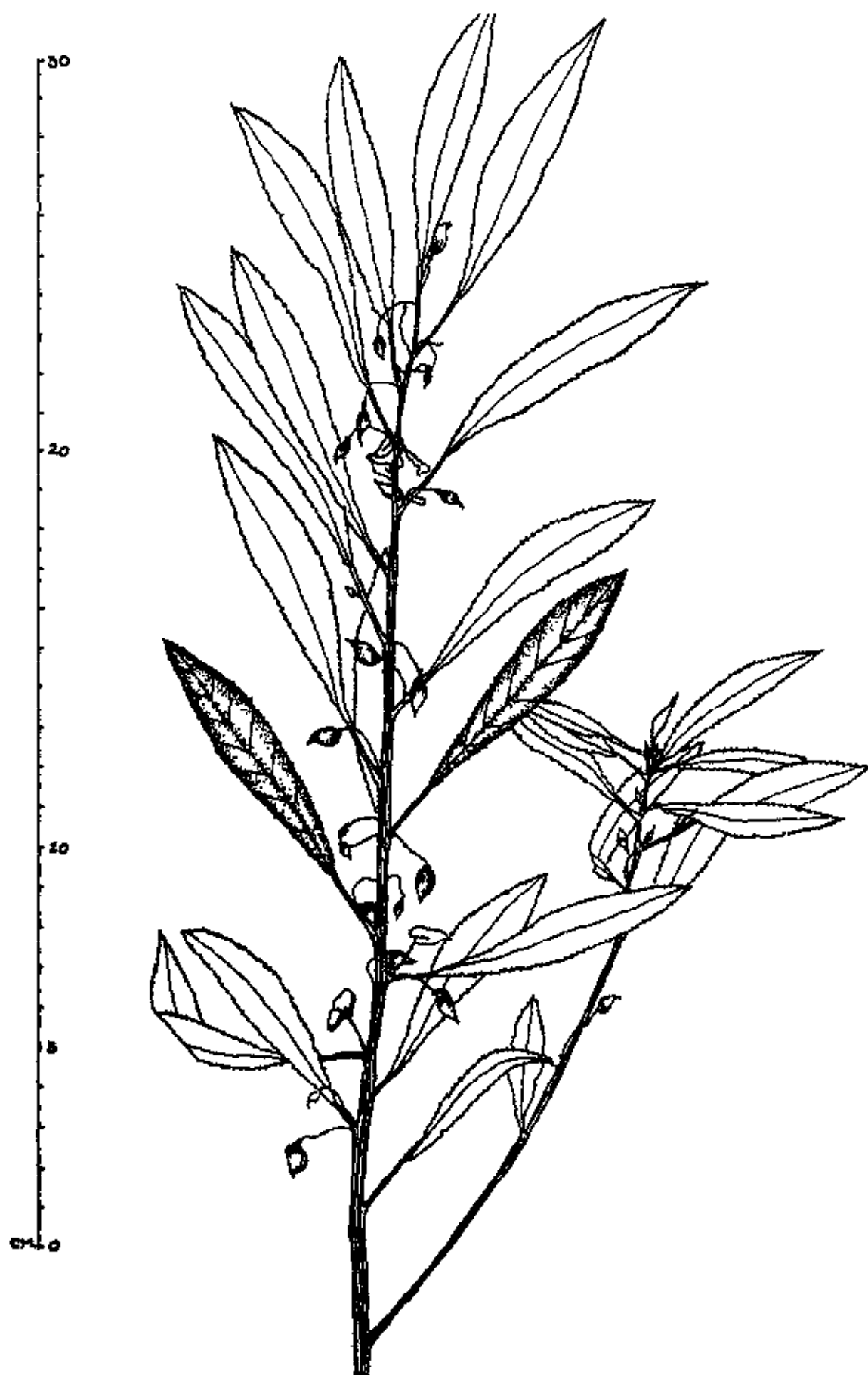
Impatiens minor (DC.) Bennet in Indian J. For. 2 : 283.1979. *Balsamina minor* DC. Prodr. 11 : 686.1824. *Impatiens kleinii* Wight & Arn. Prodr. 140.1834; Hook. f. Fl. Brit. India 1 : 445.1874; Cooke, Fl. Pres. Bombay 1 : 181.1958 (Repr. ed.).

Herbaceous annuals, 15–30 cm tall. Leaves 2.5–6.0 × 2–2.5 cm, petioled, elliptic, lanceolate or obovate, acute, serrulate, narrow at base. Flowers small, violet, purple or white; pedicels 1–2 cm long, axillary, solitary or paired. Capsules ca. 1 cm long, narrowly fusiform. Seeds globose, black.

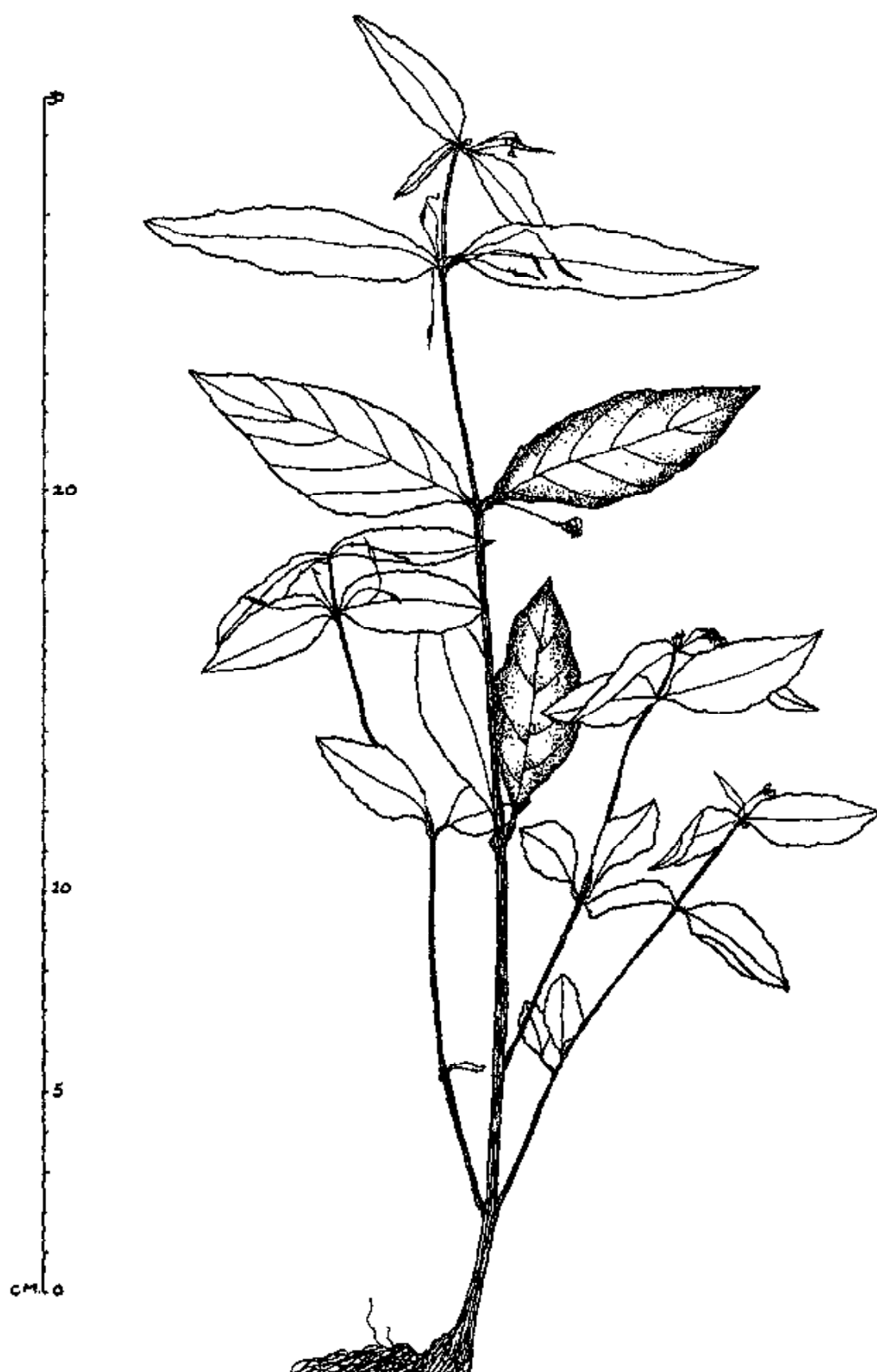
Fls. & Frts. : August–September.

Illus. : Wight, Ic. t. 884, 1844–45 (*Impatiens kleinii*).

Distrib. : Frequent undergrowth during monsoon. 167806, 167822, 167861.



f.12. *Impatiens balsamina* L.



f.13. *Impatiens minor* (DC.) Bennet

RUTACEAE

- | | | |
|--|-----|----------|
| 1. Leaflets 3, rarely 5-foliolate; stamens numerous, 30-60 | ... | AFRO |
| 1. Leaflets 5-15 foliolate; stamens 8-10 | ... | CLAUSENA |

AEGLE Corr. (*nom. cons.*)

Aegle marmelos (L.) Corr. in Trans. Linn. Soc. London 5: 223.1800; Hook. f. Fl. Brit. India 1: 516.1875; Cooke, Fl. Pres. Bombay 1: 204.1958 (Repr. ed.); Nair & Nayar in Hajra, *et al.* Fl. India 4: 264.1997. *Crateva marmelos* L. Sp. Pl. 444.1753. 'Bel'.

Trees, 10-15 m tall; branches armed with straight, sharp, axillary 2-4 cm long, single or paired spines. Leaves 3-foliolate, up to 5 cm long; leaflets elliptic-lanceolate, elliptic oblong, obovate, cuneate or rounded at base, obtuse or acuminate at apex, terminal ones 4.4-5.0 × 2.0-2.5 cm, lateral ones 2.0-2.5 × 1.0 cm. Flowers white, in axillary panicles. Berries 6-8 cm across, globose, woody. Seeds many, oblong.

Fls. & Frts. : March-May.

Illus. : Wight, Ic. t. 16.1838; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 101.1982.

Distrib. : Borivli, P. S. Herbert, 2404 (BLAT).

CLAUSENA Burm. f.

Clausena anisata (Willd.) Hook. f. ex Bth. in Hook. Niger. Fl. 256.1849; Molino in Bull. Mus. Hist. Nat. (Paris) 16:128.1994; Nair & Nayar in Hajra *et al.* Fl. India 4: 321.1997. *Amyris anisata* Willd. Sp. Pl. ed. 4(2) : 337.1799. *Clausena dentata* (Willd.) Roem. Syn. Hesper. 44: 1846. *C. willdenowii* Wight & Arn. Prodr. 96.1834; Hook. f. Fl. Brit. India 1: 506.1875; Cooke, Fl. Pres. Bombay 1:194.1958 (Repr. ed.).

Large shrubs or small trees, 8-10 m tall, young parts grey-tomentose. Leaves imparipinnately compound, 20-40 cm long; leaflets 5-15, 3-5 × 8 × 2-4.5 cm, ovate-elliptic or ovate-oblong, distant, oblique at base, acute to acuminate at apex or emarginate, margins crenulate. Flowers ca. 0.8 cm across, fragrant, in 5-20 cm long racemes; sepals ovate ciliate, petals ovate, white, reticulately veined. Ovary cylindrical with 4-lobed stigma, Berries ca. 1 cm across, ovoid or globose, 1-2-seeded.

Fls. & Frts. : February-May.

Illus. : Wight, Ic. t. 14.1838; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 105.1982. (*Clausena willdenowii*).

Distrib. : Borivli, Almeida (1996). (*Clausena dentata*)

CULTIVATED SPECIES :

Citrus limon (L.) Burm. f. *Fl. Ind.* 173.1768; Bailey, *Man. Cult. Pl.* ed. 2, 609.1949; Nair & Nayar in Hajra *et al.* *Fl. India* 4: 282.1997. *C. medica* var. *limon* L. *Sp. Pl.* 782.1753. *C. medica* var. *limonum* (Wight & Arn.) Hook. f. *Fl. Brit. India* 1: 515.1875; Cooke, *Fl. Pres. Bombay* 1: 201.1958 (Repr. ed.). 'Idlimbu'.

Shrubs or small trees armed with stout spines. Leaves elliptic-ovate, margins crenate-serrate, petioles winged. Flowers solitary or in capitate racemes, white. Fruits ovoid, or globose, yellow when ripe, edible.

Fls. & Frts. : April-September.

Distrib. : Malad, Almeida (1996).

Limonia acidissima L. *Sp. Pl.* ed. 21: 554.1762; Nair & Nayar in Hajra *et al.* *Fl. India* 4: 294, f. 75.1997. *Feronia elephantum* Corr. in *Trans. Linn. Soc. London.* 5: 225.1800; Hook. f. *Fl. Brit. India* 1: 516.1875; Cooke, *Fl. Pres. Bombay* 1: 203.1958 (Repr. ed.). *F. limonia* (L.) Swingle in *J. Wash. Acad. Sci.* 4: 328 1914 & in Webber & Batchelor, *Citrus Industr.*, 1: 466.1948; M. R. Almeida *Fl. Maharashtra* 1: 207.1996. 'Kavat'.

Moderate-sized trees armed with straight, sharp spines. Leaves imparipinnately compound with winged midrib. Flowers small, numerous, dull red, in lateral and terminal panicles. Berries 5-10 cm across, globose; seeds embedded in edible pulp.

Fls. & Frts. : March-July.

Illus. : Wight, Ic. t. 15.1838 (*Feronia elephantum*); Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 108.1982.

Distrib. : G. L. Shah, (1984), Malad, Almeida (1996).

BURSERACEAE

GARUGA Roxb.

Garuga pinnata Roxb. Pl. Cor. 3 : 5, t. 208.1819 & Fl. Ind. 2 : 400.1832; Bennett in Hook. f. Fl. Brit. India 1: 528.1875; Cooke, Fl. Pres. Bombay 1: 211.1958 (Repr. ed.); Kalkman in Blumea 7: 468.1953. '*Kakad*'.

Trees up to 10 m tall, deciduous; stems with bark peeling off. Leaves 15–30 cm long, compound; leaflets 6–10 pairs and an odd one, 5–12 × 2–4 cm, elliptic-oblong or ovate-lanceolate, acuminate, crenate. Flowers yellowish-white, in 10–20 cm long, axillary panicles. Drupes 1–2 cm across, ovoid, yellow. Seeds ellipsoid, glabrous.

Fls. & Frts. : January–May.

Illus. : Wight, Ic. tt. 1594 & 1595.1850; Matthew, Illus. Fl. Tamilnadu Carnatic 2 :t. 122.1982.

Distrib. : Frequently distributed. 167856, 168974.

MELIACEAE

- | | | |
|--------------------|-----|---------|
| 1. Leaves simple | ... | TURRAEA |
| 1. Leaves compound | ... | TOONA |

TOONA Roem.

Toona hexandra (Wall. ex Roxb.) Roem. var. **griffithiana** (Pierre) Almeida, Fl. Mah. 1: 230.1996; Moorthy in Singh & Karthik. Fl. Maharashtra 1: 509.2000. *Cedrela febrifuga* Bl. var. *griffithiana* Pierre Fl. Fr. Cochinch. 4:t. 358.1897.

Tall trees reaching 20 m height. Leaves pinnate, 30–40 cm long or more; leaflets 5–15 × 2–5 cm, ovate-lanceolate to lanceolate, oblique at base, acuminate at apex. Flowers fragrant, in drooping large, terminal, pubescent panicles; sepals orbicular-ovate, ciliate; petals white, elliptic, keeled at base. Stamens 5, filaments pilose. Ovary ovoid, hairy, Capsules 1.8–2.0 long, oblong. Seeds winged.

Fls. & Frts. : February–May.

Distrib. : Salsette, Law, s.n. (CAL), Almeida (1996).

TURRAEA L.

Turraea villosa Benn. Pl. Java Rar. 182.1840; Hiren in Hook. f. Fl. Brit. India 1: 542.1875; Cooke, Fl. Pres. Bombay 1: 216.1958 (Repr. ed.); Moorthy in Singh & Karthik. Fl. Maharashtra 1: 511.2000.

Shrubs, 3–5 m tall. Leaves 5–10 × 3.5–6.5 cm, ovate or elliptic, rounded or acute at base, acuminate at apex. Flowers 3.0–3.5 cm long, axillary, solitary or in clusters of 2–6 or in short peduncled umbels; Calyx campanulate; corolla with yellow, spathulate petals. Capsules ca. 1 cm across, subglobose, glabrous.

Fls. & Frts. : April–August.

Illus. : Wight, Ic.t. 1593.1850; Talbot, For. Fl. Bombay Pres. & Sind 1: 225, f. 134.1909.

Distrib. : Borivli, Almeida (1996).

CULTIVATED SPECIES :

Azadirachta indica A. Juss. in Mem. Mus. Hist. Nat. Paris 19: 221 t. 2, f.5.1830; Cooke, Fl. Pres. Bombay 1: 220.1958 (Repr. ed.). *Melia azadirachta* L. Sp. Pl. 385.1753; Hiern in Hook. f. Fl. Brit. India 1: 544.1875. 'Neem'.

Trees, 10–20 m tall. Leaves pinnate or imparipinnate, 10 × 20 cm; leaflets 5–7 pairs, 3.8–6.5 × 1.5–2.3 cm, subopposite, oblong-lanceolate, oblique at base, acuminate at apex, margins serrate. Flowers white with bluish tinge, in axillary panicles 15 cm long. Drupes ca. 1.5 × 0.5 cm, oblong, ovoid. Seeds solitary, ellipsoid.

Fls. & Frts. : December–May.

Illus. : Wight, Ic.t.17.1838; Matthew, Illus. Fl. Tamilnadu Carnatic 2 t : 125.1982.

Distrib. : Cultivated along road sides near Chena beat. 167864.

OLACACEAE

OLAX L.

Olax imbricata Roxb. Fl. Ind. 1: 169.1820; Sleumer in Blumea 26: 156.1980; Moorthy in Singh & Karthik. Fl. Maharashtra 1: 515.2000. *O. wightiana* Wall. ex Wight & Arn. Prodr. 89.1834; Mast. in Hook. f. Fl. Brit. India 1: 575.1875; Cooke, Fl. Pres. Bombay 1: 235.1958 (Repr. ed.).

Straggling shrubs. Leaves 5-8 × 2.4-5 cm, oblong or elliptic-oblong, obtuse at both ends. Flowers creamy, in terminal and/or axillary, 5 cm long racemes. Drupes 0.8-0.9 × 0.6-0.7 cm, globose, enclosed partially by persistent calyx. Seeds 1.

Fls. & Frts. : December-May.

Illus. : Wight, Ic.t.1861.1852; Talbot, For. Fl. Bombay Pres. & Sind 1: 257, f. 152.1909; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 135 ff. (1-10.) 1982.

Distrib. : Occasional, 167426.

OPILLACEAE

CANSJERA Juss. (*nom.cons.*)

Cansjera rheedii J. F. Gmel. in L. Syst. Nat. (ed. 13), 2 : 280.1791; Mast. in Hook. f. Fl. Brit. India 1: 582.1875; Cooke, Fl. Pres. Bombay 1: 237.1958 (Repr. ed.); Moorthy in Singh & Karthik. Fl. Maharashtra 1: 517. 2000.

Shrubs, straggling. Stems and branches sometimes spiny; branchlets tomentose. Leaves 3-5 × 2.5-3 cm, ovate, oblong-lanceolate, obtuse at base, acuminate to caudate at apex, petiolate. Flowers yellowish, axillary, solitary or 2-3 in 2-5 cm long spikes. Drupes ca. 2 × 1 cm, ovoid, red when ripe. Seeds solitary.

Fls. & Frts. : November-March.

Illus. : Wight, Ic.t.1861.1852; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 137.1982.

Distrib. : Frequent. 167425, 167428, 167797.

CELASTRACEAE

- | | | |
|------------------------------|-----|-----------|
| 1. Fruits dehiscent capsules | ... | CELASTRUS |
| 1. Fruits indehiscent drupes | ... | CASSINE |

CASSINE L.

Cassine glauca (Roxb.) O. Ktze. Rev. Gen. Pl. 1:114.1891; Ding Hou in Steenis, Fl. Males. 1, 6: 286.1962; Londhe in Singh & Karthik. Fl. Maharashtra 1: 520.2000. *Mangifera glauca* Rottb. Nye. Samml. Kongel. Norske Vid. Selsk. Skr. 2 : 534, t. 4, f. 1.1783. *Elaeodendron glaucum* (Rottb.) Pers. Syn. Pl. 1 : 241.1805; Laws. in Hook. f. Fl. Brit. India 1: 623.1875. 'Bhutyakalas'

Trees, 5–6 m tall. Leaves 5–10 × 2–5 cm, elliptic, rounded to acute at base, acute or acuminate at apex, margins crenate–serrate. Flowers greenish, numerous, in dichotomously branched, axillary to extra-axillary paniculate–cymes; calyx lobes orbicular, unequal with membranous margins, petals oblong–obtuse. Drupes 0.8–1.5 × 0.5 cm, obovoid, apiculate.

Fls. & Frts. : February–July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 275, f.182.1909 (*Elaeodendron glaucum*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 :t. 141.1982.

Distrib. : Ajankar & Bharati (1999).

CELASTRUS L.

Celastrus paniculatus Willd. Sp. Pl. 1: 1125.1798; Laws. in Hoof. f. Fl. Brit. India 1: 617.1875; Cooke, Fl. Pres. Bombay 1: 245.1958 (Repr. ed.); Ding Hou in Steenis, Fl. Males. 6: 235.1962. '*Mal-kangoni*'.

Shrubs. Stems extensive, twining, covered with lenticular warts. Leaves 3.5–15.0 × 2.5 × 10.0 cm, alternate, broadly ovate, elliptic–oblong, obovate or nearly orbicular, shortly acuminate, margins crenate. Flowers unisexual, yellowish–white, in 5–15 cm long, terminal panicles. Capsules 0.5–0.8 cm across, subglobose or ovoid, red or orange when ripe. Seeds 4–6, ovoid, brown, ribbed, covered with fleshy, scarlet–red aril.

Fls. & Frts. : November–May.

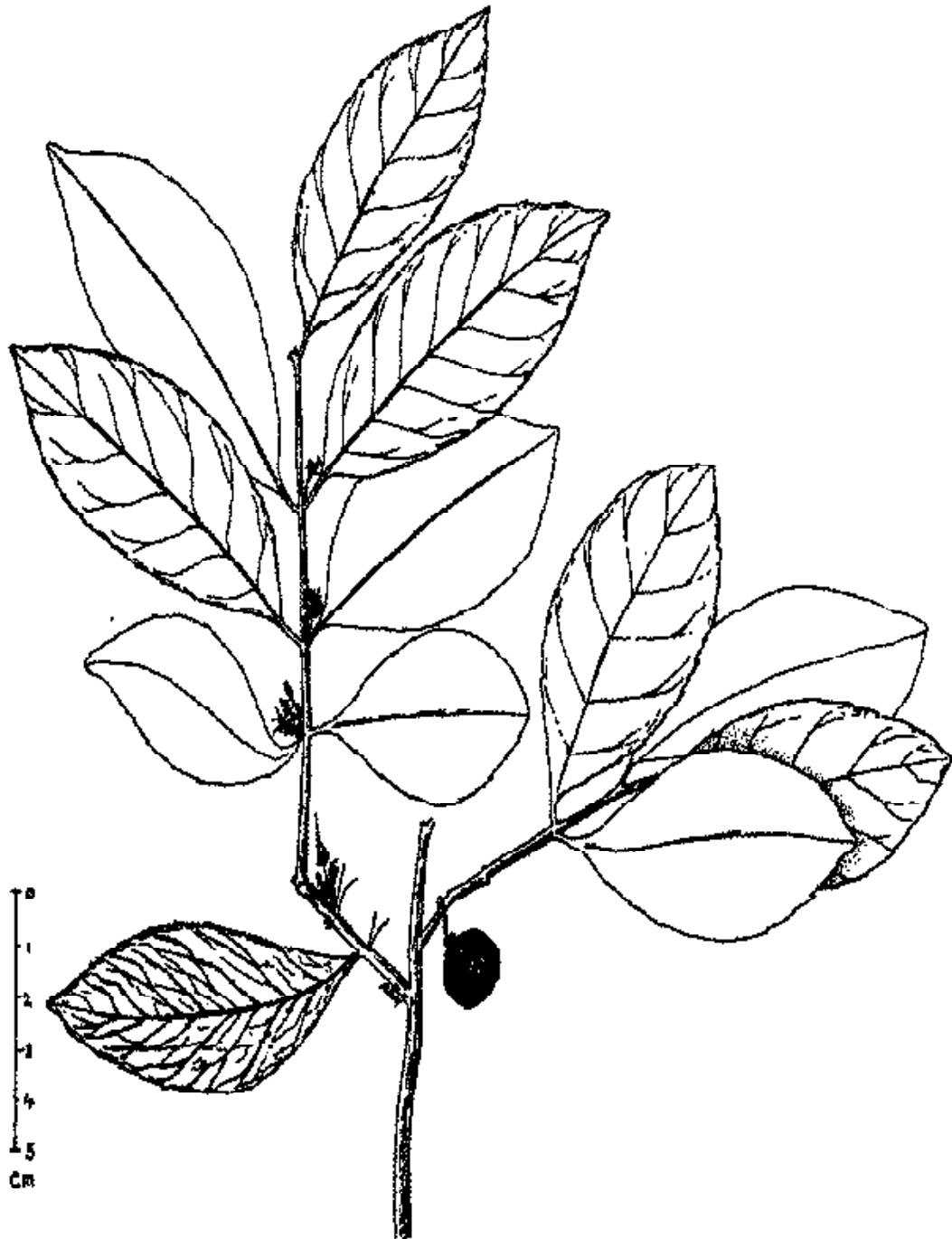
Illus. : Wight, Ic. t. 158.1839; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 142.1982.

Distrib. : Frequent. 167496, 167863.

HIPPOCRATEACEAE

SALACIA L.

Salacia chinensis L. Mant. 293.1771; Ding Hou in Steenis, Fl. Males. 1, 6: 419.1964; Moorthy in Singh & Karthik. Fl. Maharashtra 1: 527. 2000. *S. prionodes* DC. Prodr. 1: 571.1824; Laws. in Hook. f. Fl. Brit. India 1: 626.1875; Cooke, Fl. Pres. Bombay 1: 250.1958 (Repr. ed.). '*Nisul-bondi*'



f.14. *Salacia chinensis* L.

Shrubs; stems straggling or climbing, branches divaricate. Leaves 3.0–7.5 × 2.5–3.0 cm, elliptic-oblong, acute at base, shortly acuminate at apex, margins entire or crenate-serrate. Flowers yellow, ca. 0.7 cm across, in axillary umbels. Berries ca. 1.2 cm across, globose, 1-seeded.

Fls. & Frts. : December–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 149.1982.

Distrib. : Salsette, *Graham* (1839).

RHAMNACEAE

- | | | |
|----------------------|-----|-----------|
| 1. Fruits winged | ... | VENTILAGO |
| 1. Fruits not winged | ... | ZIZIPHUS |

VENTILAGO Gaertn.

- | | | |
|---------------------------|-----|-------------------------|
| 1. Nut-girt at base | ... | <i>V. maderaspatana</i> |
| 1. Nut-girt around middle | ... | <i>V. denticulata</i> |

Ventilago denticulata Willd. in *Ges. Naturf. Freunde Neue, Schr.* 3 : 417.1801; S.P. Banerjee & P. K. Mukherjee in *Indian Forester* 96 : 209.1970; Bhandari & Bhansali in *Nayar et al. Fasc. Fl. India* 20 : 82.1990. *V. calyculata* Tul. in *Ann. Sci. Nat. (ser. 4)*, 8 : 124.1857; Laws. in *Hook. f. Fl. Brit. India* 1 : 631.1875; Cooke, *Fl. Pres. Bombay* 1:254.1958 (Repr. ed.).

Lianas. Leaves 5–12 × 2.5–7.0 cm, ovate-elliptic or elliptic-oblong, oblique-rounded or acute at base, subacute at apex, margins crenate-serrate. Flowers greenish-yellow, in 15–20 cm long, paniculate spikes. Fruits consisting of nut, 0.3–0.8 cm across, globose or subglobose, pubescent, wings 3–6 cm long, obovate.

Fls. & Frts. : January–March.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1 : 292, f.174.1909. (*V. calyculata*).

Distrib. : Occasional, 167448.

Ventilago maderaspatana Gaertn. *Fruct.* 1 : 223, t. 49, f. 2.1788; Laws. in *Hook. f. Fl. Brit. India* 1 : 631.1875; Cooke, *Fl. Pres. Bombay* 1 : 253.1958 (Repr. ed.); P. K. Mukherjee in *Indian Forester* 96 : 207.1970; Bhandari & Bhansali in *Nayar et al. Fasc. Fl. India* 20 : 57.1990.

Lianas, 10–20 m long; branchlets pubescent. Leaves 4–10 × 2–5 cm, elliptic, ovate or lanceolate, obtuse to subacute at base, acute to

acuminate at apex, inequilateral, alternate. Flowers yellow, in axillary and / or terminal ca. 15 × 10 cm, pubescent panicles. Fruits samara-like, with basal globose nut and oblong wing 3.5–4.5 × 0.6 × 0.8 cm. Seed 1, globose.

Fls. & Frts. : December–March.

Illus. : Wight, Ic. t. 163.1839; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 153.1982.

Distrib. : Borivli, Collector? 28619 (BLAT)

ZIZIPHUS P. Mill.

- | | | |
|---|-----|----------------------|
| 1. Petals absent | ... | <i>Z. rugosa</i> |
| 1. Petals present : | | |
| 2. Leaves acute to subacuminate at apex | ... | <i>Z. oenoplia</i> |
| 2. Leaves subotuse or obtuse at apex : | | |
| 3. Leaves glabrous beneath : | | |
| 4. Plants armed with stipular thorns | ... | <i>Z. caracutta</i> |
| 4. Plants unarmed | ... | <i>Z. glabrata</i> |
| 3. Leaves tomentose beneath : | | |
| 5. Styles 2, connate for about half to even more their length : | | |
| 6. Leaves more than 2 cm long; drupes 1.0–1.5 cm across | ... | <i>Z. mauritiana</i> |
| 6. Leaves less than 2 cm long; drupes less than 1 cm across | ... | <i>Z. nummularia</i> |
| 5. Styles 2–3, distant or nearly so | ... | <i>Z. xylopyra</i> |

Ziziphus caracutta Roxb. *Fl. Ind. 2* : 361.1824 & *Fl. Ind. 1* : 612.1832; Bhandari & Bhansali in Nayar *et al.* *Fasc. Fl. India 20* : 93.1990. *Z. xylopyra* var. *glaberrima* Sedgw. in *Ind. For.* 45: 71.1919; Sant. in *Kew Bull.* 1948: 489–490.1949. *Z. glaberrima* (Sedgw.) Sant. in *J. Bombay nat. Hist. Soc.* 51:803.1953. 'Ghot-bor'.

Shrubs or small trees, 3–5 m tall; stems prickly. Leaves 2.5–4.0 × 2.0–3.5 cm, ovate–elliptic or nearly orbicular. Flowers greenish–yellow, in axillary clusters. Drupes globose, slightly depressed. Seeds orbicular.

Fls. & Frts. : October–December.

Distrib. : Borivli, P. S. Herbert , 870, 1106 (BLAT).

Z. glabrata Heyne ex Roth, *Nov. Pl. Sp.* 159.1821; Laws, in Hook. *f. Fl. Brit. India 1* : 633.1875; Pradhan in Singh & Karthik. *Fl.*

Maharashtra 1: 543. 2000. *Z. trinervia* Roxb. Fl. Ind. 1: 606.1820 non Poir.1813; Cooke, Fl. Pres. Bombay 1: 256.1958 (Repr. ed.); Bhandari & Bhansali in Nayar *et al.* Fasc. Fl. India 20 : 96.1990.

Trees 3–4 m tall. Leaves 2.5–7.5 × 1.5 × 3.5 cm, elliptic, oblique, rounded or subacute at base, subobtuse at apex, often mucronate, margins serrate. Flowers greenish–yellow, in axillary, peduncled cymes. Fruits ca.0.1 cm across, globose, rugose.

Fls. & Frts. : September–November.

Illus : Wight, Ic.t. 282.1840.

Distrib. : G. L. Shah (1969).

Ziziphus mauritiana Lam. Encycl. 3 : 319.1789; Bhandari & Bhansali in Nayar *et al.* Fasc. Fl. India 20 : 99.1990. *Z. jujuba* (L.) Gaertn. Fruct. 1: 203.1788, non Mill.1768; Laws. in Hook. f. Fl. Brit. India 1: 632.1875, non Lam.1789; Cooke, Fl. Pres. Bombay 1: 256.1958 (Repr. ed.). ‘*Bor*’.

Trees, 3–5 m tall; young branches softly tomentose with straight or recurved, 0.6 cm long, stipular thorns. Leaves 1.8–4.0 × 1.5–3.5 cm, orbicular, ovate–elliptic, grey, glabrous above, rusty, tomentose beneath, oblique and subcordate at base, obtuse and retuse at apex. Flowers greenish, in ca. 20-flowered, axillary cymes. Drupes 1.0 × 0.5 cm, oblong, fleshy, yellowish–brown when ripe.

Fls. & Frts. : September–October.

Illus : Wight, Ic.t. 99.1838; Mahesh. Illus. Fl. Delhi f. 44.1966 (*Z. jujuba*).

Distrib. : Common. 168457, 167309.

Ziziphus nummularia (Burm. f.) Wight & Arn. Prodr.162.1834; Laws. in Hook. f. Fl. Brit. India 1: 633.1875; Bhandari & Bhansali in Nayar *et al.* Fasc. Fl. India 20:103.1990. *Rhamnus nummularia* Burm. f. Fl. Ind. 61.1768. *Ziziphus rotundifolia* Lam. Encycl. 3 : 319.1789; Cooke, Fl. Pres. Bombay 1: 257.1958 (Repr. ed.). ‘*Gangra*’.

Shrubs, stems much branched; branches divaricate. Leaves 1.2–1.8 cm across, or more long, orbicular to ovate, margins spinous–dentate, tomentose. Flowers in axillary, pubescent, sessile cymes. Drupes ca.0.8 cm across, globose, red when ripe.

Fls. & Frts. : October–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 45.1966.

Distrib. : G. L. Shah (1984).

Ziziphus oenoplia (L.) Mill. *Gard. Dict.* ed. 8, 3.1768; Laws. in *Hook. f. Fl. Brit. India* 1: 634.1875; Cooke, *Fl. Pres. Bombay* 1: 257.1958 (Repr. ed.); Bhandari & Bhansali in Nayar *et al. Fasc. Fl. India* 20:106.1990. *Rhamnus oenoplia* L. *Sp. Pl.* 194.1753. 'Burgi'

Straggling shrubs, branchlets densely tomentose, stipular thorns 0.5–1.0 cm long, recurved. Leaves 7.5–5.5 × 1.8–2.5 cm, ovate-lanceolate, oblique, subacute–obtuse at base, margins denticulate, glabrous or pubescent above, sericeous beneath. Flowers greenish, in axillary, umbellate–cymose clusters. Drupes ca.0.4 cm across, globose, woody, 1-seeded.

Fls. & Frts. : August–October.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 297, f.176.1909.

Distrib. : Frequent. 167746.

Ziziphus rugosa Lam. *Encycl.* 3 : 319.1789; Laws. in *Hook. f. Fl. Brit. India* 1: 636.1875; Cooke, *Fl. Pres. Bombay* 1: 258.1958 (Repr. ed.); Bhandari & Bhansali in Nayar *et al. Fasc. Fl. India* 20:110.1990; Pradhan in Singh & Karthik. *Fl. Maharashtra* 1: 545. 200. 'Toran'

Straggling shrubs, 4–5 m long, branchlets woolly; stipular thorns up to 1 cm long, stout and recurved. Leaves 4.5–6.0 × 2.5–5.0, orbicular, cordate at base, obtuse at apex, mucronate, margins serrulate. Flowers yellow, in axillary or terminal paniculate–cymes over 30 cm long. Drupes ca.0.4 cm across, globose or pyriform.

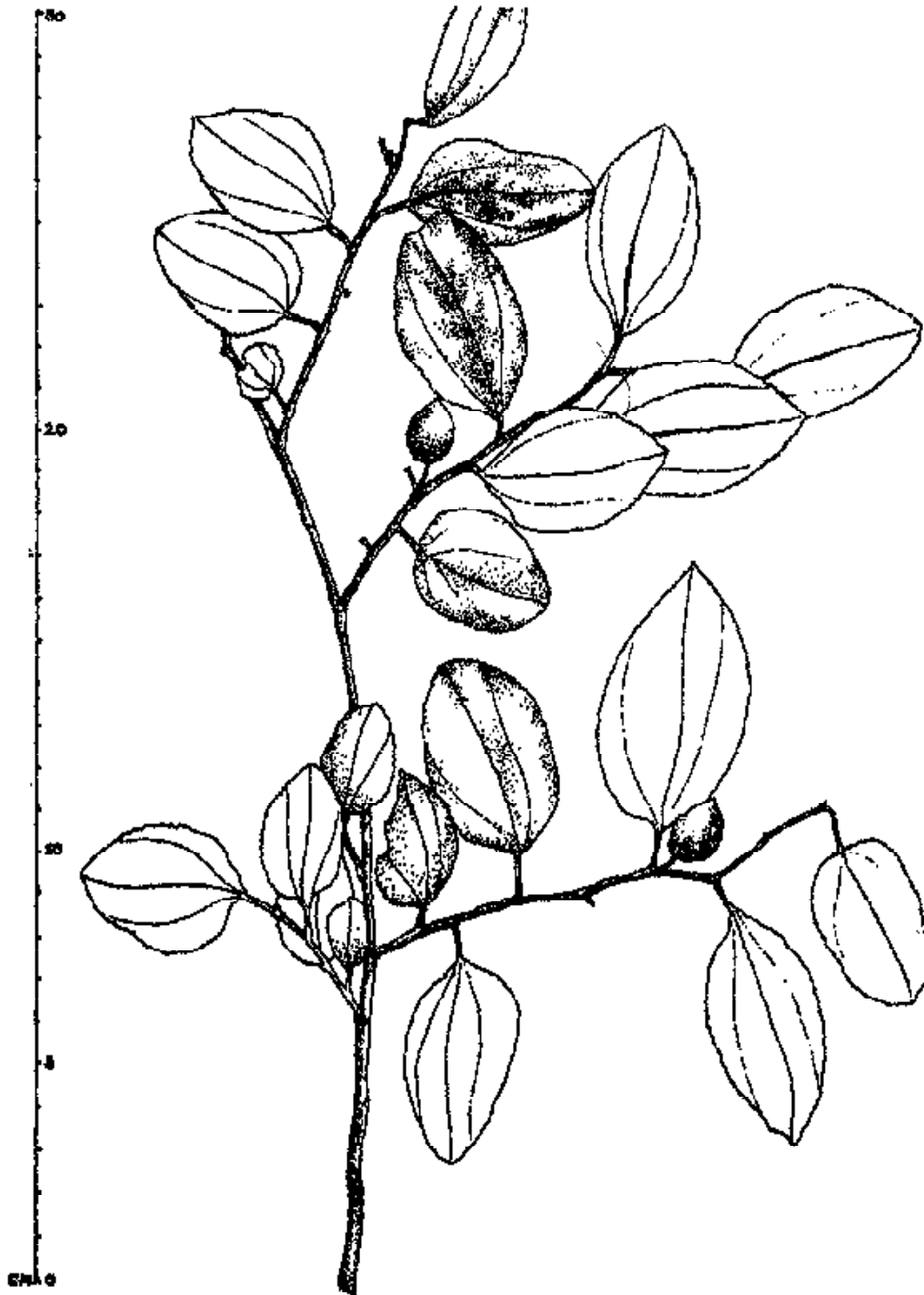
Fls. & Frts. : December–February.

Illus. : Wight, *Ic. t.* 339 1840.

Distrib. : Frequent. 168990.

Ziziphus xylopyra (Retz.) Willd. *Sp. Pl.* 1:1104.1798; Laws. in *Hook. f. Fl. Brit. India* 1: 634.1875; Cooke, *Fl. Pres. Bombay* 1: 258.1958 (Repr. ed.); Bhandari & Bhansali in Nayar *et al. Fasc. Fl. India* 20:112.1990. *Rhamnus xylopyra* Retz. *Obs. Bot.* 2 :11.1781. 'Ghatbor'. 'Gutibor'.

Straggling shrubs, or trees up to 6 m tall; branchlets tomentose; stipular thorns paired or solitary. Leaves 3–7 × 3–5 cm, ovate-oblong, subcordate or rounded at base, obtuse at apex, margins serrulate,



f.15. *Ziziphus xylopyra* (Retz.) Willd.

glabrous above, tomentose beneath. Flowers greenish, in axillary, divaricate cymes. Drupes ca. 2 cm across, globose, tomentose. Seeds oblong, sulcate in the middle.

Fls. & Frts. : May–December.

Illus. : Deshpande *et al.* Fl. Mahabaleshwar 1: 138.1993.

Distrib. : Frequently distributed. 167336, 163423.

VITACEAE

- | | | |
|----------------------------------|-----|--------------|
| 1. Inflorescence tendrilar : | ... | AMPELOCISSUS |
| 1. Inflorescence not tendrilar : | | |
| 2. Leaves simple | ... | CISSUS |
| 2. Leaves compound : | | |
| 3. Leaves 3-foliolate | ... | CAYRATIA |
| 3. Leaves 5-foliolate | ... | CYPHOSTEMMA |

AMPELOCISSUS Planch. (*nom. cons.*)

- | | | |
|---|-----|---------------------|
| 1. Mature leaves tomentose beneath; seeds obcordate | ... | <i>A. latifolia</i> |
| 1. Mature leaves not tomentose beneath; at length glabrous; seeds planoconvex | ... | <i>A. ternata</i> |

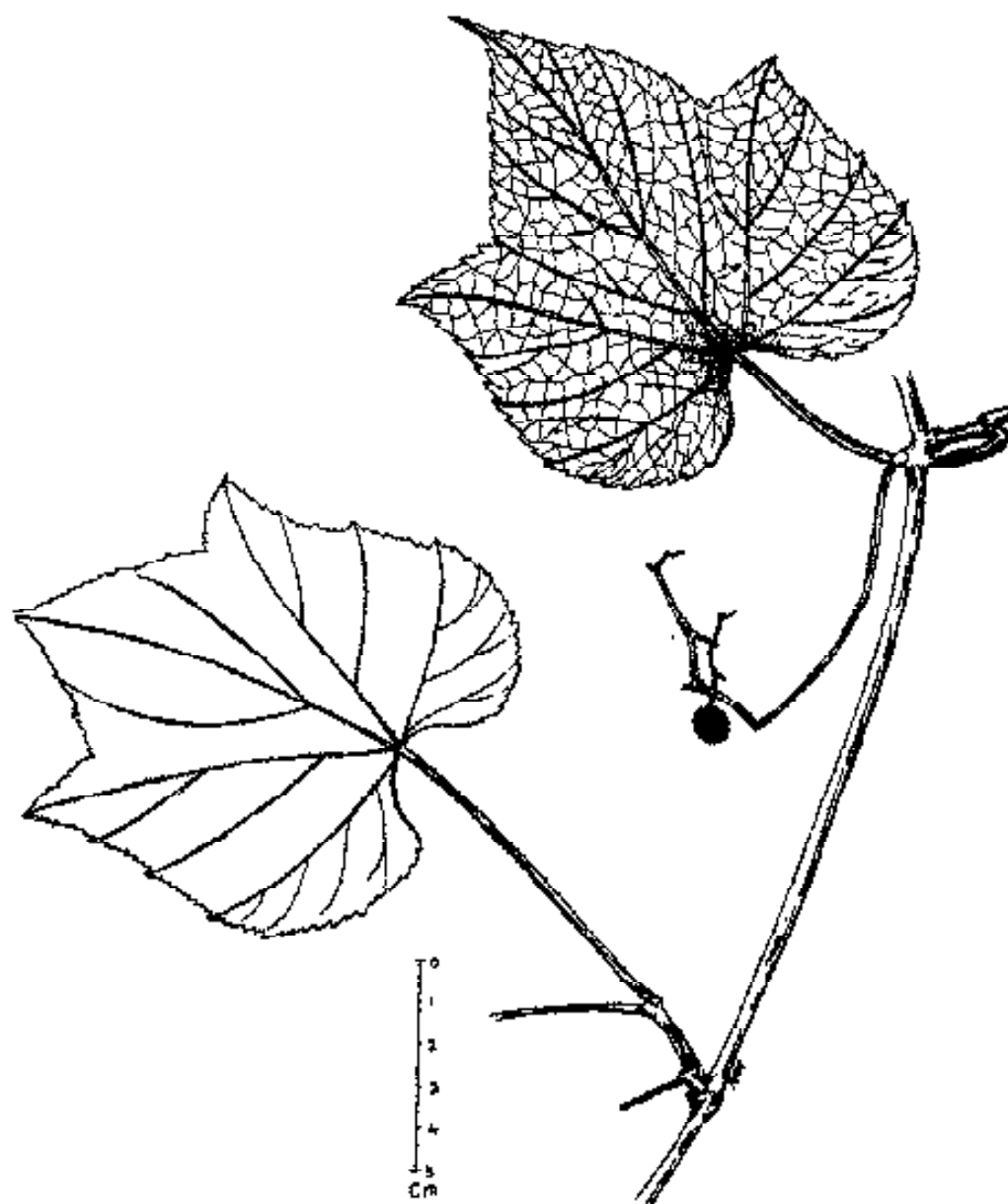
Ampelocissus latifolia (Roxb.) Planch. in J. Vigne, Amer, 374.1884 & in DC. Monogr. Phan. 5(2) : 370.1887; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 549.2000. *Vitis latifolia* Roxb. Fl. Ind. 1: 661.1832; Laws. in Hook. f. Fl. Brit. India 1: 652.1875; Cooke, Fl. Pres. Bombay 1: 269.1958 (Repr. ed.).

Herbaceous climbers. Stems weak, striate with forked tendrils. Leaves 8–17 cm long, as broad as long, orbicular, cordate, 3–7-angled or lobed, margins sharply toothed; petioles 6–10 cm long. Flowers dark reddish-brown, in compact, paniculate-cymes; calyx cup shaped. Berries 0.6–1.0 cm across, globose, 2–3 seeded. Seeds ellipsoid, smooth, polished.

Fls. & Frts. : June–October.

Illus. : Ic. t. Roxb. Fasc. 3. t. 5.1969 (Repr. ed.) (*Vitis latifolia*).

Distrib. : Frequent. 168990



f.16. *Ampelocissus latifolia* (Roxb.) Planch.

Ampelocissus ternata (Roth ex Roem. & Schult.) DC. Prodr. 1: 633.1824; Almeida Fl. Mah. 1: 264.1996; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 549. 2000. *Vitis ternata* Roth ex Roem. & Schult. Syst. 5: 319.1819 *V. tomentosa* Heyne ex Roth, Nov. Pl. Sp. 157.1821; Laws. in Hook. f. Fl. Brit. India 1: 650.1875; Cooke, Fl. Pres. Bombay 1: 268.1958 (Repr. ed.). *Ampelocissus tomentosa* (Heyne ex Roth) Planch. J. Vigne Amer. 374.1883.

Scandent shrubs; stems woody, reddish covered with white tomentum, tendrils 3-forked. Leaves up to 2 cm long, orbicular, 3-5 angled or lobed, woolly beneath. Flowers in leaf-opposed, woolly cymes. Berries ca 0.5 cm across, subglobose.

Fls. & Frts. : March-June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 155.1982.

Distrib. : Frequent. 167852.

CAYRATIA A. L. Juss. (*nom. cons.*)

Cayratia trifolia (L.) Domin in Biblioth. Bot. 89. 371. 1927; Suesseng. in Engl. & Prantl., Pflanzenfam. ed. 2, 20d: 280. 1953. *Vitis trifolia* L. Sp. Pl. 203. 1753; Cooke, Fl. Pres. Bombay 1: 271. 1958 (Repr. ed.). *V. carnosia* Wight & Arn. Prodr. 127. 1834; Laws in Hook. f. Fl. Brit. India 1: 654. 1875. '*Ambat-vel*'.

Herbaceous climbers; young shoots pubescent. Leaves 3-foliolate; leaflets 5-6 x 2.5-4.5 cm, ovate or suborbicular, truncate, cuneate or rounded at base, obtuse at apex, margins crenate-serrate. Flowers ca 0.4 cm across, greenish-white, in pedunculate, axillary, dichotomous cymes. Berries 0.4-0.5 cm across, depressed-globose, lobed, ripening red to black. Seeds pyriform.

Fls. & Frts. : July - October.

Illus. : Wight, Ic. t. 171. 1839 (*Vitis carnosia*); Mahesh. Illus. Fl. Delhi t. 46. 1966.

Distrib. : Frequent during monsoon. 167375.

CISSUS L.

1. Tendrils present :

2. Tendrils simple :

3. Stems 4-angled

... *C. quadrangularis*

3. Stems terete	...	<i>C. vitiginea</i>
2. Tendrils branched :		
4. Flowers green	...	<i>C. gigantea</i>
4. Flowers pink	...	<i>C. repanda</i>
1. Tendrils absent :		
5. Stems erect	...	<i>C. woodrowii</i>
5. Stems scandent	...	<i>C. repanda</i>

Cissus gigantea (Bedd.) Planch. in A. DC. Monogr. Phan. 5(2) : 622.1887; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 555.2000. *Vitis gigantea* Bedd. in Trans. Linn. Soc. London 25: 212.1866; Laws. in Hook. f. Fl. Brit. India 1: 648.1875; Cooke, Fl. Pres. Bombay 1: 267.1958 (Repr. ed.).

Climbers. Stems stout, extensive with corky bark. Leaves 15–20 × 10–15 cm, cordate with deep sinus, acuminate at apex, tomentose beneath; stipules glandular. Flowers green, in penduncled, umbellate-cymes.

Fls. & Frts. : August–September.

Illus. : Talbot, For. Fl. Bombay. Pres. & Sind 1: 311, f.183.1909 (*Vitis gigantea*).

Distrib. : Vihar Lake, Collector ? 196600 (*BLAT*)

Cissus quadrangularis L. Mant. Pl. 1: 39.1767; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 557.2000. *Vitis quadrangularis* Wall. ex Wight & Arn. Prodr. 125.1834; Laws. in Hook. f. Fl. Brit. India 1: 645.1875; Cooke, Fl. Pres. Bombay 1: 266.1958 (Repr. ed). *Kand-vel*.

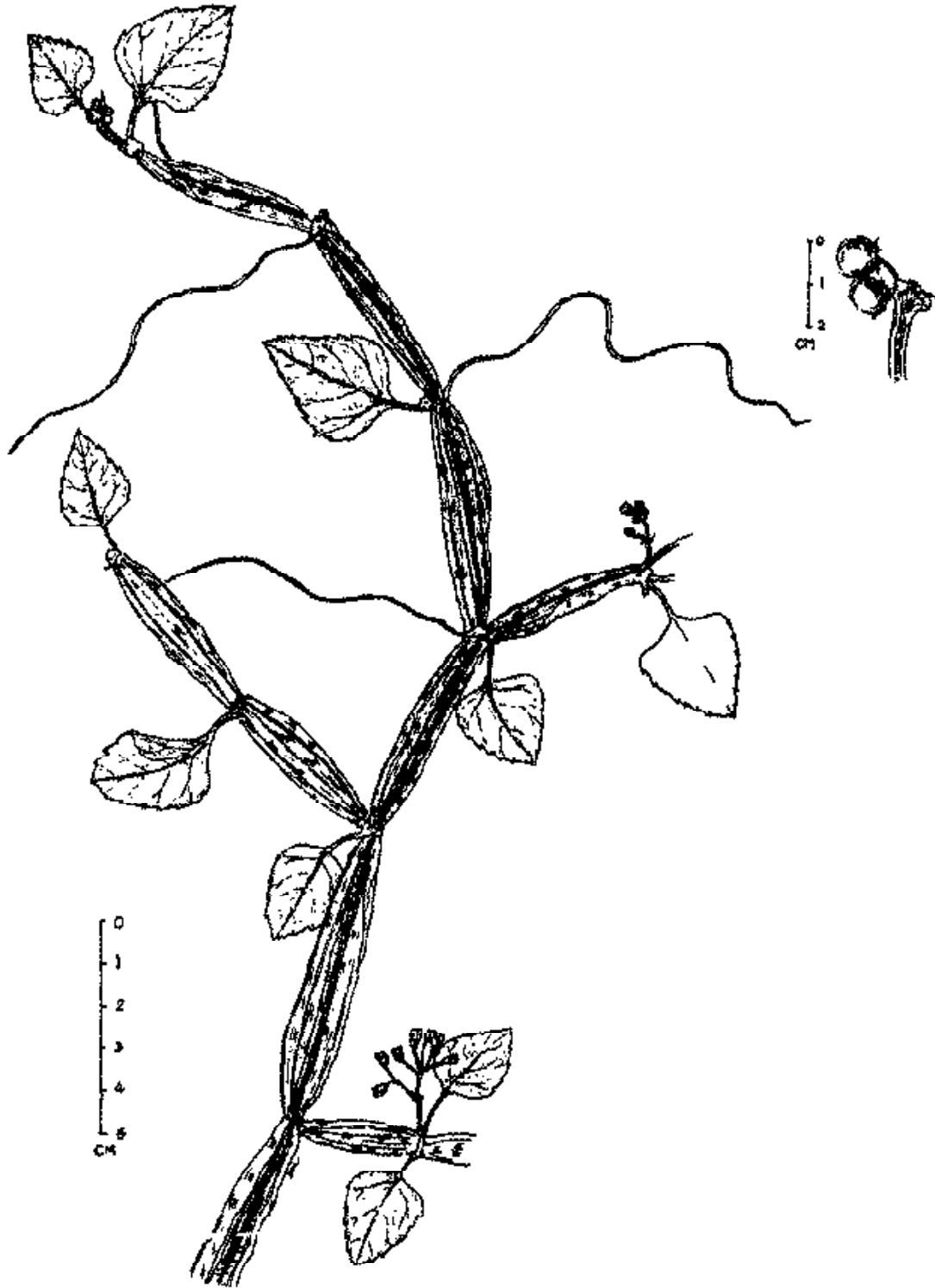
Shrubs; stems rambling, 4-angular, winged, nodes contracted. Leaves 2.5–3.0 × 2.5–3.0 cm, ovate-suborbicular or subreniform, rounded at base and apex, margins serrate. Flowers greenish-yellow, in umbellate-cymes. Berries 0.6–0.8 cm long, globose or obovoid, apiculate, red when ripe.

Fls. & Frts. : July–December.

Illus. : Wight, Ic. t. 51.1838 (*Vitis quadrangularis*).

Distrib. : Rare, on a tree near Narnala forest village. 168484.

Cissus repanda Vahl, Symb. Bot. 3 :18.1794; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 559.2000. *Vitis repanda* (Vahl) Wight & Arn. Prodr. 7:125.1834; Laws. in Hook. f. Fl. Brit. India 1: 648.1875; Cooke, Fl. Pres. Bombay 1: 267.1958 (Repr. ed.). '*Gendal*'.



f.17. *Cissus quadrangularis* L.

Scandent shrubs; stems with corky bark. Leaves 6–15 × 5–13 cm, broadly ovate-cordate, acuminate at apex, margins crenate-dentate, sublobate, silky-tomentose beneath. Flowers in peduncled, umbellate, leaf-opposed cymes. Berries 0.1 × 0.5 cm, pyriform, mucronate, 1-seeded. Seeds obovoid.

Fls. & Frts. : March–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 312, f.184–185.1909 (*Vitis repanda*).

Distrib. : Borivli, N.A. Irani, 2029. (BLAT)

Cissus vitiginea L. Sp. Pl. 117.1753; Kulkarni in Singh & Karthik. Fl. Maharashtra 1 : 561. 2000. *Vitis linnaei* Wall. ex Wight & Arn. Prodr. Fl. 126.1834; Laws. in Hook. f. Fl. Brit. India 1: 649:1875; Cooke, Fl. Pres. Bombay 1: 268.1958 (Repr. ed.). '*Duka-vel*'

Scandent shrubs; stems and branches pubescent, tendrils stout. Leaves 5–12 × 3.6–10.0 cm, broadly cordate, 5-angular or lobed, acuminate at apex, margins dentate. Flowers yellow, in pedunculate, 3.5–4.5 cm long, umbellate-cymes. Berries 0.8–1.0 long, pyriform, rugose. Seeds tessellate.

Fls. & Frts. : August–November.

Illus. : Matthew, Illus, Fl. Tamilnadu Carnatic. 2: t. 158.1982.

Distrib. : Kanheri forest, Graham (1839).

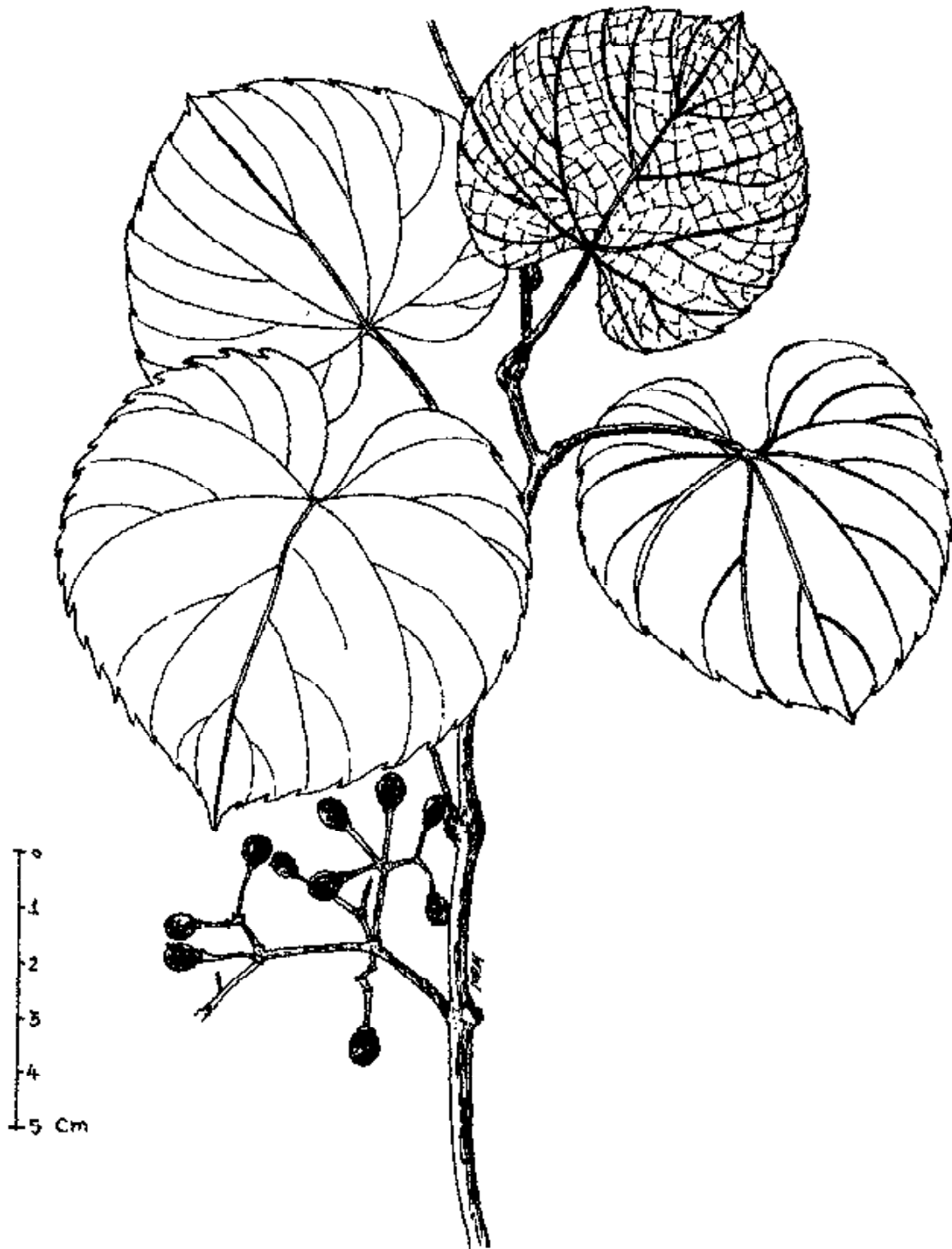
Cissus woodrowii (Stapf ex T. Cooke) Sant. in Kew Bull.1948 (2): 276.1948; Kulkarni in Singh & Karthik. Fl. Maharashtra 1: 561.2000. *Vitis woodrowii* Stapf ex T. Cooke, Fl. Pres. Bombay 1: 248.1902 [1.264.1958 (Repr. ed.).] '*Gimul*'.

Shrubs, 1.5–2.0 m tall. Stems erect, bark rough. Leaves up to 20 × 20, cordate-ovate, with broad sinus, acute to acuminate at apex, margins repand-crenate, usually 3-lobed; petioles as long as blades. Flowers in compound umbels; peduncles ca. 5 cm long. Berries 0.6–0.8 cm across, obovoid or globose, 1-seeded.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay, Pres. & Sind 1: 309, f.182.1909.

Distrib. : Vihar Lake, H. Santapau, 20950 (BLAT)



f.18. *Cissus woodrowii* (Stapf ex T. Cooke) Sant.

CYPHOSTEMMA (Planch.) ALSTON

Cyphostemma auriculatum (Roxb.) P. Singh & Shetty in *Taxon* 35: 596.1986; Kulkarni in Singh & Karthik. *Fl. Maharashtra* 1: 561.2000. *Cissus auriculata* Roxb. *Fl. Ind.* 1: 430.1820; *Vitis auriculata* Wall. *Num. List.* no. 6031.1831-32; Laws. in Hook. f. *Fl. Brit. India* 1:658.1875; Cooke, *Fl. Pres. Bombay* 1: 273.1958 (Repr. ed.). *Cayratia auriculata* (Roxb.) Gamble, *Fl. Pres. Madras* 237.1918 [1: 20.1957 (Repr. ed.). 'Jangli-Kagorni'.

Herbaceous climbers; young branchlets softly pubescent. Leaves 5-foliolate; leaflets 5-10 × 2.5-8 cm, obovate to rhomboid, cuneate at base, acute to acuminate at apex, margins crenate-serrate, stipules large. Flowers green, in dichotomous, pedunculate cymes. Berries 1.0-1.5 cm across, ovoid, red when ripe.

Fls. & Frts. : May-December.

Illus. : Wight, *Ic. t.* 145.1839 (*Cissus auriculata*).

Distrib. : Frequently distributed. 167993.

LEEACEAE

LEEAE L. (*nom. cons.*)

- | | | |
|---|-----|-----------------------|
| 1. Leaves simple | ... | <i>L. macrophylla</i> |
| 1. Leaves compound : | | |
| 2. Stems, rachis and peduncles winged | ... | <i>L. asiatica</i> |
| 2. Stems, rachis and peduncles not winged : | | |
| 3. Flowers red to orange-yellow; leaflets hairy | ... | <i>L. guineensis</i> |
| 3. Flowers greenish-white; leaflets glabrous | ... | <i>L. indica</i> |

Leea asiatica (L.) Ridsd. in *Manilal Bot. Hist. Hort. Malab.*189. 1980; Moorthy in Singh & Karthik. *Fl. Maharashtra* 1: 576.2000. *Phytolacca asiatica* L. *Sp. Pl.* ed. 1, 474.1753. *Leea crispa* van Royen ex L. *Syst. Nat.* ed. 12, 2 : 627.1767 & *Mant. Pl.* 1:124.1767; Laws. in Hook. f. *Fl. Brit. India* 1: 665.1875; Cooke, *Fl. Pres. Bombay* 1: 276.1858 (Repr. ed.); Ridsd. in *Blumea* 22 : 88 .1974. *L. aspera* Edgew. in *Trans. Linn. Soc.* 20 : 36.1846 *non* Wall. ex G. Don, 1831; Laws in Hook. f. *op. cit.*; Cooke, *op. cit.* 277. *nom. illeg. L. edgeworthii*. Sant.in *Rec. Bot. Surv. India* 16: 54.1953 *ibid.* 16: 46, ed 3, 1967. 'Dinda'.

Shrubs, 1.5-2.5 cm tall; stems erect, somewhat woody, jointed. Leaves simple pinnate, 10-20 cm long; leaflets 5-7 oblong, shortly acuminate at apex, with sharply serrate margins, glabrous above, pubescent on nerves beneath, rounded at base, veins nearly parallel.

Flowers white or with pinkish tinge, in 15–30 cm broad, leaf-opposed, trichotomous cymes. Berries 0.5–1.2 cm across, 4–6 lobed, subglobose, blackish-purple.

Fls. & Frts. : July–September.

Illus. : Sald. in Sald. & Nicols. Fl. Hassan Dt. 355, f. 69A.1976.

Distrib. : Common. 167334.

Leea guineensis G. Don, Gen. Syst. 1: 712.1831; Ridsd. in *Blumea* 22 : 92.1974; Almeida, Fl. Mah. 1: 260.1996; Moorthy in Singh & Karthik. Fl. Maharashtra 1: 567.2000.

Shrubs 1.5–2.0 m tall, glabrous or nearly so. Leaves pinnate; leaflets ovate, cordate at base, acuminate at apex, margins sharply serrate, reddish above, pale white beneath. Flowers in axillary panicles.

Fls. & Frts. : July–August.

Distrib. : Borivli, P. S. Herbert (BLAT).

Leea indica (Burm. f.) Merr. in Philipp. J. Sci. Bot. 14: 245.1919; Ridsd. in *Blumea* 22 : 95.1974; Moorthy in Singh & Karthik. Fl. Maharashtra 1: 567.2000. *Staphylea indica* Burm. f. Fl. Ind. 75, t. 24, f. 2.1768. *Leea sambucina* (L.) Willd. Sp. Pl. 1:1117.1797; Laws. in Hook. f. Fl. Brit. India 1: 666.875 p.p.; Cooke, Fl. Press. Bombay 1: 277. 1958 (Repr. ed.). 'Dinda'.

Shrubs, 1–3 m tall; branchlets puberulous. Leaves 10–20 cm long; leaflets imparipinnate, 2–5-paired, 6–13 × 3–5 cm, oblong-lanceolate, or ovate, obtuse to subacute at base, acuminate at apex, margins bidentate, pubescent along nerves beneath. Flowers greenish-white in lateral or leaf-opposed, subcorymbose-cymes. Berries depressed globose, pyrenes 5–6, 0.6 cm across.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 28.1838 (*L. sambucina*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 160.1982.

Distrib. : Vihar Lake, H. Santapau, 195803 (BLAT).

Leea macrophylla Roxb. ex Hornem, Hort. Hafn. 1: 231.1813; Laws. in Hook. f. Fl. Brit.India 1: 664.1875; Cooke, Fl. Pres. Bombay 1: 276.1958 (Repr.ed); Ridsd. in *Blumea* 22 :85.1974. *L. latifolia* Wall. ex Kurz in J. Asiat. Soc. Beng. 2, 44: 178.1875; Cooke, *op. cit.* 277. 'Dinda'.

Herbs or shrubs up to 1.5 m tall, Stems stout, erect. Leaves simple, 15–60 × 15–50 cm, broadly ovate or suborbicular, acute at apex, margins serrate or sublobose, glabrous above, pubescent beneath. Flowers white, in 20–30 cm long, terminal, much branched, corymbose-cymes. Berries 0.6–0.9 cm across, depressed-globose, 2–6-lobed, purplish-black, smooth.

Fls. & Frts. : August–September.

Illus. : Wight, Ic.t. 1154.1846; Ic. Roxb. Fasc. 4, t. 2.1970 (Repr.ed).

Distrib. : Common as forest undergrowth.

SAPINDACEAE

- | | | |
|---|-----|---------------|
| 1. Twining herbs | ... | CARDIOSPERMUM |
| 1. Trees : | | |
| 2. Petals present; fruits breaking up into cocci | ... | SAPINDUS |
| 2. Petals absent; fruits not breaking up into cocci | ... | SCHLEICHERA |

CARDIOSPERMUM L.

Cardiospermum halicacabum L. Sp. Pl. 366.1753; Hiren in Hook. f. Fl. Brit. India 1: 670.1875; Cooke, Fl. Pres. Bombay 1: 280.1958 (Repr. ed.); S. K. Mukherjee in J. Econ. Tax. Bot. 1:80.1980. '*Kapalphodi*'.

Herbs, climbing; branchlets tomentose. Leaves up to 12 cm long 2-ternate; leaflets coarsely crenate or serrate. Flowers white, unisexual, in few-flowered, umbellate-cymes; peduncles stiff, slender, provided with two circinate tendrils. Capsules 3.5 × 2.0 cm, depressed-pyriform, trigonous, narrowly winged. Seeds globose.

Fls. & Frts. : November–January.

Illus. : Wight, Ic.t. 508.1841; Mahesh. Illus. Fl. Delhi. f. 47.1966.

Distrib. : Frequent. 168921.

SAPINDUS L.

Sapindus laurifolius Vahl, Symb. Bot. 3 : 54.1794; Cooke, Fl. Pres. Bombay 1: 284.1958 (Repr. ed.); S. K. Mukherjee in J. Econ. Tax. Bot. 1:81.1980. *S. trifolius auct. non* L.1753; Hiren in Hook. f. Fl. Brit. India 1: 682.1875 p.p.

Trees, 10–15 m tall; branchlets tomentose. Leaves paripinnate, 10–15 cm long; leaflets 2–pairs, subopposite, 5–10 × 2.5–4.5 cm, oblanceolate, coriaceous, cuneate at base, emarginate, retuse at apex. Flowers dirty white, in rusty pubescent panicles, Drupes 2–3-lobed, ovoid, smooth.

Fls. & Frts. : October–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 337, f.199.1909 (*S. trifoliatum*); Matthew, Illus Fl. Tamilnadu Carnatic 2: t. 167.1982.

Distrib. : Occasional, 1677396, 167703.

SCHLEICHERA Willd. (*nom. cons.*)

Schleichera oleosa (Lour.) Oken in Merr. in J. Allg. Naturg. 3(2) : 1341.; 1841. S. K. Mukherjee in J. Econ. Tax. Bot. 1: 81.1981. *Pistacia oleosa* Lour. Fl. Cochinch. 2 : 615.1790. *Schleichera trijuga* Willd. Sp. Pl. 4(2) : 1096 .1805; Hiren in Hook. f. Fl. Brit. India 1: 681.1875; Cooke, Fl. Pres. Bombay 1: 283.1958 (Repr. ed.). '*Koshimb*'.

Trees, 15–20 m tall. Leaves paripinnate, 18–22 cm long; leaflets 3–pairs, 5–15 × 3–5 cm, subopposite, oblong-elliptic, cuneate, subcordate at base, rounded at apex. Flowers white or yellowish, unisexual, in pendulous panicles. Drupes 1–2 × 0.5–0.8 cm, ovoid, echinate with rather blunt prickles. Seeds oblong, arillate.

Fls. & Frts. : February–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 168.1982.

Distrib. : Frequent in forests. 167401.

ANACARDIACEAE

1. Leaves simple :
 2. Leaves oblong-lanceolate, acute or acuminate at apex ... MANGIFERA
 2. Leaves obovate, oblong-obovate, obtuse or emarginate at apex :
 3. Drupes 2.5 cm long, seated on fleshy receptacle :
 4. Leaves rusty-pubescent beneath; styles 3 ... SEMECARPUS
 4. Leaves glabrous beneath; style 1 ... ANACARDIUM
 3. Drupes 0.8 cm long, not seated on fleshy receptacle ... BUCHANANIA
1. Leaves pinnately compound :
 5. Leaflets with intramarginal nerves; styles 5 ... SPONDIAS
 5. Leaflets without intramarginal nerves; styles 4 ... LANNEA

ANACARDIUM L.

Anacardium occidentale L. Sp. Pl. 383.1753; Hook. f. Brit. India 2 : 20.1876; Cooke, Fl. Pres. Bombay 1: 292.1958 (Repr. ed.); Prasanna in Singh & Karthik. Fl. Maharashtra 1: 58. 2000. '*Kaju*'.

Trees up to 4 m tall; main trunk thick, crooked. Leaves 5–17 × 2.5–7 cm, obovate or elliptic, rounded at apex, cuneate at base, glabrous, coriaceous. Flowers unisexual or bisexual, greenish in terminal, large panicles. Fruits reniform, ca. 3 cm long, on fleshy–red ripe receptacle.

Fls. & Frts. : January–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.170.1982.

Distrib. Frequent along coast line.

BUCHANANIA Spr.

Buchanania cochinchinensis (Lour.) Almeida. Fl. Mah. 1: 287.1996. *Toluifera cochinchinensis* Lour. Fl. Cochinch. 262.1790. *Buchanania lanzan* Spr. in J. Bot. (Schrad.) 4: 234.1801; Cooke, Fl. Pres. Bombay 1: 293.1958 (Repr. ed.). *B. latifolia* Roxb. Fl. Ind. 2 : 385.1832; Hook. f. Fl. Brit. India 2 : 23.1876. '*Charoli*'.

Trees up to 15 m tall; trunks straight, young branches covered with silky hairs. Leaves 10–20 × 6–10 cm, thickly coriaceous, broadly oblong or ovate, obtuse, emarginate, glabrescent above, villous beneath. Flowers small, sessile, greenish–white, in terminal and axillary, rusty–brown pilose panicles. Drupes lentiform, oblique, 0.6–1.0 cm across, black and hard.

Fls. & Frts. : January–April.

Illus. : Ic. Roxb. Fasc. 4, t. 24.1970 (Repr. ed.), *Buchanania latifolia*.

Distrib. : Scattered on the hills and plains, not Frequent. 167493, 168964, 168979.

LANNEA A. Rich. (*nom. cons.*)

Lannea coromandelica (Houtt.) Merr. In J. Arnold Arbor. 19: 353.1939; Prasanna in Singh & Karthik. Fl. Maharashtra 1: 584.2000. *Dialium coromandelicum* Houtt. Nat. Hist. 2, 2 : 39, t. 5, f.2.1774. *Odina wodier* Roxb. Fl. India 2 : 293.1832; Hook. f. Fl. Brit. India 2 : 29.1876; Cooke, Fl. Pres. Bombay 1: 296.1958 (Repr. ed). '*Shimti*'.

Trees up to 15 m tall, deciduous, bark ash-coloured, smooth. Leaves imparipinnate, 15–30 cm long; leaflets 5–10 × 2.5–5.0 cm, opposite, ovate to oblong, acuminate. Flowers purplish, unisexual or bisexual in cymose clusters; male racemes compound; female simple. Drupes *ca.* 1 cm long, ovoid or obovoid, red.

Fls. & Frts. : January–April.

Illus. : Ic. Roxb. Fasc. 4, t. 25.1970 (Repr. ed.).

Distrib. : Occasional. 167466.

MANGIFERA L.

Mangifera indica L. Sp. Pl. 200.1753; Hook. f. Fl. Brit. India 2 :13.1876; Cooke, Fl. Pres. Bombay 1: 291.1958 (Repr. ed.); Prasanna in Singh & Karthik. Fl. Maharashtra 1. 584. 2000. 'Amba'.

Trees up to 20 m tall, lofty, evergreen; bark fissured, glabrous. Leaves 12–25 × 3–7 cm, oblong or oblong-lanceolate, acute or acuminate at apex, margins entire or undulate; petioles thickened at base. Flowers male or bisexual, polygamous, greenish-yellow, in large, pubescent panicles. Drupes large, 5–10 cm long, ovoid, oblong, fleshy, obliquely pyriform; stones compressed, fibrous and hard.

Fls. & Frts. : January–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 :tt.173 & 967.1982

Distrib. : Frequent on hill slopes and plains. 168966.

SEMECARPUS L. f.

Semecarpus anacardium L.f. Suppl. Pl.182.1781; Hook. f. Fl. Brit. India 2 : 30.1876; Cooke, Fl. Pres. Bombay 1: 296.1958 (Repr. ed.); Prasanna in Singh & Karthik. Fl. Maharashtra 1. 586. 2000. 'Bibba'.

Trees, 8–10 (15) m tall. Leaves 15–30 cm × 5–15 cm, oblong-elliptic or ovate to obovate, cordate or rounded at base, rounded at apex, glabrous above and rusty-villous beneath. Flowers greenish-white, clustered in pubescent, *ca.* 20 cm long, terminal panicles. Drupes 2.0 × 2.5 cm, ovoid, reniform, smooth and shining black, on fleshy receptacle.

Fls. & Frts. : April–July.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 176.1982.

Distrib. : Infrequent. 167935, 168452.

SPONDIAS L.

Spondias pinnata (L.f.) Kurz in *Prelim. Rep. For. & Veg. Pegu* App. A. 44 & B. 42 1875; A. Shaw & Form. in *Kew Bull.* 21:8:1967. *Mangifera pinnata* L.f. *Suppl. Pl.* 156.1781. *Spondias mangifera* Willd. *Sp. Pl.* 2 : 751.1799 *nom. illeg.*; Hook. f. *Fl. Brit. India* 2 : 42.1876; Cooke, *Fl. Pres. Bombay* 1: 299.1958 (Repr. ed.). 'Ambada'.

Trees, 12–15 m tall; trunk straight, bark smooth, ash-coloured; branches spreading horizontally. Leaves 30–45 cm, long, imparipinnate; leaflets 5–9 × 2.5–4 cm, oblong or elliptic-oblong, slightly oblique-acuminate, margins entire. Flowers polygamous. pinkish-green, in terminal, 20–25 cm long panicles. Drupes *ca.* 3.5 long, ovoid, yellow when ripe, stone woody, hard.

Fls. & Frts. : February–April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt.177 & 967b.1982.

Distrib. : Occasional on hill slopes. 167702.

MORINGACEAE

MORINGA Adans.

Moringa oleifera Lam. *Encycl.* 1: 398.1785; Verdc. in *Kew Bull.* 40 : 12.1985. *M. pterygosperma* Gaertn. *Fruct.* 2 : 314, t. 147. f.2.1791; Hook. f. *Fl. Brit. India* 2 : 45.1876; Cooke, *Fl. Pres. Bombay* 1: 301.1958 (Repr. ed.). 'Shevga'.

Trees up to 10 m tall; bark corky. Leaves usually 3-pinnate; pinnae opposite; leaflets 1–2 × 0.6–1.0 cm, ovate, obovate or oblong, terminal leaflets larger than lateral ones. Flowers white, in 10–25 cm long, puberulous panicles. Capsules 30–60 cm long, pendulous, subtorulose, longitudinally deeply striate. Seeds triangular, 1–1.5 cm long, winged on angles.

Fls. & Frts. : January–April.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind.* 1: 365, t. 212.1909 (*Moringa pterygosperma*).

Distrib. : *Koppikar* (1974) (cultivated). Ghodbundar, *H. Santapau*, (BLAT) 17908.

FABACEAE

1. Stamens monadelphous :
 2. Pods jointed :
 3. Bracts obliquely oblong to reniform, with bristly margins ... GEISSASPIS
 3. Bracts ovate-lanceolate, without bristly margins ... ZORNIA
 2. Pods not jointed :
 4. Pods winged :
 5. Leaflets alternate ... PTEROCARPUS
 5. Leaflets opposite ... DERRIS
 4. Pods not winged :
 6. Pods dehiscent :
 7. Stems erect, ascending or prostrate ... CROTALARIA
 7. Stems twining or climbing :
 8. Leaflets 3 :
 9. Pods bristly hairy ... PUERARIA
 9. Pods glabrescent :
 10. Pods 0.25 cm broad, seprate within between seeds ... TERAMNUS
 10. Pods 1.5-2.0 cm broad, not seprate within between seeds ... CANAVALIA
 8. Leaflets 10-20 ... APPIN
 6. Pods indehiscent :
 11. Leaflets alternate ... DALBERGIA
 11. Leaflets opposite ... PONGAMIA
1. Stamens diadelphous :
 12. Stamens isoadelphous; i.e. in 2 bundles of 5 each :
 13. Pods jointed :
 14. Pods twisted, shorter than calyx ... SMITHIA
 14. Pods straight, longer than calyx ... AESCHYNOMENE
 13. Pods not jointed :
 15. Pods winged ... PTEROCARPUS
 15. Pods wingless ... DALBERGIA
12. Stamens not isoadelphous but (9+1)
 16. Pods jointed :

- | | | |
|--|-----|--------------|
| 17. Joints of the pods folded on one another | ... | URARIA |
| 17. Joints of the pods not folded : | | |
| 18. Joints of the pods turgid | ... | ALYSICARPUS |
| 18. Joints of the pods flat : | | |
| 19. Pods distinctly jointed | ... | DESMODIUM |
| 19. Pods not distinctly jointed | ... | ĀODARIOCALYX |
| 16. Pods not jointed : | | |
| 20. Pods septate within between seeds : | | |
| 21. Stems twining : | | |
| 22. Styles twisted, bearded | ... | VIGNA |
| 22. Styles not twisted, glabrous | ... | CAJANUS |
| 21. Stems erect : | | |
| 23. Leaf venation striate | ... | TEPHROSIA |
| 23. Leaf venation reticulate : | | |
| 24. Leaves simple or odd-pinnate : | | |
| 25. Anther-filament filiform at apex | ... | INDIGOFERA |
| 25. Anther-filament dilated at apex | ... | LOTUS |
| 24. Leaves even-pinnate | ... | SESBANIA |
| 20. Pods not septate within between seeds : | | |
| 26. Pods winged : | | |
| 27. Leaflets 3 : | | |
| 28. Calyx 1.0-1.2 cm long, not accrescent | ... | BUTEA |
| 28. Calyx 2.5-3.0 cm long, accrescent | ... | PARACALYX |
| 27. Leaflets 5-7 | ... | PTEROCARPUS |
| 26. Pods not winged : | | |
| 29. Leaves simple or 1-foliolate : | | |
| 30. Leaves ovate-oblong; bract foliaceous | ... | FLEMINGIA |
| 30. Leaves linear; bracts not foliaceous | ... | TEPHROSIA |
| 29. Leaves compound : | | |
| 31. Leaflets 9 : | | |
| 32. Stems prostrate or twining : | | |
| 33. Pods glabrous or glabrescent : | | |
| 34. Roots tuberous | ... | FLEMINGIA |
| 34. Roots not tuberous | ... | RHYNCHOSIA |

33. Pods hairy :
35. Hairs on pods hooked, viscous ... PSEUDARTHIA
35. Hairs on pods bristly :
36. Corolla yellow ... DUNBARIA
36. Corolla dark purple ... MUCUNA
32. Stems erect ... ERYTHRINA
31. Leaflets 5-7 :
37. Corolla 1.2-1.5 cm long; ovaries sessile ... TEPHROSIA
37. Corolla 2.5-5.0 cm long; ovaries stalked ... CLITORIA

ABRUS Adans.

Abrus precatorius L. Syst. Nat. ed. 2, 2 : 472.1767; Baker in Hook. f. Fl. Brit. India 2 : 175.1876; Cooke, Fl. Pres. Bombay 1: 382.1958 (Repr.ed); Verdc. in Kew Bull. 24: 240.1970; Sanj. Leg. India 74.1991. '*Gunj*'.

Twiners up to 4 m long; branchlets sericeous. Leaves paripinnate; leaflets 1.5-2.0 × 0.5-0.8 cm, opposite, oblong, obtuse at base, apiculate at apex. Flowers pink, in many-flowered racemes, shorter than leaves. Pods ca. 4 × 1 cm oblong, pilose, thinly septate, wrinkled. Seeds 3-5, up to 0.7 cm across, subglobose, bright red with a black lateral spot around hilum.

Fls. & Frts. : September-December.

Illus. : Wight, Ic. t. 33.1838, Mahesh. Illus. Fl. Delhi, f. 71.1966.

Distrib. : Common on plains and hills. 168431.

AESCHYNOMENE L.

Aeschynomene indica L. Sp. Pl. 713.1753; Baker in Hook. f. Fl. Brit. India 2 : 151.1876; Cooke, Fl. Pres. Bombay 1: 363.1958 (Repr. ed.); Rudd in Reinwardtia 5: 30.1959; Sanj. Leg. India 75.1991.

Herbs up to 1 m tall. Leaves imparipinnate, up to 10 cm long; leaflets 15-25 pairs, 0.3-0.6 × 0.1-0.5 cm, oblong, oblique and obtuse at base, obtuse and apiculate at apex. Flowers yellow, in 2 cm long racemes or solitary. Pods 3.0-3.5 × 0.5 cm, slightly curved, 6-10-segmented, lower margin indented. Seeds up to ca.0.25 cm long.

Fls. & Frts. : July-December.

Illus. : Wight, Ic. t. 405.1840; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.180.1982.

Distrib. : Common in open moist fields, near nallahs and near the lake.

ALYSICARPUS Neck. ex Desv. (*nom. cons.*)

1. Calyx more or less equalling the first joint of pods :
 2. Pods hairy ... *A. hamoëus*
 2. Pods glabrous ... *A. vaginalis*
1. Calyx much longer than the first joint of pods :
 3. Pods transversely rugose :
 4. Stems glabrous ... *A. heyneanus*
 4. Stems densely hairy to villous ... *A. glumaceus*
 3. Pods not transversely rugose :
 5. Pods smooth; stipules linear ... *A. bupleurifolius*
 5. Pods reticulately veined; stipules lanceolate ... *A. longifolius*

Alysicarpus bupleurifolius (L.) DC. Prodr. 2 : 352.1825; Baker in Hook. f. Fl. Brit. India 2 : 158.1876; Cooke, Fl. Pres. Bombay 1 : 370.1958 (Repr. ed.); van Meeuwen *et al.* in Reinwardtia 6:88.1961; Sanj. Leg. of India 77.1991. *Hedysarum bupleurifolium* L. Sp. 745.1753.

1. Lower and upper leaves dissimilar ... var. *bupleurifolius*
1. All leaves similar ... var. *hybridus*

var. *bupleurifolius*

Herbs. Stems 30–60 cm long, prostrate to ascending. Leaves 1–3 × 0.3–0.4 cm, linear, linear-lanceolate or elliptic-oblong, acute at base and apex. Flowers pink to pale-violet, in lax, axillary and terminal racemes. Pods 0.7–1.2 cm long, subcylindric, 4-gonous, stipitate, 3–6-jointed, apiculate. Seeds spherical, smooth.

Fls. & Frts. : June–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 70.1966.

Distrib. : Vihar Lake, G. L. Shah, 631. (BLAT).

var. *hybridus* DC. Prodr. 2 : 352.1825; Sanj. Leg. India 77.1991; Almeida, Fl. Mah. 2 : 9.1998.

Erect herbs; stems pubescent. Leaves 1-foliolate; leaflets 0.5–2 × 0.5–0.8 cm, oblong-ovate, suborbicular, obliquely cordate at base, obtuse at apex. Flowers in 6 cm long, spicate racemes.

Fls. & Frts. : September–November.

Distrib. : Borivli, *Almeida op. cit.*

Alysicarpus glumaceus (Vahl) DC. Prodr. 2 : 353.1825; Sanj. Leg. India 78.1991. *Hedysarum glumaceus* Vahl, Symb. Bot. 2 :106.1791. *Alysicarpus rugosus* (Willd.) DC. Prodr. 2 : 353.1825; Baker in Hook. f. Fl. Brit. India 2 :159.1876; Cooke, Fl. Pres. Bombay 1: 371.1958 (Repr. ed.); Verdc. in Kew Bull. 24: 67.1970. *A. rugosus* var. *minor* Prain in J. Asiat Soc. Bengal 66: 383.1897; Cooke, *op. cit.*

Shrubs, up to 50 cm tall, suberect; branchlets pilose. Leaves 1.5–3.5 × 0.5–0.6 cm, oblong-lanceolate to elliptic, obtuse to subcordate at base, obtuse apiculate at apex. Flowers purplish-pink, in 3–10 cm long racemes. Pods 1.0 × 0.4 cm, moniliform, mucronate, 3–6-jointed, transversely ribbed. Seeds rugose.

Fls. & Frts. : September–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic*, 2 :t.181.1982.

Distrib. : Frequent on plains and fallow fields. 168404.

Alysicarpus hamosus Edgew. in J. Asiat. Soc. Beng. 21.171.1853; Baker in Hook. f. Fl. Brit. India 2 :157.1876; Cooke, Fl. Pres. Bombay 1: 368.1958 (Repr. ed.); Sanj. Leg. India 78.1991. *Hedysarum procumbens* Roxb. Fl. Ind. 3 : 345.1832 *non* Mill. 1768. *Alysicarpus procumbens* (Roxb.) Schindl. in Feddes Repert. 21:11.1925.

Herbs; stems 15–60 cm long, diffuse; branches ascending, hairy. Leaves unifoliolate; leaflets 1–3 × 1.2–2.5 cm, broadly ovate to suborbicular, rounded or cordate at base, mucronate at apex. Flowers in axillary, 4–8-flowered racemes. Pods 1.0–1.8 × 0.4 cm, linear, mucronate, compressed, 3–7-jointed, hairy.

Fls. & Frts. : September–January.

Distrib. : Borivli, *P. S. Herbert*. 307, 436 (*BLAT*)

Alysicarpus heyneanus Wight & Arn. Prodr. 1: 234.1834; Sanj. Leg. India 78.1991. *A. rugosus* (Willd.) DC. var. *heyneanus* (Wight & Arn.) Baker in Hook. f. Fl. Brit. India 2 : 159.1876; Cooke, Fl. Pres. Bombay 1: 371.1958 (Repr. ed.).

Herbs, 15–50 cm tall. Stems diffuse or suberect, pubescent. Leaves unifoliolate; leaflets 1.5–5.0 × 0.25–2.5 cm, elliptic-oblong or obovate-oblong. Flowers reddish-purple, in 10–12 cm long, terminal and axillary racemes. Pods 1.0–1.3 cm long, 3–5 jointed, moniliform, apiculate, transversely rugose. Seeds ellipsoid, obtuse at ends.

Fls. & Frts. : August–December.

Distrib. : Borivli, *P. S. Herbert*, 2380 (*BLAT*).

Alysicarpus longifolius (Rottl. ex Spreng.) Wight & Arn. Prodr. 233.1834; Baker in Hook. f. Fl. Brit. India 2 : 159.1876; Cooke, Fl. Pres. Bombay 1: 370.1958 (Repr. ed.); Sanj. Leg. India 79.1991. *Hedysarum longifolius* Rottl. ex Spreng. Syst. Veg. 3 : 319.1826.

Herbs ca. 1 m tall; stems erect or ascending, glabrous. Leaves 1-foliolate, 2-6 × 0.5-2.0 cm, oblong or lanceolate, subacute at base, obtuse to subacute at apex, appressed-hairy on nerves beneath. Flowers reddish-purple, geminate, in spicate racemes, calyx funnel-shaped, pubescent. Pods exserted, 4-6-jointed, shortly stalked, glabrous.

Fls. & Frts. : September-October.

Illus. : Wight, Ic. t. 251.1840.

Distrib. : *G. L. Shah* (1969).

Alysicarpus vaginalis (L.) DC. Prodr. 2 : 353.1825; Baker in Hook. f. Fl. Brit. India 2 : 158.1876; Cooke, Fl. Pres. Bombay 1: 369.1958 (Repr. ed.); Sanj. Leg. India 81.1991. *Hedysarum vaginale* L. Sp. Pl. 746.1753.

- | | | |
|--------------------------------------|-----|----------------------------|
| 1. Diffuse herbs | ... | <i>var. nummularifolia</i> |
| 1. Ascending herbs : | | |
| 2. All leaves similar | ... | <i>var. vaginalis</i> |
| 2. Lower and upper leaves dissimilar | ... | <i>var. stocksii</i> |

var. vaginalis

Herbs; stems prostrate or ascending, radially spreading. Leaves 1.0-3.5 × 0.8-3.0 cm, ovate-oblong, elliptic-oblong or suborbicular, sparsely hairy beneath. Flowers purple to violet, in 4-8 cm long, axillary or terminal racemes. Pods 1-2 × 0.2 cm, subcylindric, apiculate, 4-8-jointed, reticulately veined. Seeds ellipsoid, oblong.

Fls. & Frts. : September-December.

Illus. : Mahesh. Illus. Fl. Delhi f. 69.1966.

Distrib. : Borivli, *N.A. Irani*, 1267 & *P. S. Herbert*, 240 (*BLAT*)

var. nummularifolius Miq. Fl. India Bat. 1, 1: 232.1855; Baker in Hook. f. *op. cit.*; Cooke, *op. cit.*; Sanj. *op. cit.*; Almeida. Fl. Mah. 2 : 17.1999.

Herbs, sparsely hairy. Leaflets ovate-oblong or ovate-obtuse at apex. glabrous above, pubescent beneath. Flowers violet, in dense axillary or terminal racemes. Pods ellipsoid, brown.

Fls. & Frts. : July–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 69.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 4, t. 114.1988.

Distrib. : Borivli, *Almeida* (1996).

var. *stocksii* Baker in Hook. f. *Fl. Brit. India* 2 : 158.1876; Cooke, *Fl. Pres. Bombay* 1: 369.1958 (Repr. ed.); Sanj. Leg. India 82.1991; Almeida, *Fl. Mah.* 2 :17.1998.

Herbs with hairy stems. Leaflets obovate-oblong Flowers in loag racemes.

Fls. & Frts. : July–October.

Distrib. : Borivli, *Almeida* (1996).

BUTEA Roxb. ex Willd.

- | | | |
|-----------|-----|----------------------|
| 1. Trees | ... | <i>B. monosperma</i> |
| 1. Lianas | ... | <i>B. superba</i> |

Butea monosperma (Lam.) Taub. in Engl. & Prantl, *Pflanzenfam.* 3(3) : 365.1894; Sanj. Leg. India 99.1991. *Erythrina monosperma* Lam. *Encycl.* 1: 391.1786. *Butea frondosa* Roxb. ex Willd. *Sp. Pl.* 3 : 917.1802; Baker in Hook. f. *Fl. Brit. India* 2 :194.1876; Cooke, *Fl. Pres. Bombay* 1: 395.1958 (Repr. ed.). '*Palas*'.

Trees 8–10 m tall; branchlets densely tomentose. Leaflets 10–20 × 8–15 cm, coriaceous, broadly obovate, cuneate at base, acute at apex, lateral leaflets obtuse, smaller than the middle ones. Flowers orange or salmon-coloured, clothed outside with silky white, silvery hairs, in ca. 40 cm long racemes, clustered at the nodes of rachis. Pods 12–20 × 2.5–5.0 cm, thickened at sutures, reticulate, silky-pubescent, stalked.

Fls. & Frts. : February–April.

Illus. : Ic. Roxb. *Fasc.* 5, t. 25.1971 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t.184.1982.

Distrib. : Borivli, *Almeida* (1996).

Butea superba Roxb. ex Willd. *Sp. Pl.* 3 : 917.1802; Baker in Hook. f. *Fl. Brit.India* 2 :195.1876; Cooke, *Fl. Pres. Bombay* 1: 396.1958

(Repr. ed.); Sanj. Leg. India 99.1991. '*Palas-vel*'

Lianas up to 20 m long; stems woody, branchlets velvety-tomentose. Leaflets 10–25 × 8–20 cm, coriaceous, obovate, cuneate at base, obtuse at apex, petioles 15–20 long. Flowers large, red–orange in rigid racemes ca. 15 cm long. Pods 8–15 × 3–4 cm, oblong, curved at lower side, covered with ferruginous tomentum. Seed solitary.

Fls. & Frts. : February–April.

Illus. : Ic. Roxb. Fasc. 5, t. 24.1971 (Repr. ed.).

Distrib. : Frequent at Gawalikada and Tulsi beat, Karnala Jungle, 168967.

CAJANUS DC. (*nom. cons.*)

- | | | |
|----------------------------|-----|-------------------------|
| 1. Leaflets stipellate | ... | <i>C. crassus</i> |
| 1. Leaflets exstipellate : | | |
| 2. Pods 0.6 cm broad | ... | <i>C. scarabaeoides</i> |
| 2. Pods 1.2 cm broad | ... | <i>C. platycarpus</i> |

Cajanus crassus (Prain & King) van der Maesen in Agric. Univ. Wageningen Papers 85(4) : 105, f. 9 (1985) 1986; Sanj. Leg. India 100.1991. *Atylosia crassus* Prain & King in J. Asiat. Soc. Bengal 66: 45.1897; Cooke, Fl. Pres. Bombay 1: 408.1958 (Repr. ed.). *A. mollis* Bth. in Miq. Pl. Jungh. 2 : 243.1852 *p.p. excl. syn. Collaca mollis* Grah.1831; Baker in Hook. f. Fl. Brit. India 2 : 213.1876.

Twiners; stems and branches tomentose. Leaves pinnately 3-foliolate, petiolate; leaflets 3.5–8.5 × 2.5–6.5 cm, rhomboid, acute at base, subobtuse to acuminate at apex; terminal leaflet larger than the lateral ones. Flowers yellow, in lax racemes; calyx grey-downy, campanulate, corolla ca. 1.8 cm long. Pods 2–3 × 0–3 cm, oblong, 3–5-seeded.

Fls. & Frts. : January–April.

Illus. : van der Maesen, *op. cit.*

Distrib. : Salsette, Almeida (1998).

Cajanus platycarpus (Bth.) van der Maesen in Agric. Univ. Wageningen Papers 85(4) : 160, f. 23 (1985) 1986; Sanj. Leg. India 102.1991. *Atylosia platycarpa* Bth. in Miq. Pl. Jungh. 2 : 243.1852; Baker in Hook. f. Fl. Brit. India 2 : 216.1876; Cooke, Fl. Pres. Bombay 1 : 410.1958 (Repr. ed.).

Herbs. Stems and branches twining or even trailing, slender, covered with fulvous or grey hairs. Leaves 3-foliolate; leaflets 2.5–6.0 × 2.5–5.0 cm, suborbicular, ovate to ovate-oblong. Flowers yellow, axillary, solitary or in 2-flowered racemes. Pods 2.3–3.3 × 1 cm, linear-oblong, mucronate, 4–7-seeded. Seeds oblong, compressed.

Fls. & Frts. : August–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 412, f. 233.1909; (*Atylosia platycarpa*) van der Maesen, *op. cit.*

Distrib. : Borivli P. S. Herbert, 2187, 1288 (*BLAT*).

Cajanus scarabaeoides (L.) du Petit-Thours in Dict. Sci. Nat. 6: 617.1817 ('*Cajan scarabaeoide*'); van der Maesen in Agric. Univ. Wageningen Papers 85(4) : 183, 189, f. 27. (1985) 1986; Sanj. Leg. India 103.1991. *Dolichos scarabaeoides* L. Sp. Pl. 726.1753. *Atylosia scarabaeoides* (L.) Bth. in Miq. Pl. Jungh. 242.1852; Baker in Hook. f. Fl. Brit. India 2 : 215.1876; Cooke, Fl. Pres. Bombay 1: 409.1958 (Repr. ed.). '*Ran-tur*'.

Herbaceous twiners. Leaves ca. 2.5 cm long; leaflets 1.2 × 1.2 cm, oblong-obovate, cuneate at base, obtuse at apex, velvety-pubescent. Flowers yellow, 2–6 in axillary racemose clusters. Pods 1.5–1.8 × 0.6 cm, densely pubescent, oblong. Seeds 4–5, rectangular, black.

Fls. & Frts. : June–December.

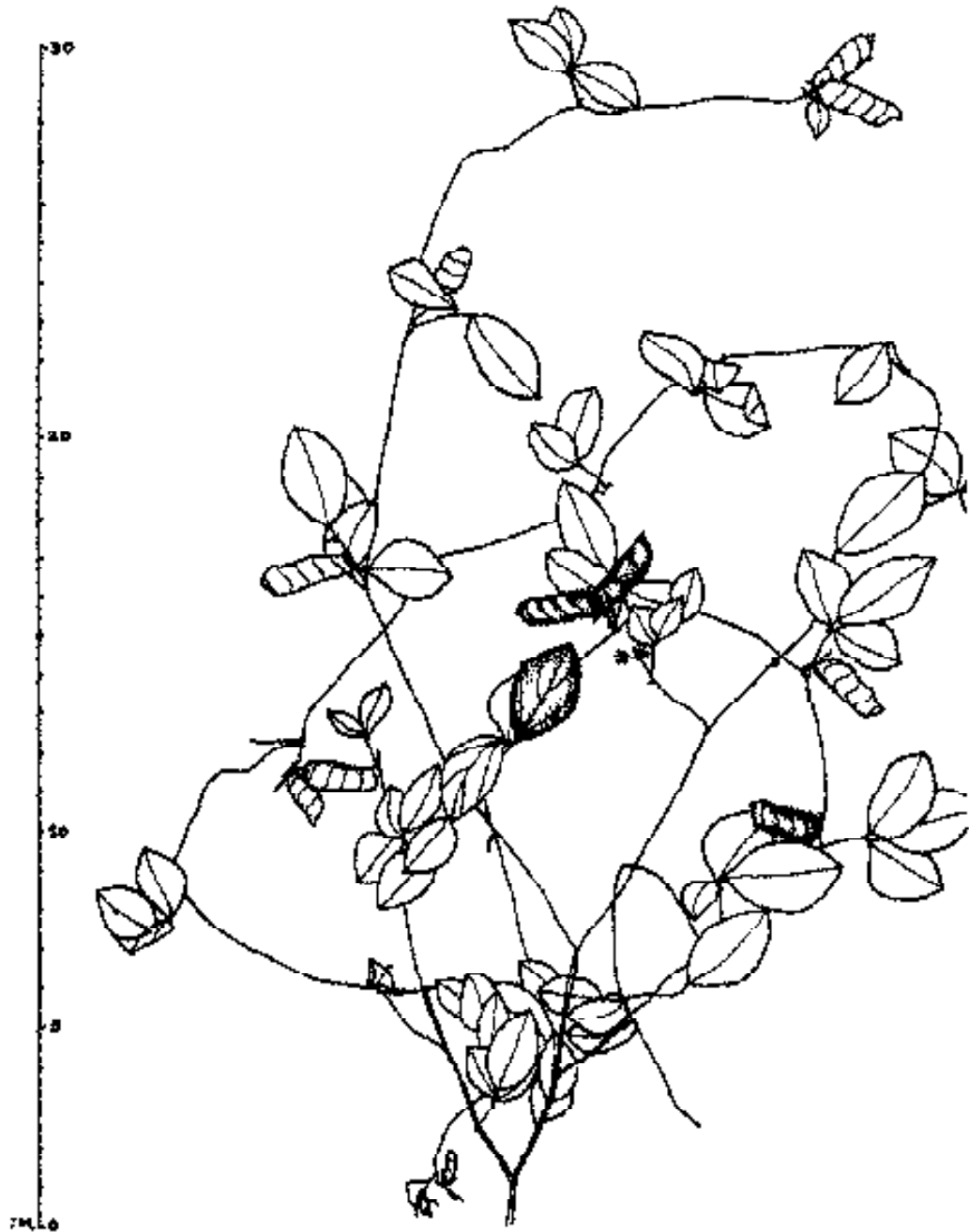
Illus. : van der Maesen, *op. cit.*; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t.177.1988.

Distrib. : Common on bushes. 167788.

CANAVALIA Adans. *emend.* DC. (*nom. cons.*)

- | | | |
|---|-----|----------------------|
| 1. Hilum less than half as long as seed | ... | <i>C. ensiformis</i> |
| 1. Hilum more than half as long as seed : | | |
| 2. Pods 5–10 cm long, 4–6-seeded | ... | <i>C. africana</i> |
| 2. Pods 15–30 cm long, 8–20-seeded | ... | <i>C. gladiata</i> |

Canavalia africana Dunn. in Pipers & Dunn, Bull. Misc. Inf. Kew 1922, 135.1922; Verdc. in Kew Bull. 42 : 658.1987; Sanj. Leg. India 107.1991. *C. virosa* (Roxb.) Wight & Arn. Prodr. 253.1834 *p.p.*; Sauer in Brittonia 16:152.1964. *C. ensiformis* (L.) DC. var. *virosa* (Roxb.) Baker in Hook. f. Fl. Brit. India 2 :196.1876; Cooke, Fl. Pres. Bombay 1: 398.1958 (Repr. ed.). '*Gowara*'.



f.19. *Cajanus scarabaeoides* (L.) du Petit-Thours

Stout twiners, perennials or biennials. Leaves compound, 10–20 cm long; leaflets 4–13 × 3–11 cm, ovate-oblong, subacute at base, acute to acuminate at apex, petioles up to 10 cm long. Flowers purple to lilac, in 10–20 cm long racemes. Pods 10–20 × 1–2 cm, linear-oblong, pubescent, obtuse at apex, horned, 10–12-seeded. Seeds 1.5–2.0 × 0.8 cm, oblong-elliptic, brownish.

Fls. & Frts. : September–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 4, t. 120.1988.

Distrib. : Common in the park. 168412.

Canavalia ensiformis (L.) DC. *Prodr.* 2 : 404.1825; Baker in Hook. f. *Fl. Brit. India* 2 : 195.1876; Cooke, *Fl. Pres. Bombay* 1: 397.1958 (Repr. ed.); Sauer in *Brittonia* 16:142.1964; Sanj. *Leg. India* 107.1991. *Dolichos ensiformis* L. *Sp. Pl.* 725.1753. 'Abai'.

Perennial or biennial twiners, glabrous. Leaves tri-foliolate; leaflets 4–12 × 3–10 cm, ovate, rounded at base, acute to shortly acuminate at apex, glabrous to glabrescent. Flowers lilac, in 12–30-flowered-axillary, 10–20 cm long racemes. Pods up to 5 cm wide, glabrescent, slightly pointed; seeds 8–20, oblong, compressed.

Fls. & Frts. : August–November.

Illus. : Talbot, *For. Fl. Bombay Pres., Sind* 1: 404, f. 228.1909.

Distrib. : Malad, *Almeida* (1998).

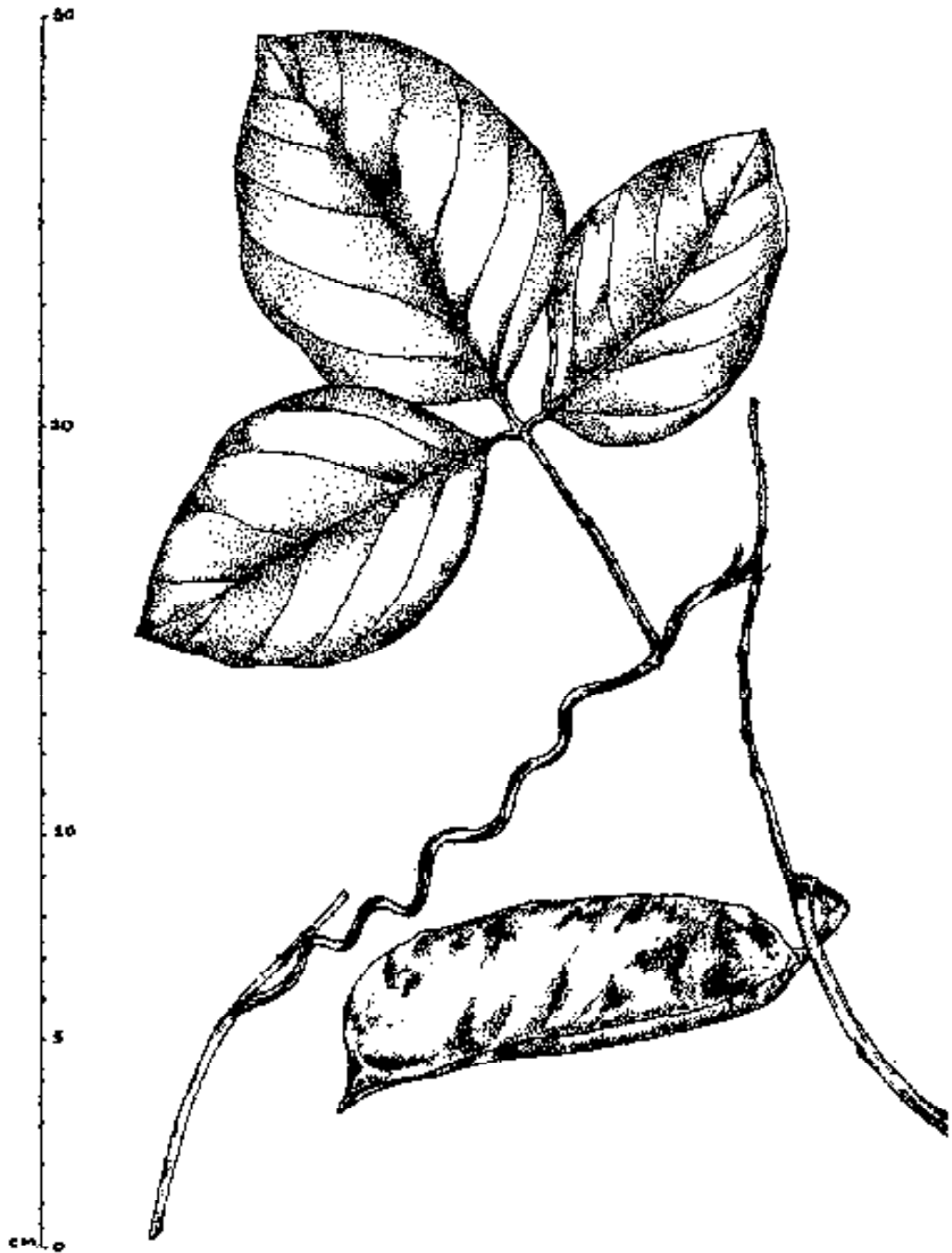
Canavalia gladiata (Jacq.) DC. *Prodr.* 2 : 404.1825; Sauer in *Brittonia* 16:149.1964; Sanj. *Leg. India* 107.1991; Kothari in Singh & Karthik. *Fl. Maharashtra* 1: 616.2000. *Dolichos gladiatus* Jacq. *Coll. Bot.* 2 : 276.1785 *non* DC. 1825.

Stout twiners. Leaves 3-foliolate, 20–25 cm long; leaflets 6–14 × 5–10 cm, ovate, rounded at base, acute to acuminate at apex. Flowers white or lilac, in stout peduncled, compact, axillary racemes. Pods up to 15 cm long, falcate or straight. Seeds ellipsoidal, compressed.

Fls. & Frts. : September–February.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 404, f. 228.1909 (*Canavalia ensiformis*).

Distrib. : Borivli, *P. S. Herbert.*, 250, 506. (BLAT)



f.20. *Canavalia gladiata* (Jacq.) DC.

CLITORIA L.

- | | | |
|---|-----|--------------------|
| 1. Flowers in pairs; pods 4-6 seeded | ... | <i>C. biflora</i> |
| 1. Flowers usually solitary; pods 6-10-seeded | ... | <i>C. ternatea</i> |

Clitoria biflora Dalz. in Kew J. Bot. 2 : 35.1850; Baker in Hook. f. Fl. Brit. India 2 : 208.1876; Cooke, Fl. Pres. Bombay 1: 406.1958 (Repr. ed.); Sanj. Leg. India 114.1991.

Herbs, 30-40 cm tall; stems erect, angular; striate, hairy. Leaves imparipinnate; leaflets 5, 3-6 × 1-3 cm, ovate-oblong or elliptic-lanceolate, sparingly hairy or glabrous. Flowers blue, deflexed, in axillary, two-flowered racemes. Pods 3-5 × 0.6 cm, linear, flat, hairy, reticulately veined, mucronate. Seeds 5-6, smooth, blackish-brown.

Fls. & Frts. : August-October.

Illus. : Lakshminaras. & Sharma, Fl. Nasik. Dt. 151, f.8.1991.

Distrib. : Frequent on plains. 167787, 167892.

Clitoria ternatea (L.) Sp. Pl. 753.1753; Baker in Hook. f. Fl. Brit. India 2 : 208.1876; Cooke, Fl. Pres. Bombay 1: 405.1958 (Repr. ed.); Sanj. Leg. India 114.1991. '*Gokarna*'

Herbs; stems twining, stems and branches appressed-pubescent. Leaves imparipinnate, 5-7 cm long; leaflets 2-3 pairs, 1.3-3.0 × 1.2-1.5 cm, ovate, obtuse at base and apex. Flowers deep blue, axillary, solitary or in clusters. Pods 7-9 × 0.7-0.8 cm, linear-oblong, compressed, apically beaked. Seeds oblong, compressed, reniform.

Fls. & Frts. : May-January.

Illus. : Tad. & G.V. Narayana, Handb. S. Indian Weeds 162, t. 63.1955. (Rev. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 :t.188.1982.

Distrib. : Borivli, P. S. Herbert., 114. Versova; H. Santapau, 102, 89 (BLAT).

CODARIOCALYX Hassk.

Codariocalyx motorius (Houtt.) H. Ohashi in J. Jap. Bot. 40 : 367.1965 & Ginkgona 1: 46.1973; Almeida, Fl. Mah. 2 : 30.1998. *Hedysarum motorius* Houtt. Nat. Hist. 10 : 246.1779. *Desmodium gyrans* (L.f.) DC. Prodr. 2 : 326.1825; Baker in Hook. f. Fl. Brit. India 2 :174.1876; Cooke, Fl. Pres. Bombay 1: 382.1958 (Repr. ed.).

Undershrubs, 60–90 cm tall. Leaves 1–3-foliolate, petiolate; terminal leaflets 2–6 × 0.6–1.3 cm & lateral ones 1.0–1.8 × 0.3–0.4 cm, oblong-lanceolate. Flowers pink, in lax, terminal or axillary racemes. Pods 3.5–5.0 × 0.5 cm, flat, 5–10-jointed; joints inconspicuous; reticulately veined, hairy.

Fls. & Frts. : August–December.

Illus. : Wight, Ic.t.. 294.1840. (*Desmodium gyrans*).

Distrib. : Borivli, Kanheri Caves, Vihar lake. *Almeida* (1998).

CROTALARIA L.

1. Leaves simple :
 2. Corolla bluish–purple or white ... *C. verrucosa*
 2. Corolla bright or pale yellow :
 3. Leaves glabrous above, (young leaves hairy above in *C. lutescens*) :
 4. Flowers in 2–3-flowered racemes; calyx silky–hairy outside ... *C. triquetra*
 4. Flowers in 6–many-flowered racemes; calyx glabrous outside :
 5. Stipules present ... *C. retusa*
 5. Stipules absent ... *C. lutescens*
 3. Leaves hairy above :
 6. Pods silky hairy :
 7. Pods 4–6-seeded ... *C. leptostachya*
 7. Pods 10–15-seeded ... *C. juncea*
 6. Pods glabrous :
 8. Plants prostrate or ascending :
 9. Leaves up to 1.5 cm long; corolla exerted ... *C. filipes*
 - 9a. Stems filiform, sparsely hairy; pods 0.3–0.6 cm long ... var. *filipes*
 - 9b. Stems stout, densely hairy; pods 0.8–1.0 cm long ... var. *trichophora*
 9. Leaves 2.0–5 cm long; corolla not exerted ... *C. prostrata*

8. Plants erect :
10. Pods distinctly exerted ... *C. albida*
10. Pods included or scarcely exerted ... *C. linifolia*
1. Leaves compound :
11. Leaflets usually 3 :
12. Pods obliquely subglobose, 2-seeded ... *C. medicaginea*
12. Pods oblong-cylindric, many-seeded ... *C. pallida*
11. Leaflets usually 5; sometimes 3-7 ... *C. quinquefolia*

Crotalaria albida Heyne ex Roth, Nov. Pl. Sp. 333.1821; Baker in Hook. f. Fl. Brit. India 2 : 71.1876; Cooke, Fl. Pres. Bombay 1: 315.1958 (Repr. ed.); Munk in Reinwardia 6: 200.1962; Sanj. Leg. India 116.1991.

Herbs, 20-30 cm tall. Leaves 0.5-2.0 × 0.2-0.8 cm, oblanceolate or oblong-elliptic, cuneate at base, obtuse, emarginate, apiculate at apex, pubescent beneath. Flowers yellow, in terminal 8-10 cm long, ca. 10 or more-flowered racemes. Pods 1.0-1.5 × 0.3-0.5 cm, oblong, terete, apiculate. Seeds compressed subreniform, shining.

Fls. & Frts. : December-February.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill tops 2 : t. 78.1915 [1974, (Repr. ed.)].

Distrib. : Borivli, *P. S. Herbert*, 521 (*BLAT*).

Crotalaria filipes Bth. in Hook. London J. Bot. 2 : 475.1843; Baker in Hook. f. Fl. Brit. India 2 : 66.1876; Cooke, Fl. Pres. Bombay 1: 312.1958 (Repr. ed.); Sanj. Leg. India 120.1991.

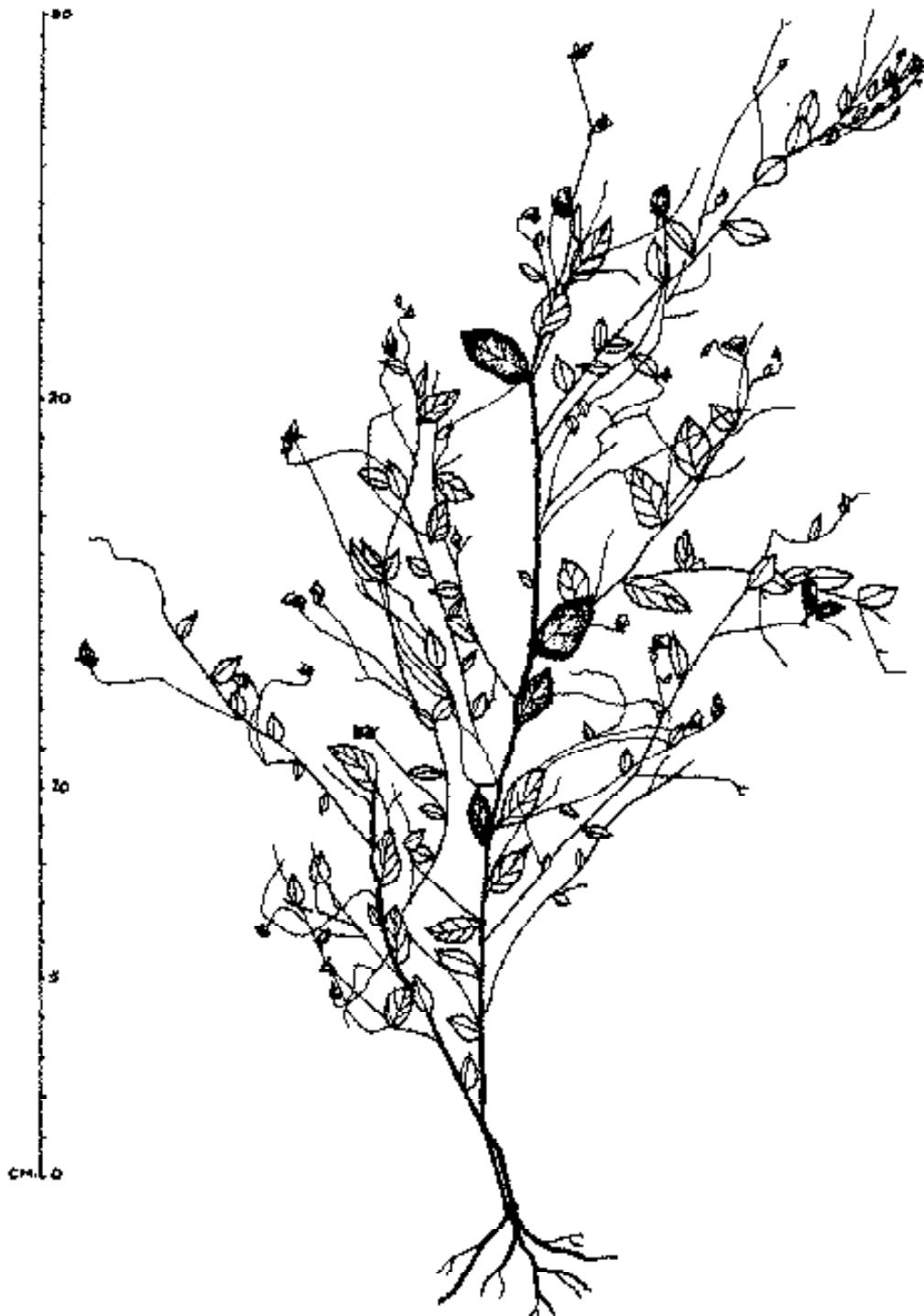
var. **filipes**.

Herbs, stems 15-45 cm long, prostrate, slender. Leaves 0.3-1.5 × 0.2-0.5 cm, subsessile, ovate-oblong or ovate, obtuse or acute at apex, mucronulate, obliquely cordate at base. Flowers yellow, distant, in leaf-opposed or extra-axillary, 1-3-flowered racemes. Pods 0.5-0.7 cm long, shortly stalked. Seeds 8-10.

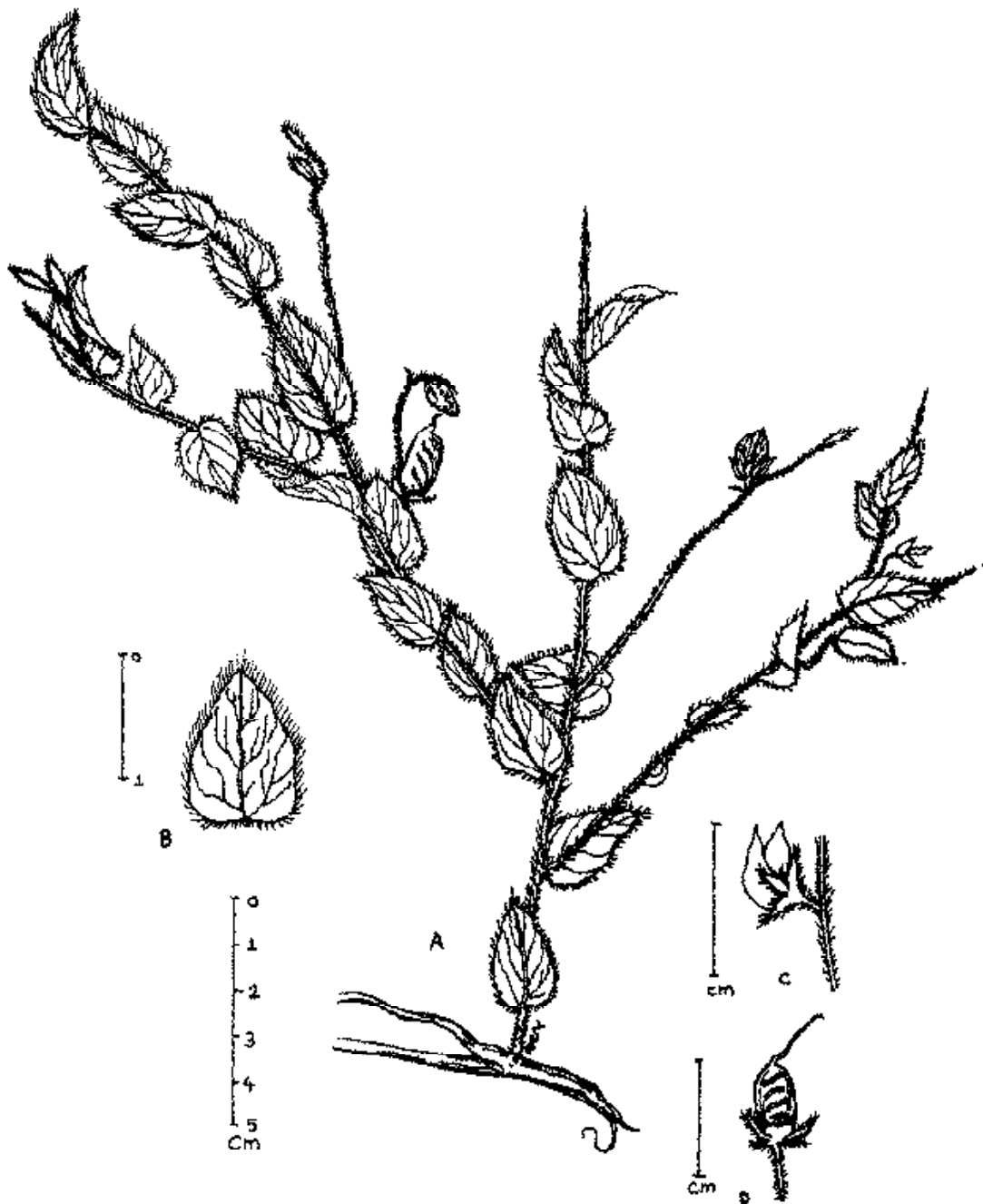
Fls. & Frts. : August-December.

Distrib. : Frequent near moist places. 167311, 167380, 168462.

var. **trichophora** (Bth. ex Baker) T. Cooke, Fl. Pres. Bombay 1: 293.1903 [312.1958 (Repr. ed.)]; Sanj. Leg. India 120.1991; *C. trichophora* Bth. ex Baker in Hook. f. Fl. Brit. India 2 : 67.1876.



f.21. *Crotalaria filipes* Bth. var. *filipes*.



f.22. *Crotalaria filipes* var. *trichophora* (Bth. ex Baker) T. Cooke

Herbs. Leaves 1.2–2.5 × 0.6–0.8 cm, ovate-oblong, obliquely cordate at base, obtuse, or acute at apex. Flowers yellow, in 1–3-flowered, extra-axillary or leaf-opposed racemes. Pods ca. 0.6 cm long, oblong, shortly stipitate. Seeds 8–10.

Fls. & Frts. : September–December.

Distrib. : Borivli, N. A. Irani, 376 (BLAT)

Crotalaria juncea L. Sp. Pl. 714.1753; Baker in Hook. f. Fl. Brit. India 2 : 79.1876; Cooke, Fl. Pres. Bombay 1: 320.1958 (Repr. ed.); Sanj. Leg. India 122.1991.

Annual herbs 0.5–1.75 m tall. Stems erect, rigid; branchlets silky-pubescent. Leaves simple, 3–10 × 0.8–1.5 cm, oblong-lanceolate, acute at base and apex, chartaceous, sericeous. Flowers yellow, in terminal, 15–20 cm long racemes. Pods 2.5–4.5 × 1.0 cm, sessile, oblong-terete. Seeds subreniform, flat, yellowish-brown.

Fls. & Frts. : November–January.

Illus. : Kaur in Bull. Lucknow Nat. Bot. Gdns. Lucknow 87: t. 2 & 3.1964; Matthew, Fur. Illus. Fl. Tamilnadu. Carnatic 4: t. 127.1988.

Distrib. : Occasional as an escape from cultivation. 168977.

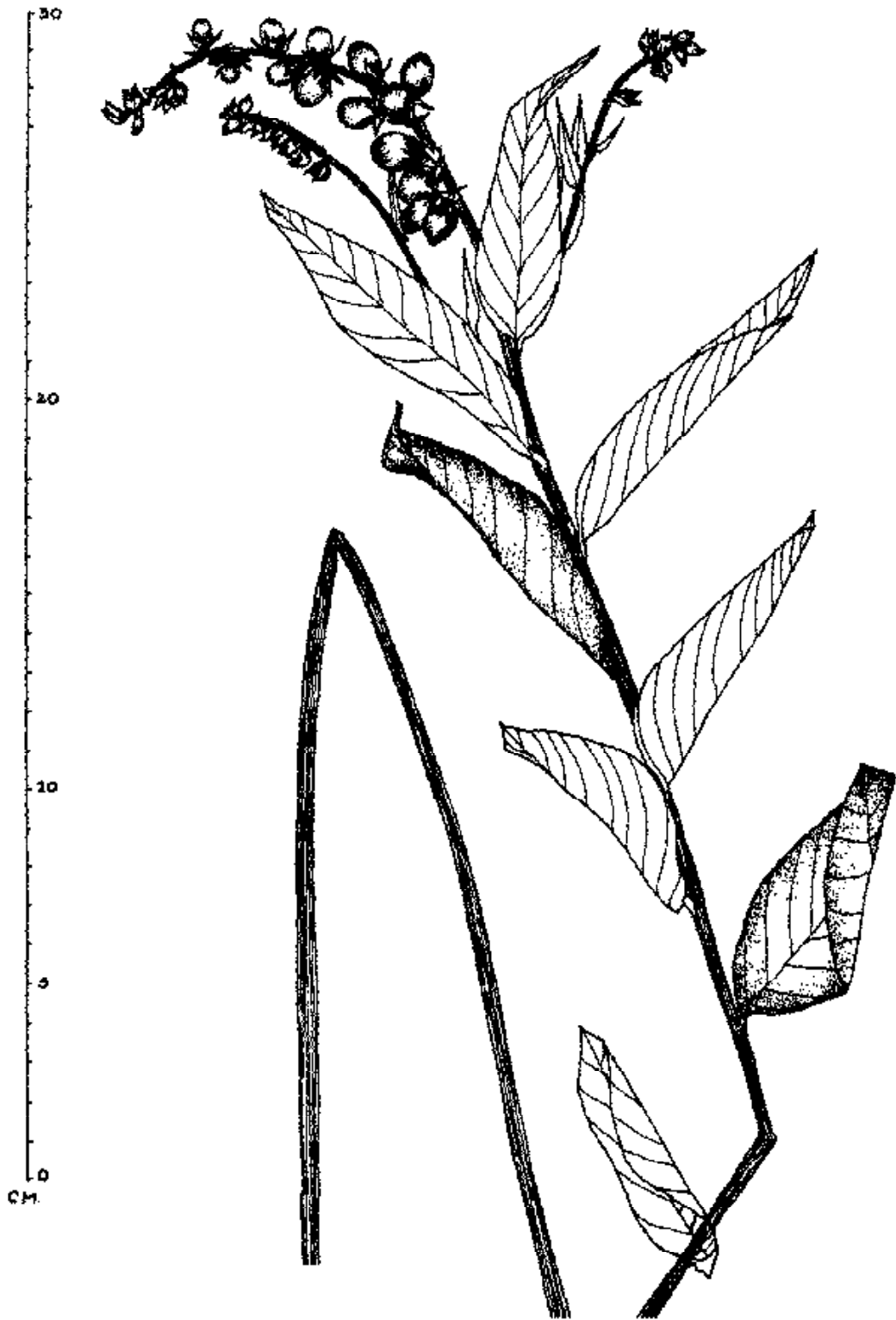
Crotalaria leptostachya Bth. in Hook. Lond. J. Bot. 2 : 562.1843; Baker in Hook. f. Fl. Brit. India 2 : 78.1876; Cooke, Fl. Pres. Bombay 1: 320.1958 (Repr. ed.); Sanj. Leg. India 123.1991.

Shrubs, 0.7–1.5 m tall. Stems stiff, erect, rigid; fulvous pubescent. Leaves 5–13 × 1.3–4.0 cm, oblong-lanceolate or linear-oblong, appressedly silky-pubescent, subsessile, rounded at base, acute, apiculate at apex. Flowers yellow, in terminal or axillary, 30–50 cm long racemes. Pods 1.5–2.0 cm long. Seeds subreniform, compressed, smooth.

Fls. & Frts. : October–November.

Distrib. : Frequent along hill slopes and roadsides. 167286, 167945.

Crotalaria linifolia L.f. Suppl. 322.1781; Baker in Hook. f. Fl. Brit. India 2 : 72.1876; Cooke, Fl. Pres. Bombay 1: 317.1958 (Repr. ed.); Munk in Reinwardtia, 6: 207.1962; Sanj. Leg. India 123.1991; Kothari in Singh & Karthik. Fl. Maharashtra 1: 635.2000.



f.23. *Crotalaria leptostachya* Bth.

Undershrubs, 30–90 cm tall. Stems suberect; branchlets appressed-pubescent. Leaves 2.0–4.5 × 0.5–1.0 cm, oblong-ob lanceolate, cuneate at base, obtuse and apiculate at apex, hairy, entire. Flowers yellow, 20–25 cm long, in terminal racemes. Pods 0.5 × 0.8 × 0.4 cm, ovoid-oblong, minutely apiculate, deflexed. Seeds reniform, 4–10.

Fls. & Frts. : September–November.

Distrib. : Common among grasses and forest undergrowth. 167270, 167319, 167897.

Crotalaria lutescens Dalz. in Hook. Kew J. Bot. 2 : 34.1843; Baker in Hook. f. Brit. India 2 : 74.1876; Cooke, Fl. Pres. Bombay 1: 318.1958 (Repr. ed.); Sanj. Leg. India 123.1991.

Herbs, 30–90 cm tall; stems branched. Leaves 5–15 × 1–2 cm, linear, elliptic-lanceolate, acute at apex. Flowers yellow, in 8–15-flowered, lax racemes. Pods 2.5–3.5 cm long, oblong, cylindrical. Seeds many.

Fls. & Frts. : August–October.

Distrib. : Borivli, P. S. Herbert., 884 (BLAT)

Crotalaria medicaginea Lam. Encycl. 2 : 201.1786; Baker in Hook. Fl. Brit. India 2 : 81.1876; Cooke, Fl. Pres. Bombay 1: 322.1958 (Repr. ed.); Munk in Reinwardtia 6 : 208.1962; Sanj. Leg. India 124.1991.

- | | | |
|---------------------------------------|-----|-------------------------|
| 1. Racemes 2–6-flowered | ... | var. <i>medicaginea</i> |
| 1. Racemes 6–12-flowered : | | |
| 2. Stems and branches stouter, erect | ... | var. <i>luxurians</i> |
| 2. Stems and branches weak, ascending | ... | var. <i>neglecta</i> |

var. ***medicaginea***

Herbs, 30–40 cm tall, rootstock woody. Stems erect, branches appressed-hairy. Leaves 3-foliolate; leaflets 0.4–1.0 × 0.3–0.8 cm, obovate, cuneate at base; emarginate, mucronate at apex, appressed-pubescent beneath. Flowers yellow, in terminal and lateral 2–6-flowered, 3–10 cm long racemes. Pods 0.4–0.5 cm long, subglobose, obliquely beaked. Seeds subreniform, compressed.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 49.1966.

Distrib. : Borivli, *P. S. Herbert*, 2313; *D.F. Panthaki*, 1759 (*BLAT*).

var. *luxurians* (Bth.) Baker in Hook. f. Fl. Brit. India 2 : 81.1876; Cooke, Fl. Pres. Bombay 1: 322.1958 (Repr. ed.). *C. luxurians* Bth. in Hook. London J. Bot. 2 : 578.1843; Sanj. Leg. India 124.1991.

A robust variety, 60–90 cm tall, Leaflets larger, 1.2 cm long, obovate, oblanceolate, silky beneath, petioles longer. Flowers 6–12, yellow, in terminal racemes. Pods ca. 4 cm across, subglobose.

Fls. & Frts. : August–November.

Illus. : Mahesh. Illus. Fl. Delhi f. 49.1966.

Distrib. : Borivli, *P. S. Herbert*, 157. (*BLAT*).

var. *neglecta* (Wight & Arn.) Baker in Hook. f. Fl. Brit. India 2 : 81.1876; Cooke, Fl. Pres. Bombay 1: 322.1958 (Repr. ed.); Sanj. Leg. India 124.1991. *C. neglecta* Wight & Arn. Prodr. 192.1834. '*Ranmethi*'.

Herbs with more ascending branches than in the type. Leaflets larger, retuse. Racemes 6–9 flowered.

Fls. & Frts. : July–November.

Distrib. : Versova, *Almeida* (1998).

Crotalaria pallida Ait. Hort. Kew 3 : 20.1789; Sanj. Leg. India 126.1991; Kothari in Singh & Karthik. Fl. Maharashtra 1: 643.2000. *C. striata* DC. Prodr. 2 : 131.1825; Baker in Hook. f. Fl. Brit. India 2 : 84.1876; Cooke, Fl. Pres. Bombay 1 : 323.1958 (Repr. ed.).

Undershrubs, 1–2 m tall; branchlets puberulous. Leaves ca. 8 cm long; leaflets 3.5–6.0 × 2.0–3.5 cm, obovate, punctate, cuneate–subacute at base, obtuse and apiculate at apex. Flowers yellow, numerous, in terminal and axillary, 15–30 cm long racemes. Pods ca. 5.0 × 0.6 cm, pubescent when young becoming glabrescent with age. Seeds 20–30, brown.

Fls. & Frts. : October–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu carnatic 4.t. 136.1988.

Distrib. : Occasional. 168459.

Crotalaria prostrata Rottl. in Willd. Enum. Hort. Berol. 2 : 744.1809; Baker in Hook. f. Fl. Brit. India 2 : 67.1876; Cooke, Fl. Pres. Bombay 1: 312.1958 (Repr. ed.); Sanj. Leg. India 127.1991; Kothari in Singh & Karthik. Fl. Maharashtra 1: 643. 2000.

Herb. Stems prostrate or ascending, slender, silky pubescent. Leaves 1.5–3.5 × 1–2 cm, oblong or oblong-elliptic, oblique at base, subacute at apex, margins ciliate. Flowers yellow, in lateral or leaf-opposed, 2–4-flowered racemes, peduncles filiform. Pods 1.5–2.0 × 0.5 cm, oblong, terete. Seeds subreniform, *ca.* 20.

Fls. & Frts. : October–December.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 139.1988.

Distrib. : Borivli, *P. S. Herbert.*, 400, 858 (*BLAT*)

Crotalaria quinquefolia L. *Sp. Pl.* 716.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 84.1876; Cooke, *Fl. Pres. Bombay* 1: 324.1958 (*Repr. ed.*); Sanj. *Leg. India* 127.1991; Kothari in Singh & Karthik. *Fl. Maharashtra* 1: 644. 2000.

Herbs, 0.6–1.0 m tall; stems erect. Leaves compound, stipulate; leaflets 2.5–7.0 × 0.6–1.5 cm, linear, elliptic-oblong, obtuse or subacute at apex. Flowers in lax, terminal, 10–20-flowered, *ca.* 20 cm long racemes; bracts foliaceous, lanceolate, persistent. Pods 3.5–5.0 × 1.8–2.5 cm, oblong, 30–40-seeded.

Fls. & Frts. : October–December.

Illus. : Wight, *Ic.* t. 15.1838.

Distrib. : Salsette, *Dalzell & Gibson* (1861).

Crotalaria retusa L. *Sp. Pl.* 715.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 75.1876; Cooke, *Fl. Pres. Bombay* 1: 318.1958 (*Repr. ed.*); Munk in *Reinwardtia* 6 : 212 .1962; Sanj. *Leg. India* 128.1991. '*Dingla*'

Undershrubs, 0.6–1.2 m tall. Stems erect, glabrous or appressed-hairy. Leaves 2.5–6.0 × 1–2 cm, oblanceolate, obovate-oblong, attenuate at base, obtuse or retuse, apiculate at apex, pubescent beneath. Flowers yellow, in 5–20 cm long, terminal racemes. Pods 2.5–3.5 cm long, oblong-terete. Seeds 15–20, subreniform.

Fls. & Frts. : September–December.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 377, f. 215.1909; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 142.1988.

Distrib. : Versova, *H. Santapau*, 102, 78 (*BLAT*)

Crotalaria triquetra Dalz. in Hook. *Kew J. Bot. Gard. Misc.* 2 : 34.1850; Baker in Hook. f. *Fl. Brit. India* 2 : 71.1876; Cooke, *Fl. Pres. Bombay* 1: 314.1958 (*Repr. ed.*); Sanj. *Leg. India* 131.1991.

Suffruticose herbs. Stems suberect or diffuse. Leaves 2–5 × 0.5–1.2 cm, subsessile, elliptic-oblong or oblong, sparsely hairy beneath. Flowers yellow, 3–5 cm long, in terminal and axillary, lax, 2–3-flowered racemes. Pod 1.5–2.0 cm long, oblong, cylindrical, hairy. Seeds 15–20 subreniform, almost spherical.

Fls. & Frts. : August–November.

Distrib. : Frequent on plains and hill slopes. 168469, 168920.

Crotalaria verrucosa L. Sp. Pl. 715.1753; Baker in Hook. f. Fl. Brit. India 2 : 77.1876; Cooke, Fl. Pres. Bombay 1: 319.1958 (Repr. ed.); Sanj. Leg. India 131.1991; Kothari in Singh & Karthik. Fl. Maharashtra 1: 649. 2000.

Herbs *ca.* 1 m tall; branchlets appressed–pubescent. Leaves simple 5–1 × 4–6 cm, ovate, or rhomboid–deltoid, attenuate at base, obtuse to acute at apex, pubescent. Flowers blue, in terminal or lateral *ca.* 15 cm long, 12–20-flowered racemes. Pods 2.0–3.5 × 1 cm, oblong–terete, sparsely hairy, stalked. Seeds 10–15, yellow, shining.

Fls. & Frts. : October–November.

Illus. : Wight, Ic. t. 206.1839; Tad. & G. V. Narayana, Handb. S. Indian Weeds 132, t. 52.1955 (Repr. ed.); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t. 146.1988.

Distrib. : *Koppikar* (1974).

DALBERGIA L. f. (*nom. cons.*)

1. Stamens diadelphous (i.e. 5+5) :

- | | | |
|--------------------|-----|-----------------------|
| 2. Trees | ... | <i>D. lanceolaria</i> |
| 2. Climbing shrubs | ... | <i>D. volubilis</i> |

1. Stamens monadelphous (9 in a bundle) :

- | | | |
|--|-----|---------------------|
| 3. Leaflets acuminate at apex | ... | <i>D. sissoo</i> |
| 3. Leaflets obtuse or emarginate at apex | .. | <i>D. latifolia</i> |

Dalbergia lanceolaria L. f. Suppl. Pl. 316.1781; Baker in Hook. f. Fl. Brit. India 2 : 235.1876; Cooke, Fl. Pres. Bombay 1: 425.1958 (Repr. ed.); Sanj. Leg. India 136.1991. '*Dandus*'.

Trees, 10–18 m tall. Leaves compound, *ca.* 15 × 5 cm; leaflets 5–7 pairs, 2–3 × 1.5–2.0 cm elliptic or oblong, cuneate at base, obtuse at apex, alternate. Flowers pale rose, in axillary or terminal, leafless panicles. Pods 4–10 × 1.0–1.5 cm, stipitate, lanceolate, attenuate at base, obtuse at apex, glabrous or nearly so, reticulately veined. Seeds 1–3.

Fls. & Frts. : March–May.

Illus. : Wight, Ic. t. 266.1840 (*Dalbergia frondosa* Roxb. Fl. Ind. 3 : 266.1832); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t. 148.1988.

Distrib. : Infrequent. 167425, 167868.

Dalbergia latifolia Roxb. Pl. Cor. 2 : 7, t. 113.1799 & Fl. Ind. 3 : 221.1832; Baker in Hook. f. Fl. Brit. India 2 : 235.1876; Cooke, Fl. Pres. Bombay 1: 422.1958 (Repr. ed.); Sanj. Leg. India 137.1991. '*Shisav*'.

Trees, 15–20 cm tall. Leaves compound, 10–15 cm long; leaflets 5–7, 3–6 × 2–5 cm, obovate–orbicular, coriaceous, glabrous above and puberulous beneath, obtuse to subacute, attenuate at base, rounded at apex. Flowers white, in axillary panicles or on old woods. Pods 3.5–7.0 × 1–2 cm, obtuse at base and apex, nerved, 1–3-seeded.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 1156.1848; Talbot, For. Fl. Bombay Pres. & Sind 1: 424, f. 239.1909.

Distrib. : Frequently distributed. 167227, 167316.

Dalbergia sissoo Roxb. Fl. Ind. 3 : 223.1832; Baker in Hook. f. Fl. Brit. India 2 : 231.1876; Cooke, Fl. Pres. Bombay 1: 421.1958 (Repr. ed.); Sanj. Leg. India 140.1991. '*Shisvi*'.

Trees, 12–15 m tall. Leaves 13–15 cm long, imparipinnate; leaflets 3–7 × 2.0–4.0 cm, suborbicular, cuneate at base, acuminate at apex, alternate, stipules lanceolate, caducous. Flowers creamy, sessile or nearly so, in axillary panicles. Pods 3–10 × 0.6–1.2 cm, strap-shaped, stalked. Seeds 1–4.

Fls. & Frts. : March–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 423, t. 238.1909; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 152.1988.

Distrib. : Kanheri jungles, *Graham* (BLAT).

Dalbergia volubilis Roxb. Pl. Cor. 2 : 48, t.191.1798; Baker in Hook. f. Fl. Brit. India 2 : 235.1876; Cooke, Fl. Pres. Bombay 1: 426.1958 (Repr. ed.); Sanj. Leg. India 142.1991. '*Alai*'.

Woody climbers, 10–15 m long; branches with spiral hooks. Leaves 8–14 cm long, imparipinnate, alternate; leaflets 11–13, 2.0–4.0 × 0.8–2.0 cm, oblong to obovate–oblong, obtuse, truncate, emarginate at apex. Flowers pale purple, in axillary and terminal, 15–25 cm long panicles. Pods 2.5–7.0 × 1.8–2.5 cm linear–oblong, veined, 1–2-seeded.

Fls. & Frts. : February–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 430, t. 241.1909.

Distrib. : Borivli, P. S. Herbert, 1428, 1499 (BLAT)

DERRIS Lour. (*nom. cons.*)

- | | | |
|-------------------------------------|-----|----------------------|
| 1. Leaflets 3–7; calyx glabrous | ... | <i>D. trifoliata</i> |
| 1. Leaflets 9–19; calyx silky-hairy | ... | <i>D. scandens</i> |

Derris scandens (Roxb.) Bth. in J. Linn. Soc. Bot. 4. (Suppl.) : 103.1860; Baker in Hook. f. Fl. Brit. India 2 : 240.1878; Cooke, Fl. Pres. Bombay 1: 430.1958 (Repr. ed.); Thoth. in Bull. Bot. Surv. India 3 : 177. (1961) 1962; & Fasc. Fl. India 8: 27 t. 1.1982 ; Sanj. Leg. India 148.1991. *Dalbergia scandens* Roxb. Pl. Cor. 2 : 29, t.192.1805. 'Mothi-shirili'.

Lianas up to 10 m long; branchlets tomentose. Leaves compound; leaflets 5–6 pairs, 3–6 × 0.5–2.0 cm, glabrous above, puberulous beneath, oblong–obovate, cuneate at base, obtuse to retuse at apex, subopposite. Flowers cream–coloured, in terminal and axillary, ca. 15 cm long panicles. Pods 3–7 × 1 cm, oblong, acute at apex and base, narrowly winged on upper suture, 5–6 seeded.

Fls. & Frts. : June–August.

Illus. : Wight, Ic. t. 275.1840 (*Dalbergia scandens*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.193.1982.

Distrib. : Occasional. 167748.

Derris trifoliata Lour. Fl. Cochinch. 433.1790; Thoth. in Bull. Bot. Surv. India 3 : 181. (1961) 1962 & Fasc. Fl. India 8: 30.1982; Sanj. Leg. India 148.1991. *D. uliginosa* (Willd.) Bth. in Miq. Pl. Jungh. 1: 252.1852; Baker in Hook. f. Fl. Brit. India 2 : 241.1878; Cooke, Fl. Pres. Bombay 1: 431.1958 (Repr. ed.). 'Kajar-vel'.

Scandent shrubs. Leaves compound; leaflets in 2 pairs, 5–10 × 3–5 cm, opposite, oblong–lanceolate, obtuse at base, acuminate at apex. Flowers rose–coloured, in 10–12 cm long racemes. Pods 2.5–3.5 × 2.0–2.3, obtuse at base and apex, winged, 1–2–seeded; seeds reniform.

Fls. & Frts. : February–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.194.1982.

Distrib. : Frequent along sea shores. 167467, 167951.

DESMODIUM Desv. (*nom. cons.*)

1. Leaves 1-foliolate :
 2. Petioles winged ... *D. triquetrum*
 2. Petioles not winged :
 3. Stipules cordate-ovate; joints of pods as broad as long ... *D. velutinum*
 3. Stipules linear-subulate; joints of pods longer than broad ... *D. gangeticum*
1. Leaves 3-foliolate :
 4. Flowers in axillary, simple or umbellate clusters :
 5. Flowers 1-5, in simple clusters ... *D. triflorum*
 5. Flowers 20 or more in peduncled, umbellate clusters ... *D. triangulare*
 4. Flowers in terminal or axillary racemes or panicles :
 6. Pods constricted or indented between seeds :
 7. Stipules foliaceous, auricled :
 8. Pods turgid, glabrescent, reticulately veined ... *D. dichotomum*
 8. Pods flat, covered with hooked hairs, smooth ... *D. scorpiurus*
 7. Stipules not foliaceous and auricled but lanceolate-subulate ... *D. heterocarpon*
 6. Pods scarcely constricted between seeds ... *D. laxiflorum*

Desmodium dichotomum (Willd.) DC. Prodr. 2 : 336.1825; van Meeuwen in Reinwardtia 6: 248.1962; Sanj. Leg. India 152.1991. *Hedysarum dichotomum* Willd. Sp. Pl. 3 : 1180.1802. *Desmodium diffusum* (Willd.) DC. Prodr. 2 : 336.1825; Baker in Hook. f. Fl. Brit. India 2 : 169.1876; Cooke, Fl. Pres. Bombay 1: 377.1958 (Repr. ed.). 'Chikta'.

Herbs, 30-60 cm tall, scandent; branchlets hispid hairy. Leaves compound; leaflets 2.5-10.0 × 1-5 cm, ovate, elliptic, pubescent above, tomentose beneath, obtuse at base and apex, petiolate. Flowers pink, in terminal and axillary, racemes up to 20 cm long. Pods up to 2 cm long, sessile, shortly horned, 6-jointed, margins indented.

Fls. & Frts. : September-December.

Illus. : Wight, Ic. t. 298.1839 (*Desmodium diffusum*).

Distrib. : Infrequent as forest undergrowth near moist places. 167390.

Desmodium gangeticum (L.) DC. Prodr. 2 : 327.1825; Baker in Hook. f. Fl. Brit. India 2 : 168.1876; Cooke, Fl. Pres. Bombay 1: 379.1958 (Repr. ed.); van Meeuwen in Reinwardtia 6: 249.1962; Sanj. Leg. India 153.1991. *Hedysarum gangeticum* L. Sp. Pl. 746.1753. *Desmodium gangeticum* (L.) DC. var. *maculatum* (L.) Baker in Hook. f. *op. cit.* Cooke, *op. cit.* 'Salvan'.

Undershrubs, 60–120 cm tall; branchlets sericeous. Leaves 1-foliolate; leaflets 3–12 × 2–6 cm, oblong-obovate or lanceolate, chartaceous, obtuse-subacute at base, acute, apiculate at apex, puberulous above and tomentose beneath, petiolate. Flowers white to lilac, in terminal and axillary, ca. 20 cm long racemes. Pods ca. 20 cm long, oblong, subfalcate, lower suture deeply undulate, upper one straight, pubescent.

Fls. & Frts. : May–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 68.1966; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 155.1988.

Distrib. : Frequent as forest undergrowth. 167288, 167331, 169121.

Desmodium heterocarpon (L.) DC. Prodr. 2 : 337.1825; van Meeuwen in Reinwardtia 6: 251.1962; Sanj. Leg. India 154.1991. *Hedysarum heterocarpon* L. Sp. Pl. 747.1953. *Desmodium polycarpon* (Poir.) DC. Prodr. 2 : 334.1825; Baker in Hook. f. Fl. Brit. India 2 : 171.1876; Cooke, Fl. Pres. Bombay 1: 377.1958 (Repr. ed.).

Undershrubs, 50–150 cm tall. Stems erect or suberect, appressed-pubescent. Leaves 3-foliolate; leaflets 3–7 × 1–3 cm, obovate to obovate-oblong, obtuse to truncate at base, obtuse, mucronate at apex. The lateral ones smaller. Flowers bluish-purple, in dense, axillary and terminal, subsessile, 2.5–3.0 cm long racemes. Pods 1.2–1.8 × 0.3–0.4 cm, 5–8-jointed, linear-oblong. Seeds broadly ellipsoid.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 406.1840 (*Desmodium polycarpon*).

Distrib. : Vihar lake, H. Santapau, 19570; Borivli, P. S. Herbert; 792 (BLAT)

Desmodium laxiflorum DC. in Ann. Sci. Nat. (Paris) 1, 4: 100.1825; Baker in Hook. f. Fl. Brit. India 2 : 164.1876; Cooke, Fl. Pres. Bombay 1: 376.1958 (Repr. ed.); van Meeuwen in Reinwardtia 6: 252.1962; Sanj. Leg. India 156.1991. 'Jangli-ganja'.

Undershrubs ca. 1 m tall; branchlets softly puberulous. Leaves 3-foliolate; leaflets 3-15 × 1.5-8.0 cm, lateral ones smaller, chartaceous, subacute, obtuse at base and apex, margins wavy, puberulous above, pubescent beneath, petiolate. Flowers bluish, in terminal and axillary, ca. 15 cm long racemes. Pods 2-4 cm long, 5-7-jointed, pubescent.

Fls. & Frts. : August-December.

Illus. : Wight, Ic. t. 374.1840. [*Desmodium recurvatum* (Roxb.) Grah. ex Wight & Arn. Prodr. 266.1843].

Distrib. : Frequent in forest along paths. 167966.

Desmodium scorpiurus (Sw.) Desv. in Journ. Bot. Lond. 1: 122. 1813; Vartak & Kumbhojkar in J. Bombay nat. Hist. Soc. 81: 244, 1984; Almeida, Fl. Mah. 2 : 66.1998. *Hedysarum scorpiurus* Swartz, Prodr. 107.1788.

Straggling herbs stems wiry, diffuse, grooved, covered with hooked hairs. Leaves trifoliolate; stipules foliaceous, ovate, acuminate with auricled base; lateral leaflets 3-7 × 1.5-4.0 cm, ovate-oblong or elliptic-oblong, obtuse, terminal leaflets 2-6 × 1.5-4.5, elliptic to obovate, obtuse, hairy, Flowers white or purplish-white, in axillary racemes 15-20 cm long. Pods 4-6 cm long, moniliform, 6-8-jointed with hooked hairs. Seeds rhomboidal, smooth.

Fls. & Frts. : October-March.

Illus. : Vartak & Kumbhojkar *op. cit.* 225, tt. 1-5.

Distrib. : Aarey colony (*Kulkarni*); Goregaon, Thane, *Almeida* (1998).

Note : Though not collected from the National park proper, its occurrence there can not be ruled out since the localities cited above are in close vicinity of the park.

Desmodium triangulare (Retz.) Merr. in J. Arnold Arbor. 23 : 170.1942; van Meeuwen in Reinwardtia 6: 261.1962; Sanj. Leg. India 162.1991. *Hedysarum triangulare* Retz. Obs. Bot. 3 : 40.1788. *Desmodium cephalotes* (Roxb.) Wall. ex Wight & Arn. Prodr. 224.1834; Baker in Hook. f. Fl. Brit. India 2 : 161.1876. *D. cephalotes* Wall. ex Baker var. *congestum* (Wight & Arn.) Prain in J. Asiat. Soc. Bengal 66: 389.1898; Cooke, Fl. Pres. Bombay 1: 375.1958 (Repr. ed.). *D. triangulare* (Retz.) Merr. var. *congestum* (Wight & Arn.) Sant. in Kew Bull. 1948. 276.1948. '*Lapoti*'.

Shrubs, 1.0–1.5 m tall; branchlets appressedly silky, triquetrous. Leaves trifoliolate; leaflets 5–10 × 2.5–5.0 cm, obovate-oblong or lanceolate, acuminate, grey-silky beneath, lateral ones smaller in size. Flowers reddish, in dense, axillary heads. Pods ca. 2.5 cm long, curved, indented on both margins, 3–6-jointed, pubescent.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 209.1839 (*Desmodium congestum*).

Distrib. : Frequent in jungles as undergrowth. 168497.

Desmodium triflorum (L.) DC. Prodr. 2 : 334.1825; Baker in Hook. f. Fl. Brit. India 2 : 173.1876; Cooke, Fl. Pres. Bombay 1: 378.1958 (Repr. ed.); van Meeuwen in Reinwardtia 6: 261.1962; Sanj. Leg. India 163.1991. *Hedysarum triflorum* L. Sp. Pl. 749.1753. 'Ran-methi'.

Herbs, stems prostrate, pilose. Leaves compound; leaflets 0.3–0.4 × 0.4–0.5 cm, lateral ones equilateral, chartaceous, obovate, cuneate at base, obtuse at apex, glabrous above, pubescent beneath. Flowers pink to violet, in axillary clusters of 3–5. Pods 1.0–1.5 cm long, 4–6-jointed, pubescent, lower suture deeply indented, upper one straight. Seeds broadly oblong.

Fls. & Frts. : September–October.

Illus. : Wight, Ic. t. 292.1840 (*D. triflorum* var. *minus* Wight & Arn. Prodr. 299.1834); Mahesh. Illus. Fl. Delhi f. 67.1966.

Distrib. : Common on moist ground. 167238

Desmodium triquetrum (L.) DC. Prodr. 2 : 326.1825; Baker in Hook. f. Fl. Brit. India 2 : 163.1876 p.p.; Cooke, Fl. Pres. Bombay 1: 378.1958 (Repr. ed.); van Meeuwen in Reinwardtia 6: 262.1962; Sanj. Leg. India 163.1991. *Hedysarum triquetrum* L. Sp. Pl. 746.1753. 'Chikta'.

Undershrubs. Leaves 1-foliolate; stems erect, branches triquetrous, grooved, glabrescent. Leaflets 5–15 × 2–0 cm, ovate-oblong, or oblong-lanceolate, acute, rounded or subcordate at base, glabrous above, slightly hairy on nerves beneath. Flowers violet, 1–3, in axillary and terminal, 15–20 cm long racemes. Pods 2.5–5.0 × 0.6 cm, linear-oblong, apiculate, densely strigose, 4–8-jointed.

Fls. & Frts. : August–December.

Distrib. : Frequent in forest as undergrowth. 167742.

Desmodium velutinum (Willd.) DC. Prodr. 2 : 328.1825; van Meeuwen in Reinwardtia 6: 264.1962; Sanj. Leg. India 165.1991. *Hedysarum velutinum* Willd. Sp. Pl. 3 : 1174.1803. *Desmodium latifolium* (Roxb.) DC. Prodr. 2 : 327.1825; Cooke, Fl. Pres. Bombay 1: 380.1958 (Repr. ed.).

Undershrubs up to 1 m tall. Stems erect; branchlets hispid-hairy. Leaves 6-12 × 4-8 cm, ovate, chartaceous, truncate and oblique at base, obtuse, acute and mucronate at apex, pubescent above, tomentose beneath. Flowers rose-coloured, in terminal and axillary racemes ca. 15 cm long. Pods up to 2 cm long, 4-6-jointed, indented on both sutures, pubescent.

Fls. & Frts. : July-October.

Illus. : Wight, Ic. t. 270.1840 (*Desmodium latifolium*).

Distrib. : Occasional on forest floor. 168453.

DUNBARIA Wight & Arn.

Dunbaria glandulosa (Dalz.) Prain in J. Asiat. Soc. Bengal 66(2) : 433.1897; Cooke, Fl. Pres. Bombay 1: 411.1958. (Repr. ed.); Sanj. Leg. India 169.1991. *Cajanus glandulosus* Dalz. in Dalz. & Gibs. Bombay Fl. 73.1861. *Atylosia rostrata* Baker in Hook. f. Fl. Brit. India 2 : 216.1876.

Woody twiners, stems extensive, greyish-tomentose in young parts. Leaves 3-foliolate; leaflets 3.5-8.5 × 3-7 cm, terminal ones rhomboid-ovate, acute to acuminate at apex, lateral ones ovate, oblique at base, acute at apex; petioles 3-7 cm long. Flowers yellow, in lax peduncled racemes. Pods 6.0-7.5 × 1 cm, flat linear, beaked. Seeds 8-10.

Fls. & Frts. : August-October.

Distrib. : Borivli, H. Santapau, 16084; Vihar lake G. L. Shah, 19555-7 (BLAT)

ERYTHRINA L.

- | | | |
|--|-----|---------------------|
| 1. Calyx ca. 1.2 cm long; seeds 1-3 or 5 | ... | <i>E. stricta</i> |
| 1. Calyx 2.5-3.0 cm long; seeds 6-8 | ... | <i>E. variegata</i> |

Erythrina stricta Roxb. Fl. Ind. 3 : 251.1832; Baker in Hook. f. Fl. Brit. India 2 : 189.1876; Cooke, Fl. Pres. Bombay 1: 391.1958 (Repr. ed.); Sanj. Leg. India 173.1991. 'Pangard'.

Trees, 10–15 m tall, armed with prickles. Leaves 10–25 cm long; leaflets 8–10 × 9–17 cm, rhomboid-ovate, truncate or deltoid at base, subacute at apex, glabrescent; petioles 8–12 cm long. Flowers deep red, in *ca.* 10 cm long racemes, pedicellate, bracteate. Pods 8–15 cm long, slightly torulose, compressed, stalked. Seeds 1–3, light-brown.

Fls. & Frts. : January–May.

Illus. : Ic. Roxb. Fasc. 5, t. 14.1971 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 200.1982.

Disrtib. : *Koppikar* (1974).

Erythrina variegata L. in *Stickm. Herb. Amboin.* 10.1754 & *Amoen. Acad.* 4: 122.1759; *Sanj. Leg. India* 173.1991. *E. indica* Lam. *Encycl.* 2 : 391.1786; Baker in *Hook. f. Fl. Brit. India* 2 : 188.1876; Cooke, *Fl. Pres. Bombay* 1: 390.1958 (Repr. ed.). '*Pangara*'.

Trees, 6–12 m tall; branchlets becoming glabrescent with age. Leaves 20–30 cm long; leaflets 2–15 × 3–13 cm, rhomboid-ovate, truncate or obtuse at base, acuminate at apex, stellately pubescent. Flowers bright red, in 5–15 cm long racemes. Pods 10–30 cm long, stalked, subcylindric, distinctly torulose, glabrescent. Seeds 4–8, subreniform, brown.

Fls. & Frts. : February–May.

Illus. : Wight, *Ic.* t. 58.1838 (*Erythrina indica*).

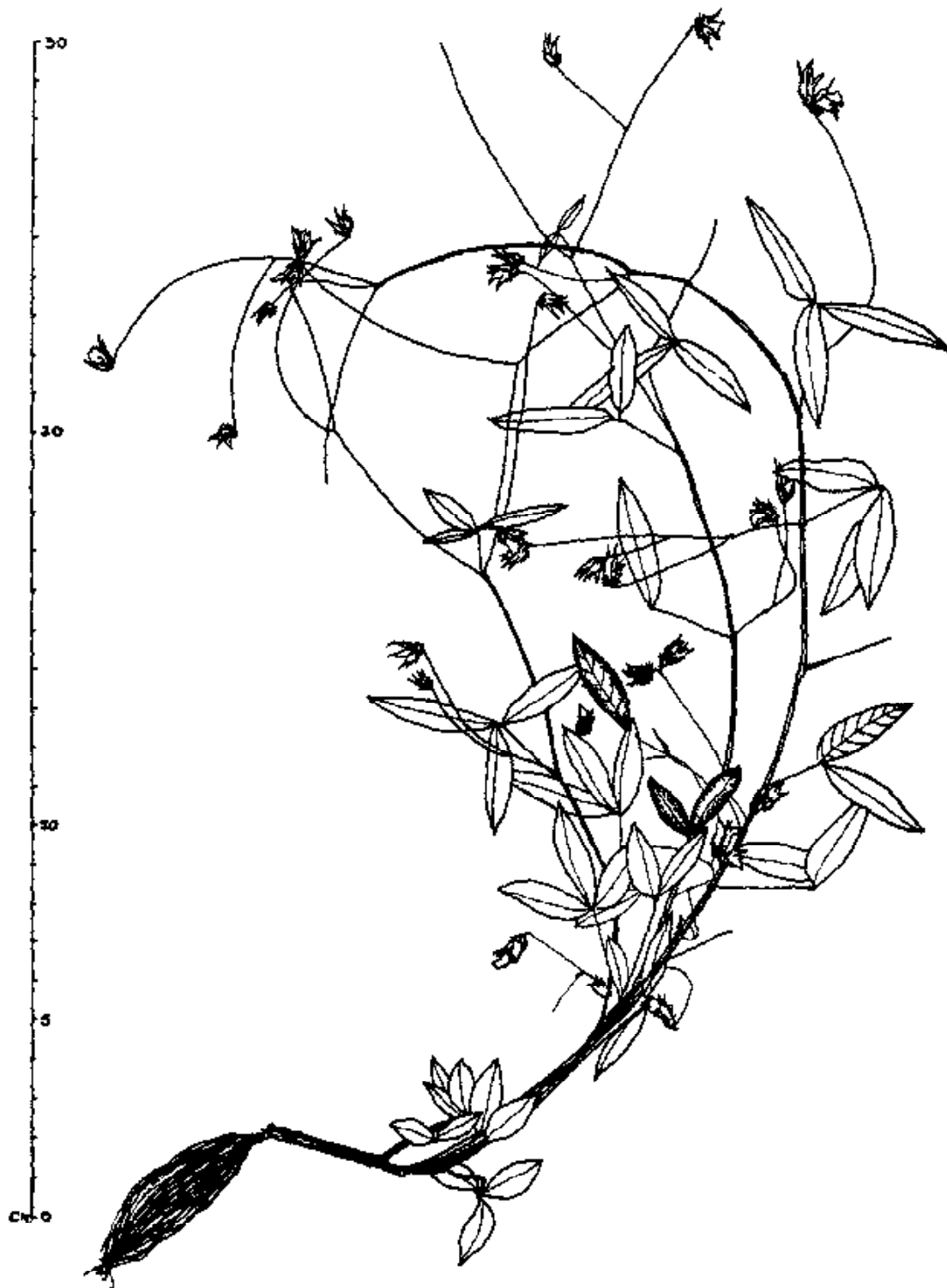
Distrib. : Occasional on road sides. 167406.

FLEMINGIA Roxb. ex W. Ait. & W.T. Ait. (*nom. cons.*)

- | | | |
|-----------------------|-----|------------------------|
| 1. Leaves 1-foliolate | ... | <i>F. strobilifera</i> |
| 1. Leaves 3-foliolate | ... | <i>F. tuberosa</i> |

Flemingia strobilifera (L.) Ait. & Ait. f. *Hort. Kew* ed. 2,4: 350.1812; Baker in *Hook. f. Fl. Brit. India* 2 : 227.1876; Cooke, *Fl. Pres. Bombay* 1: 416.1958 (Repr. ed.); *Sanj. Leg. India* 178.1991. *F. bracteata* (Roxb.) Wight, *Ic.* t. 268.1840; Cooke, *op. cit.* *Moghania strobilifera* (L.) St. Hil. ex O. Ktze. *Rev. Gen. Pl.* 1: 199, 1891; Mukherjee in *Bull. Bot. Soc. Bengal* 6: 10.1953. '*Kanphuti*'.

Shrubs up to 1.5 m tall; branchlets tomentose. Leaflets 6–13 × 3–7 cm, oblong-lanceolate, acuminate, rounded or subacute at base, acute at apex, gland-dotted beneath. Flowers white, concealed in foliaceous, orbicular, membranous, 2.2–5.0 cm long bracts, in simple or branched racemes. Pods *ca.* 1.0 × 0.5 cm, oblong, mucronate, pubescent, Seeds 2.



f.24. *Flemingia tuberosa* Dalz.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 267. (*F. strobilifera*) & t. 268 (*F. bracteata*) 1840; Talbot, For. Fl. Bombay Pres. & Sind 1: 418, f. 236.1909.

Distrib. : Frequent in forest as undergrowth. 168970.

Flemingia tuberosa Dalz. in Hook. Kew J. Bot. 2 : 34.1850; Baker in Hook. f. Fl. Brit. India 2 : 230.1876; Cooke, Fl. Pres. Bombay 1: 420.1958 (Repr. ed.); Sanj. Leg. India 179.1991. *Moghania tuberosa* (Dalz.) O. Ktze. Rev. Gen. Pl. 199.1891; Mukherjee in Bull. Bot. Soc. Bengal 6: 24.1953.

Perennial herbs; stems 60–90 cm long, prostrate with tuberous roots. Leaflets 3–5 × 1.0–1.9 cm, oblong–lanceolate, acute at apex. Flowers lilac, in few-flowered, lax, axillary racemose–cymes. Pods 0.6–1.0 cm long, oblong. Seeds 1–2.

Fls. & Frts. : September–November.

Distrib. : Borivli, P. S. Herbert, 2320–2 (BLAT)

GEISSASPIS Wight & Arn.

- | | | |
|---|-----|--------------------|
| 1. Bracts 0.3–0.4 cm broad; stipules not spurred at base | ... | <i>G. tenella</i> |
| 1. Bracts 1.2 cm or more in breadth; stipules spurred at base | ... | <i>G. cristata</i> |

Geissaspis cristata Wight & Arn. Prodr. 1: 218.1834; Baker in Hook. f. Fl. Brit. India 2 : 141.1876; Cooke, Fl. Pres. Bombay 1: 353.1958 (Repr. ed.); Sanj. Leg. India 181.1991. '*Barki*'.

Herbs. Stems 30–50 cm long, procumbent, densely caespitose, terete. Leaves abruptly pinnate; leaflets 4, 0.6–1.2 × 0.3–0.6 cm, obovate, oblique, obtuse, or narrowed at base, obtuse at apex. Flowers enclosed in foliaceous, ciliate bracts. Pods 0.3–0.5 × 0.2–0.3 cm, 1–2-jointed, moniliform, reticulately veined. Seeds oblong, smooth.

Fls. & Frts. : September–November.

Illus. : Bedd. Ic. P. Ind. Or. t. 293.1876.

Distrib. : Common in open areas of the forest. 168470, 168909.

Geissaspis tenella Bth. Flora 32 : 559.1849; Baker in Hook. f. Fl. Brit. India 2 : 141.1876; Cooke, Fl. Pres. Bombay 1: 354.1958 (Repr. ed.); Sanj. Leg. India 181.1991. '*Lahan-barki*'.

Herbs, 10–20 cm long. Stems and branches weak, trailing; rootstock thick. Leaves pinnate; leaflets 4, sessile, 0.3–0.6 × 0.25–0.3

cm, obovate, cuneate, oblique at base, truncate or rounded at apex. Flowers yellow, in axillary racemes, bracts foliaceous, ciliate. Pods 0.3–0.6 cm long, 1–2-jointed, shortly, turgid. Seeds 1–2.

Fls. & Frts. : August–December.

Distrib. : Borivli, *P. S. Herbert*, 2809 & *H. Santapau*, 7061 (BLAT).

INDIGOFERA L.

1. Leaves simple :
 2. Pods globose 0.15–0.2 cm across ... *I. linifolia*
 2. Pods cylindric-oblong, ca.0.6 cm long ... *I. cordifolia*
1. Leaves compound :
 3. Leaflets 3 :
 4. Flowers in axillary heads; pods 1–2-seeded ... *I. glandulosa*
 4. Flowers in axillary racemes; pods 4–8-seeded :
 5. Leaflets 2.2–4.5 cm long ... *I. trita var. maffei*
 5. Leaflets 0.8–1.5 cm long :
 6. Leaflets obtuse, acute or acuminate ; pods 0.1 cm thick ... *I. prostrata*
 6. Leaflets emarginate; pods 0.2–0.3 cm thick ... *I. trifoliata*
 3. Leaflets 5 or more :
 7. Pods up to 0.4 cm long ... *I. himaei*
 7. Pods well over 1.0 cm long :
 8. Pods glabrous, cylindric ... *I. tinctoria*
 8. Pods hairy, 4-gonous :
 9. Pods densely pubescent, not torulose, deflexed ... *I. astragalina*
 9. Pods thinly hairy, torulose, not deflexed ... *I. constricta*

Indigofera astragalina DC. Prodr. 2 : 228.1825; Sanj. Leg. India 185.1991 & in Hajra. *et al.* Fasc. Fl. India 21: 20.1995. *I. hirsuta auct. non* L.1753; Baker in Hook. f. Fl. Brit. India 2 : 98.1876 *p.p.*; Cooke, Fl. Pres. Bombay 1: 339.1958 (Repr. ed.). '*Ran-methi*'.

Herbs or undershrubs, 40–80 cm tall. Stems and branches hairy. Leaflets 2.5–6.0 × 1.5–2.5 cm, elliptic-oblong or ovate-oblong, opposite, appressed-pubescent. Flowers bright scarlet to purple, in axillary and terminal, 5–15 cm long racemes. Pods 0.8 × 2.0 cm long, deflexed, mucronate. Seeds 6–8, cubical.

Fls. & Frts. : August–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 59.1966. (*I. hirsuta*); Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 167.1988.

Distrib. : Frequent on hill slopes and plains. 168919, 169108.

Indigofera constricta (Thw.) Trim. *Cat. Ceyl. Pl.* 23.1885; Cooke, *Fl. Pres. Bombay* 1: 340.1958 (Repr. ed.); Sanj. *Leg. India* 187.1991 & in Hajra *et al. Fasc. Fl. India* 21: 41.1995. *I. flaccida* Koen. var. *constricta* Thw. *Enum. Pl. Zeyl.* 411.1864; Baker in Hook. f. *Fl. Brit. India* 2 : 99.1876.

Shrubs, 1.0–1.3 m tall; branchlets divaricate, terete, appressed-hairy. Leaves ca. 5 cm tall; leaflets 7–11, 2.0–2.5 × 1.0–1.5 cm, elliptic-oblong, rounded or slightly emarginate at apex, opposite, sparsely hairy. Flowers many, in racemes. Pods 4–6 cm long, linear, slightly curved, pointed, 4-gonous, constricted between seeds, hairy. Seeds 8–12.

Fls. & Frts. : August–November.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 382, f. 216.1909.

Distrib. : Rare in the park. 167835.

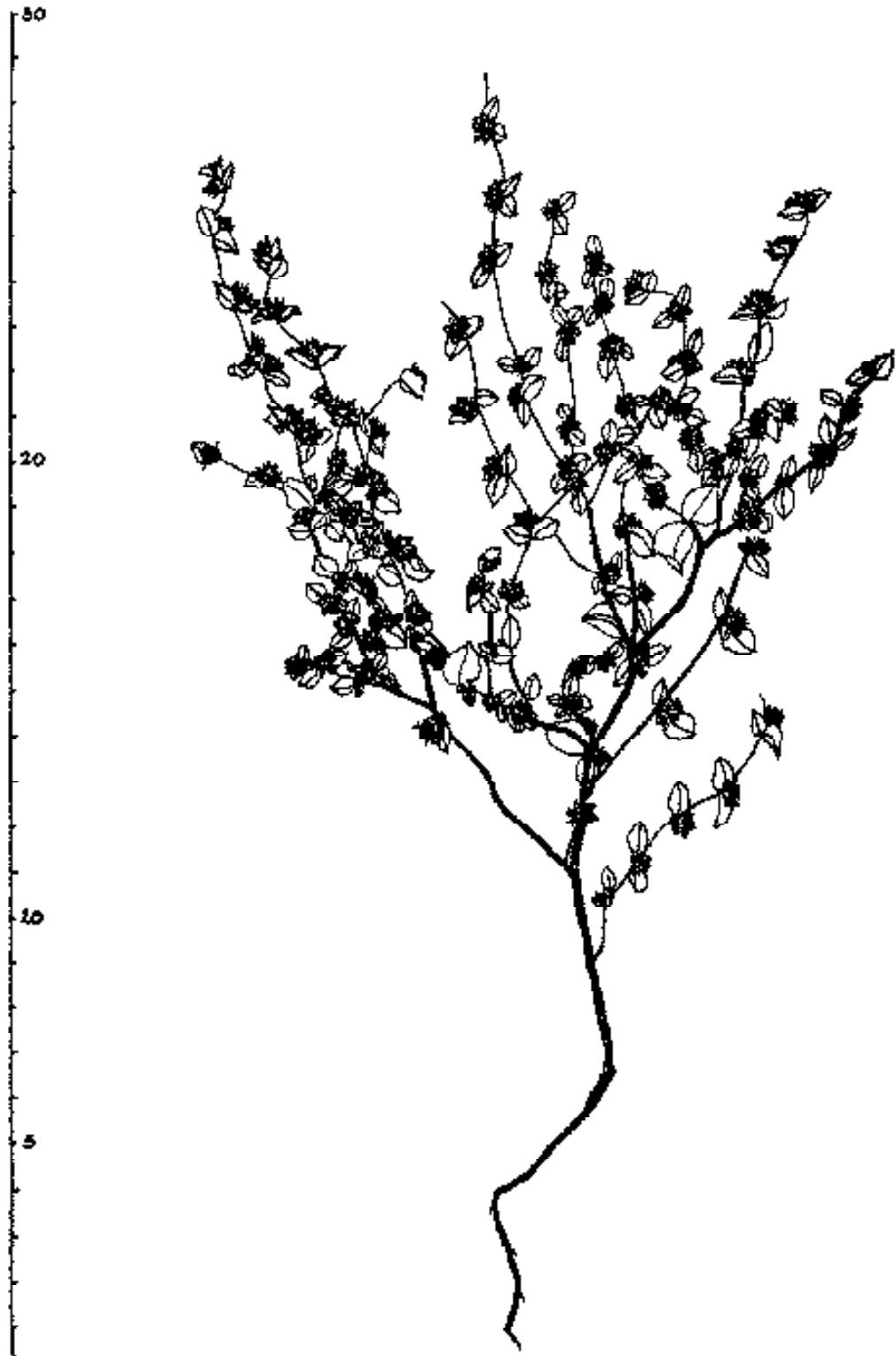
Indigofera cordifolia Heyne ex Roth, *Nov. Pl. Sp.* 357.1821; Baker in Hook. f. *Fl. Brit. India* 2 : 93.1876; Cooke, *Fl. Pres. Bombay* 1: 331.1958 (Repr. ed.); Sanj. *Leg. India* 187.1991 & in Hajra *et al. Fasc. Fl. India* 21. 45.1995. '*Godhadi*'.

Herbs. Stems branched, prostrate, 10–20 cm long, white-hairy. Leaves 0.6–0.8 × 0.4–0.5 cm, ovate-cordate, obtuse at base, subacute and mucronate at apex, white-tomentose, subsessile. Flowers bright pink, in congested, capitate, 3–6-flowered racemes. Pods ca. 0.3 cm long, beaked. Seeds 2, cubical, truncate at one end.

Fls. & Frts. : August–December.

Distrib. : Borivli, *P. S. Herbert*, 2256 Versova; *H. Santapau*, 102, 90. (BLAT).

Indigofera glandulosa Wendl. *Bot. Boeb.* 55.1748; de Kort & Thijssse in *Blumea* 30.110.1984; Sanj. *Leg. India* 189.1991 & in Hajra *et al. Fasc. Fl. India* 21: 66.1995. *I. glandulosa* Roxb. ex Willd. *Sp. Pl.* 3 :



f.25. *Indigofera cordifolia* Heyne ex Roth

1227.1803; Baker in Hook. f. Fl. Brit. India 2 : 94.1876; Cooke, Fl. Pres. Bombay 1: 332.1958 (Repr. ed.).

Annual herbs up to 75 cm tall; stems erect; branchlets pubescent. Leaflets 0.8–2.3 × 0.5–1.0 cm, oblanceolate, cuneate at base, obtuse at apex, punctate. Flowers red, in short, sessile heads. Pods 0.5–0.6 cm long, oblong, deflexed, pubescent, torulose, slightly winged on suture. Seeds ovoid or subreniform.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 330.1840.

Distrib. : Common along hill slopes and plains. 167389, 167898.

Indigofera linifolia (L. f.) Retz. Obs. Bot. 4: 29.1786; Baker in Hook. f. Fl. Brit. India 2 : 92.1876; Cooke, Fl. Pres. Bombay 1: 330.1958 (Repr. ed.); de Kort & Thijssse in Blumea 30.123.1984; Sanj. Leg. India 192.1991 & in Hajra *et al.* Fasc. Fl. India 19: 93.1995. *Hedysarum linifolium* L.f. Suppl. 331.1781. *Indigofera linifolia* var. *campbelli* Wight ex Baker in Hook. f. *op. cit.*; Cooke, *op. cit.* 331. '*Phandarphali*'.

Herbs. Stems prostrate; branchlets silvery-hairy. Leaves 0.7–2.3 × 0.2–0.5 cm linear, cuneate at base, acute at apex, mucronate, appressed-hairy. Flowers red or crimson, in axillary racemes up to 1.5 cm long. Pods 0.1–0.12 cm across, globose, appressed-hairy, 1-seeded. Seed globose.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 313.1840; Mahesh. Illus. Fl. Delhi f. 54.1966.

Distrib. : Common on hill slopes and open areas of forests. 167351.

Indigofera linnaei Ali in Bot. Notis. 111: 549.1958; de Kort & Thijssse in Blumea 30 : 125.1984; Sanj. Leg. India 192.1991 & in Hajra *et al.* Fasc. Fl. India 21: 96.1995. *I. enneaphylla* L. Mant. Pl. 2 : 272; 1771 & Append. 571.1771; Baker in Hook. f. Fl. Brit. India 2 : 94.1876; Cooke, Fl. Pres. Bombay 1: 332.1958 (Repr. ed.). '*Bhui-guli*'.

Herbs; branchlets appressed-white-hirsute. Leaves impari pinnate; leaflets 4–5, 0.8–2.0 × 0.4–0.3 cm, alternate, oblanceolate, obtuse at apex, stipulate. Flowers pink, in axillary, 10–20-flowered, subcapitate, *ca.* 0.8 cm long racemes. Pods 0.3–0.4 cm long, subovoid, hairy, 2-seeded.

Fls. & Frts. : July–December.

Illus. : Wight, Ic. t. 403.1840 (*Indigofera enneaphylla*); Mahesh.

Illus. Fl. Delhi f. 56.1966.

Distrib. : Salsette, *G. L. Shah* (1962).

Indigofera prostrata Willd. Sp. Pl. 3 : 1226.1802; Sanj. Leg. India 194.1991, *I. trifoliata auct. plur. non L.* 1753; Baker in Hook. f. Fl. Brit. India 2 : 96.1876 *p.p.*; Cooke, Fl. Pres. Bombay 1: 335.1958 (Repr. ed.).

Herbs. Stems prostrate, branchlets appressed-hairy. Leaflets 1.5–2.5 × 0.4–0.8 cm, obovate, elliptic-obovate, cuneate at base, obtuse at apex. Flowers rosy to purple, in axillary, 1–5-flowered racemes. Pods 1.0–1.5 cm long, terete, slightly winged, deflexed, torulose, appressed-pubescent. Seeds *ca.* 8, oblong.

Fls. & Frts. : July–October.

Distrib. : Borivli, *P. S. Herbert*, 794.1887 (*BLAT*)

Indigofera tinctoria L. Sp. Pl. 751.1753; Baker in Hook. f. Fl. Brit. India 2 : 99.1876 *p.p.*; Cooke, Fl. Pres. Bombay 1: 339.1958 (Repr. ed.); de Kort & Thijsse in *Blumea* 30 : 137.1984; Sanj. Leg. India 195.1991 & in Hajra *et al.* *Fasc. Fl. India* 21: 133.1995.

Shrubs, 0.4–1.5 m tall. Stems erect, appressed-hairy to glabrescent. Leaves compound, alternate; leaflets 7–11, 0.5–2.5 × 0.2–0.6 cm, oblong or obovate to oblanceolate, rounded, apiculate, glabrous above, sparingly hairy beneath. Flowers pink, in 2.0–4.5 cm long, axillary, spicate racemes. Pods 2–4 cm long, linear, falcate, deflexed. Seeds cylindric, truncate at both ends.

Fls. & Frts. : October–December.

Illus. : Wight, *lc. t.* 365.1840; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t.179.1988.

Distrib. : Common in open areas of the forests. 16738.

Indigofera trifoliata L. in *Tourn. Cent. Pl.* 2 : 29.1756; Baker in Hook. f. Fl. Brit. India 2 : 96.1876 *p.p.*; Cooke, Fl. Pres. Bombay 1: 335.1958 (Repr. ed.); de Kort & Thijsse in *Blumea* 30 : 137.1984; Sanj. Leg. India 196.1991.

Undershrubs, 30–60 cm tall; branchlets greyish, glabrescent. Leaflets 3, 0.8–2.5 × 0.3–0.9 cm, oblanceolate, cuneate at base, obtuse at apex, appressed-pubescent, gland-dotted. Flowers red, in dense, 6–10-flowered, sessile racemes. Pods 0.12–0.18 cm long; linear, slightly 4-angled, deflexed, hoary, winged along margins. Seeds *ca.* 6.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 314.1840; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t.180.1988.

Distrib. : Vihar lake. *H. Santapau*, 20999-01 (BLAT)

Indigofera trita L. f. var. **maffeii** (Chiov.) Ali in Bot. Notis. 111: 559.1958; Sanj. Leg. India 197.1991 & in Hajra *et al.* Fasc. Fl. India 21: 146, f. 55.1995. *I. maffeii* Chiov. in Attr. Ist. Bot. Pavia 4, 7: 128, t. 5.1996. *I. oreophila* Sant. & Panth., in J. Bombay nat. Hist. Soc. 54 : (1) 221, t.1.1956.

Undershrubs, 1.5–1.8 m tall. Stems much branched, appressedly white-pubescent. Leaves alternate, petiolate, stipulate, appressedly pubescent; leaflets 3, 1.8–4.5–1.0–1.5 cm, elliptic-oblong, obtuse at base, rounded-apiculate at apex, entire. Inflorescence bracteate; calyx hairy, persistent in fruits; corolla red, exserted. Pods 2.5–3.0 × 0.1 cm, tetragonous, linear, apiculate, appressedly hairy, reflexed, septate within, 7–8-seeded. Seeds 0.2 × 0.1 cm ovoid, smooth.

Fls. & Frts. : August–October.

Illus. : Sant. & Panth. *op. cit.* opp. page 24, f. A & B.

Distrib. : Borivli *P. S. Herbert*, 239 (BLAT)

LOTUS L.

Lotus persica (Burm. f.) Almeida, Fl. Mah. 2 : 106.1998. *Aspalanthus persica* Burm. f. Fl. Ind. 155.1775. *Lotus garcinii* DC. Prodr. 2 : 212.1825; Baker in Hook. f. Fl. Brit. India 2 : 91.1876; Cooke, Fl. Pres. Bombay 1: 328.1958 (Repr. ed.).

Suffruticose herbs up to 30 cm tall, branched, from near the base, covered with silky-grey hairs. Leaves 3 or seldom 5-foliolate; leaflets 0.6–1.0 × 0.8 cm, sessile, obovate, solitary, axillary, inconspicuous. Pods 0.9–1.3 cm, linear, compressed, 6-seeded.

Fls. & Frts. : November–December.

Distrib. : Versova, Almeida (1998).

MUCUNA Adans. (*nom. cons.*)

Mucuna pruriens (L.) DC. Prodr. 2 : 405.1825; Baker in Hook. f. Fl. Brit. India 2 : 187.1876; Cooke, Fl. Pres. Bombay 1: 389.1958 (Repr. ed.); Wilmot–Dear in Kew Bull. 39: 61.1984; Sanj. Leg. India 217.1991. *Dolichos pruriens* L. in Stickman, Diss. Herb. Amb. 23.1754.

'*Khajkuiri*'.

Herbaceous twiners; branches pubescent. Leaves up to 15 cm long, 3-foliolately compound; terminal leaflet *ca.* 8 × 12 cm, lateral ones *ca.* 5 × 7 cm, ovate-rhomboid, oblique, obtuse, subacute or truncate at base, acute at apex, mucronate; petioles up to 10 cm long. Flowers in *ca.* 10 cm long pendulous, 6-30-flowered racemes. Pods 6-8 × 1.5 cm, S-shaped, *ca.* 6-seeded, densely brownish bristly.

Fls. & Frts. : August-February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 207.1982.

Distrib. : Abundant every where on plains and hills. 167313, 168414.

PARACALYX Ali

Paracalyx scariosus (Roxb.) Ali, in *Univ. Stud. (Karachi)* 5(3) : 95.1968; *Sanj. Leg. India* 227.1991. *Cylista scariosa* Roxb. *Pl. Cor.* 1: 64, t. 92.1798; Baker in *Hook. f. Fl. Brit. India* 2 : 219.1876; Cooke, *Fl. Pres. Bombay* 1: 412.1958 (Repr. ed.). '*Ranghevda*'

Herbaceous twiners; branchlets densely pubescent. Leaves 3-foliolate, up to 10 cm long; leaflets 3-10 × 3-6 cm, terminal leaflet deltoid-ovate, lateral ones ovate, inequilateral, pubescent, subacute or obtuse at base, acuminate at apex. Flowers yellow, enclosed within membranous calyx, arranged in racemes or panicles. Pods 7-8 × 0.4-0.5 cm, ellipsoid, flat, pubescent. Seeds solitary, reniform,

Fls. & Frts. : November-April.

Illus. : Wight, *Ic. t.* 1597.1850 (*Cylista scariosa*); Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 211.1982.

Distrib. : Common on plains and hill tops. 168955.

PONGAMIA Vent. (*nom. cons.*)

Pongamia pinnata (L.) Pierre, *For. Fl. Cochinch.* t. 385.1899; *Thot. in Bull. Bot. Surv. India* 3 : 418, t.1 (1961) 1962 & *Taxon* 30 : 44.1981; *Sanj. Leg. India* 230.1991. *Cytisus pinnatus* L. *Sp. Pl.* 741.1753 *non Derris pinnata* Lour. *Pongamia glabra* Vent. *Jard. Malm.* t : 28, 1803; Baker in *Hook. f. Fl. Brit. India* 2 : 240.1876; Cooke, *Fl. Pres. Bombay* 1: 429.1958 (Repr. ed.); *Derris indica* (Lam.) Bennet in *J. Bombay nat. Hist. Soc.* 68: 303.1971. '*Karanj*'

Trees, 15–20 m tall; branchlets glabrescent. Leaves imparipinnate, 15–20 × 8–10 cm; leaflets 3–5 pairs, 4–12 × 3.5–8.0 cm, opposite, ovate or obovate, obtuse, cuneate at base, acuminate at apex, glossy green above. Flowers pinkish–white, in lax, pseudoracemes or panicles up to 20 cm long. Pods 3.5–4.0 × 2.5–3.0 cm, obliquely oblong, compressed, indehiscent.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 59.1838 (*Pongamia glabra*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 212.1982.

Distrib. : Common on hills and plains. *Pradhan s. n.*; 1.4, *P. S. Herbert (BLAT)*

PSEUDARTHIA Wight & Arn.

Pseudarthia viscida (L.) Wight & Arn. Prodr. 209.1834; Baker in Hook. f. Fl. Brit. India 2 : 154.1876; Cooke, Fl. Pres. Bombay 1: 366.1958 (Repr. ed.); Sanj. Leg. India 230.1991. *Hedysarum viscidum* L. Sp. Pl. 747.1753.

Perennials. Stems twining, weak, 30–120 cm long, diffuse, prostrate, viscid. Leaves trifoliolate, 6.5 × 5.6 cm; terminal leaflets twice as long as lateral ones, ovate–rhomboid, lateral ones 3–4 × 2.5–3.5 cm, obliquely ovate, cuneate at base and acute, mucronate at apex, petioles ca. 4 cm long. Flowers rose–coloured, in lax, ca. 20 cm long racemes. Pods 1.5 × 0.5 cm, linear–oblong, apiculate, flat, hooked–pubescent, margins undulate. Seeds 4–6 subreniform.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 286.1840; Matthew, Illus. Fl. Tamilnadu Carnatic. 2 : t. 213.1982.

Distrib. : Occasional on bushes. 168445.

PTEROCARPUS Jacq. (*nom. cons.*)

Pterocarpus marsupium Roxb. Pl. Cor. 2 : 9. t. 116.1799 & Fl. Ind. 3 : 234.1832; Baker in Hook. f. Fl. Brit. India 2 : 239.1876; Cooke, Fl. Pres. Bombay 1: 427.1958 (Repr. ed.); Sanj. Leg. India 232.1991. '*Bibla*'.

Trees, 15–20 m tall; branchlets pubescent. Leaves imparipinnate, 15–20 cm long, leaflets 5–7, 4–6 × 4–9 cm, coriaceous, elliptic–oblong, obtuse–truncate at base, emarginate at apex, pubescent beneath.

Flowers yellow, in paniculate-racemes up to 15 cm long. Pods 4-5 × 3.5-4.0 cm, orbicular, flat, stipitate, 1-seeded.

Fls. & Frts. : November-May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 216.1982.

Distrib. : Frequent in forests. 167743.

PUERARIA DC.

Pueraria tuberosa (Roxb. ex Willd.) DC. in *Ann. Sci. Nat.* 4: 97.1825 & *Prodr.* 2 : 240.1825; Baker in Hook. f. *Fl. Brit. India* 2 : 197.1876; Cooke, *Fl. Pres. Bombay* 1: 399.1958 (Repr. ed.); Sanj. Leg. India 235.1991. *Hedysarum tuberosum* Roxb. ex Willd. *Sp. Pl.* 3 : 1197.1802. 'Dari'.

Shrubby, extensive twiners with tuberous roots. Leaves 3-foliolate; leaflets 8-16 × 6-13 cm, ovate, obtuse at base, acute, mucronate at apex, margins ciliate, subcoriaceous, silky beneath. Flowers pale-violet, in 15-30 cm long panicles. Pods 5-7 cm long, 1-6-jointed, flat, brownish-tomentose. Seeds 3-6.

Fls. & Frts. : February-April.

Illus. : Wight, *Ic.* t. 412.1840; *Ic. Roxb. Fasc.* 5, t. 20.1971 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 217.1982.

Distrib. : Borivli, *P. S. Herbert*, 568, 1352; Vihar lake, *H. Santapau*, 17555. (BLAT)

RHYNCHOSIA Lour. (*nom. cons.*)

- | | | |
|--|-----|------------------|
| 1. Pods 1.5-2.0 cm long, obliquely oblong | ... | <i>R. minima</i> |
| 1. Pods 2-3 cm long, oblanceolate, falcate | ... | <i>R. rothfi</i> |

Rhynchosia minima (L.) DC. *Prodr.* 2 : 385.1825; Baker in Hook. f. *Fl. Brit. India* 2 : 223.1876; Cooke, *Fl. Pres. Bombay* 1: 414.1958 (Repr. ed.); Verdc. in *Kew Bull.* 25: 102.1971; Sanj. Leg. India 239.1991. *Dolichos minimus* L. *Sp. Pl.* 726.1753. *Rhynchosia minima* var. *laxiflora* (Camb.) Baker in Hook. f. *op. cit.*; Cooke, *op. cit.*

Herbs. Stems twining or trailing, branchlets pubescent, slender. Leaves trifoliolate, 1.5-3.0 cm long; leaflets 1.0-2.5 × 1.0-2.3 cm, obovate-rhomboid, cuneate at base, apiculate at apex, pubescent. Flowers yellow, in lax, axillary racemes ca. 6-8 cm long. Pods 1.2-1.5 ×

0.6 cm, slightly falcate, pubescent, 1-2-seeded.

Fls. & Frts. : August-January.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 76.1966; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t.193.1988.

Distrib. : Common on moist ground, and open areas of the forests.

Rhynchosia rothii Bth. ex Ait. *Cat. Pl. Punjab & Sind* 50.1869. *Verdc. in Kew Bull.* 25: 91.1971; *Sanj. Leg. India* 240.1991. *R. sericea* Span. in *Linnaea* 15: 195.1841 (*non* Guill. ex Hook. & Arn.1833); Baker in Hook. f. *Fl. Brit. India* 2 : 225.1876.

Twiners; stems woody, extensive, pubescent, leaflets 5-10 × 3-8 cm, pubescent; terminal one rhomboid-ovate, equilateral, lateral ones obliquely ovate to ovate-triangular. Flowers yellow with dark-purple spot, in 5-10 cm long, axillary racemes. Pods 0.5-0.7 cm broad, distinctly apiculate. Seeds elliptic-oblong, black.

Fls. & Frts. : August-December.

Disrtib. : Occasional on hedges. 168915.

SESBANIA Adans. *emend. Scop. (nom. cons.)*

- | | | |
|---|-----|---------------------|
| 1. Stems armed with prickles; pods not torulose | ... | <i>S. bispinosa</i> |
| 1. Stems unarmed; pods torulose | ... | <i>S. sesban</i> |

Sesbania bispinosa (Jacq.) W.F. Wight in U.S. Dept. Agr. Bur. Pl. Industr. Bull. no. 137: 15.1909; Gillett in *Kew Bull.* 17: 129.1963; *Sanj. Leg. India* 242.1991. *Aeschynomene bispinosa* Jacq. *Icon. Pl. Rar.* 3 : 13, t. 564.1792. *Sesbania aculeata* (Willd.) Poir. in *Lam. Encycl.* 7: 128.1806; Baker in Hook. f. *Fl. Brit. India* 2 : 114.1876; Cooke, *Fl. Pres. Bombay* 1: 350.1958 (Repr. ed.). '*Ran-shevari*'.

Undershrubs up to 2 m tall; stems reddish. Leaves up to 20 cm long, compound; leaflets 20-30 pairs, 1-2 × 0.3-0.4 cm, oblong, chartaceous, cuneate at base, obtuse at apex, apiculate. Flowers yellowish-brown, in erect, ca. 10 cm long racemes. Pods 10-25 cm long, sub-terete, drooping, shortly beaked. Seeds ca. 40, oblong, smooth.

Fls. & Frts. : September-February.

Distrib. : Occasional near cultivated fields. 168489.

Sesbania sesban (L.) Merr. *Philipp. J. Sci.* 7: 235.1912; Gillett in *Kew. Bull.* 17. 112.1963; *Sanj. Leg. India* 243.1991. *Aeschynomene*

sesban L. Sp. Pl. 714.1753. *Sesbania aegyptica* Poir. in Lam. Encycl. 7: 128.1806 (*Sesban aegypticum*); Baker in Hook. f. Fl. Brit. India 2 : 114.1876. *S. aegyptica* var. *bicolor* Wight & Arn. Prodr. 214.1834; Cooke, Fl. Pres. Bombay 1 : 350.1958 (Repr. ed.); *S. aegyptica* var. *picta* Prain in J. Asiat. Soc. Beng. 66: 367.1897; Cooke, *op. cit.* 349 'Shevari'.

Shrubs, 2-4 m tall. Leaves pinnate, 8-12 cm long; leaflets 10-30, opposite, 0.5-2.5 × 0.2-0.4 cm, oblong, obtuse at base and apex. Flowers dark brown to purple outside and yellow inside, in 6-10-flowered, 5-10 cm long, axillary racemes. Pods 15-20 cm long, torulose, subterete, beaked. Seeds many, oblong.

Fls. & Frts. : August-March.

Illus. : Wight, Ic. t. 32.1838 (*Sesbania aegyptiaca*).

Distrib. : Borivli, *P. S. Herbert*, 529. & *Y.A. Merchant*, 68-9 (BLAT)

SMITHIA Ait. (*nom. cons.*)

- | | | |
|-------------------------------------|-----|----------------------|
| 1. Pods 3-6-jointed : | | |
| 2. Veins of calyx parallel : | | |
| 3. Flowers 1-2, in axils | ... | <i>S. conferta</i> |
| 3. Flowers 2-6, in axillary racemes | ... | <i>S. sensitiva</i> |
| 2. Veins of calyx reticulate | ... | <i>S. hirsuta</i> |
| 1. Pods 10-15-jointed | ... | <i>S. salsuginea</i> |

Smithia conferta J. E. Sm. in Rees. Cyclop. 33 : n. 2.1816; Cooke, Fl. Pres. Bombay 1: 358.1958 (Repr. ed.); Steenis in Reinwardtia 5: 445.1961; Sanj. Leg. India 246.1991. *S. geminiflora* Roth, Nov. Pl. Sp. 352.1821; Baker in Hook. f. Fl. Brit. India 2 : 149.1876. 'Kasai'.

Herbs, 60-90 cm tall; stems and branches straggling. Leaves compound; leaflets 0.5-1.0 × 0.2-0.6 cm, subsessile, linear-oblong or oblong, obtuse or subacute, bristly on margins and midrib beneath. Flowers yellow. Pods turgid, 3-6-jointed, papillose. Seeds polished, dark brown.

Fls. & Frts. : October-January.

Distrib. : Frequent among grasses and in open forest areas. 167317.

Smithia hirsuta Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 135.1851; Cooke, Fl. Pres. Bombay 1: 361.1958 (Repr. ed.); Sanj. Leg.

India 247.1991. *S. blanda* Wall. ex Wight & Arn. var. *racemosa* (Heyne ex Wight & Arn.) Baker in Hook. f. Fl. Brit. India 2 : 151.1876 p.p.

Herbs, 30–45 cm tall. Stems erect, branched, bristly. Leaves pinnate; leaflets 6–8, 0.4–0.8 × 0.2–0.4 cm, oblanceolate, subsessile, oblique at base, rounded at apex, ciliate on margins. Flowers bright yellow, in capitate, 4–10-flowered racemes. Pods 4–7-jointed, reticulately veined.

Fls. & Frts. : September–October.

Distrib. : Koppikar (1974).

Smithia salsuginea Hance, J. Bot. 7: 164.1869; Cooke, Fl. Pres. Bombay 1: 362.1958 (Repr. ed.); Sanj. Leg. India 248.1991. *S. dichotoma* Dalz. ex Baker in Hook. f. Fl. Brit. India 2 : 150.1876.

Herbs, 30–45 cm tall. Stems erect, reddish–brown, slender. Leaves abruptly pinnate; leaflets 2–4 pairs, 0.6–1.3 × 0.4–0.5 cm, oblanceolate, oblong, rounded at base, obtuse at apex. Flowers yellow, in lax, terminal, corymbose–panicles. Joints of the pods orbicular. Seeds ellipsoid.

Fls. & Frts. : July–October.

Distrib. : Borivli, N.A. Irani, 1266; Vihar lake, H. Santapau, 19567–9. (BLAT)

Smithia sensitiva Ait. Hort. Kew ed. 1, 3 : 496.1789; Baker in Hook. f. Fl. Brit. India 2 : 148.1876; Cooke, Fl. Pres. Bombay 1: 357.1958 (Repr. ed.); Steenis in Reinwardtia 5: 444.1961; Sanj. Leg. India 248.1991. 'Kavla'.

Herbs. Stems 30–90 cm long, diffuse, much branched, slender. Leaves pinnate; leaflets 3–10 pairs, 0.6–1.2 cm long, linear–oblong, rounded at base, oblique, obtuse at apex, bristle–tipped, glabrous above, strongly bristly on midrib beneath. Flowers yellow, 2–6, in racemes. Pods 4–6-jointed, flat, papillose.

Fls. & Frts. : August–October.

Distrib. : Common on open hill slopes and among grasses. 167256, 167803, 167948.

TEPHROSIA Pers. (*nom. cons.*)

- | | | |
|----------------------|-----|--------------------|
| 1. Leaves simple | ... | <i>T. strigosa</i> |
| 1. Leaves compound : | | |
| 2. Pods glabrous | ... | <i>T. purpurea</i> |

2. Pods hairy :
3. Flowers 1-2 in leaf axil :
4. Pods much recurved ... *T. senticosa*
4. Pods straight ... *T. subtriflora*
3. Flowers in racemes :
5. Pods villous; leaflets 5-9 ... *T. villosa*
5. Pods downy hairy; leaflets 11-21 ... *T. pumila*

Tephrosia pumila (Lam.) Pers. Syn. Pl. 2 : 330.1807; Sanj. Leg India 257.1991; Kothari in Singh and Karthik. Fl. Maharashtra 1: 752. 2000. *Galega pumila* Lam. Encycl. 2 : 599.1786. *T. purpurea* var. *pumila* (Lam.) Baker in Hook. f. Fl. Brit. India 2 : 113.1876; Cooke, Fl. Pres. Bombay 1: 347.1958 (Repr. ed.).

Perennial herbs, 30-60 cm tall. Leaves compound. 2.5-4.0 cm long; leaflets 1.5-3.8 × 0.3-0.6 cm, obovate-oblong or oblanceolate, subacute at base, obtuse to retuse at apex, appressed-hairy. Flowers rosy purple, in terminal or leaf-opposed, hairy racemes. Pods up to 2.5 cm long, curved, hairy, 8-10 seeded.

Fls. & Frts. : August-January.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 204.1988.

Distrib. : Malad, Almeida (1996).

Tephrosia purpurea (L.) Pers. Syn. Pl. 2 : 329.1807; Baker in Hook. f. Fl. Brit. India 2 : 112.1876 *p. p.*; Cooke, Fl. Pres. Bombay 1: 346.1958 (Repr. ed.); Bosman & de Hass in Blumea 28: 464.1983; Sanj. Leg. India 258.1991. *Cracca purpurea* L. Sp. Pl. 752.1753. '*Sarpunka*', '*Unhali*'.

Herbs or under shrubs, 60-90 cm tall; branches pubescent. Leaves 5-6 cm long; leaflets 13-21, 0.6-3.0 × 0.3-0.6 cm, obovate, oblanceolate, cuneate at base, retuse, emarginate at apex, mucronate. Flowers purple, in leaf-opposed, pseudoracemes ca. 8 cm long. Pods 3-4 × 0.4 cm, falcate. Seeds 5-7, ovoid, strophiolate.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi f. 63.1966; Matthew, Illus. Fl. Tamilnadu, Carnatic 2 : t. 225.1982.

Distrib. : Common on cleared forest areas and waste places. 168403.

Tephrosia senticosa (L.) Pers. Syn. Pl. 2 : 330.1807; Baker in

Hook. f. Fl. Brit. India 2 : 112.1876; Cooke, Fl. Pres. Bombay 1: 348.1958 (Repr. ed.); Sanj. Leg. India 258.1991. *Cracca senticosa* L. Sp. Pl. ed. 1, 2 : 752.1753.

Shrubs much branched, argenteo-canescens with appressed hairs. Leaves 2.5–3.5 cm long, alternate, compound; leaflets 1–3 × 0.5–0.8 cm, oblanceolate, cuneate at base, emarginate at apex, appressed-hairy beneath. Flowers 1–2, axillary. Pods 2.5–5 × 0.6 cm, linear, flattened, apiculate, curved upwards, densely hairy, 6–8-seeded.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 370.1840.

Distrib. : G. L. Shah (1969).

Tephrosia strigosa (Dalz.) Sant. & Mahesh. in J. Bombay nat. Hist. Soc. 54: 805.1957; Sanj. Leg. India 259.1991. *Macronyx strigosus* Dalz. in Hook. J. Bot. Kew Gard. Misc. 2 : 35.1850. *Tephrosia tenuis* Wall. ex Dalz. in Dalz. & Gibs. Bombay Fl. 61.1861; Baker in Hook. f. Fl. Brit. India 2 : 111.1876; Cooke, Fl. Pres. Bombay 1: 344.1958 (Repr. ed.).

Herbs. Stems slender, spreading ca. 30 cm long, caespitose, appressed-pubescent. Leaves 1.5–2.0 × 0.4–0.5 cm, oblong, linear-lanceolate, obtuse at base and apex, apiculate. Flowers pink, axillary, solitary or paired. Pods 1.5–2.5 × 0.3–0.6 cm, linear, compressed, appressed-pubescent. Seeds 10, oblong-ellipsoid.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 372.1840; Mahesh. Illus. Fl. Delhi. f. 61.1966.

Distrib. : Borivli, P. S. Herbert, 2082, 2366 (BLAT)

Tephrosia subtriflora Baker in Oliver Fl. Tropical Africa 2 : 117.1871; Gillett in Kew Bull. 13: 112.1958; Sanj. Leg. India 259.1991. *T. pauciflora* Grah. ex Baker in Hook. f. Fl. Brit. India 2 : 114.1876; Cooke, Fl. Pres. Bombay 1: 348.1958 (Repr. ed.).

Herbs; stems caespitose, 25–50 cm long, hairy. Leaves 5–10 cm long, compound; leaflets 5–9, 1.0–3.0 × 0.3–1.2 cm, lanceolate-oblong or oblanceolate, rounded at apex, often emarginate. Flowers bright purple, geminate, axillary. Pods 2.5–3.0 × 0.15–0.30 cm, linear, silky hairy, 6–9-seeded.

Fls. & Frts. : September–November.

Distrib. : Salsette. G. L. Shah (1962).

Tephrosia villosa (L.) Pers. Syn. Pl. 2 : 329.1807; Baker in Hook. f. Fl. Brit. India 2 : 113.1876; Cooke, Fl. Pres. Bombay 1: 347.1958 (Repr. ed.); Bosman & de Haas in Blumea 28: 476.1983; Sanj. Leg. India 260.1991. *Cracca villosa* L. Sp. Pl. 752.1753.

Perennial herbs up to 1 m tall; branchlets villous. Leaves up to 6 cm long; leaflets 11–19, 1.2–2.0 × 0.5–0.7 cm, obovate-oblongate, cuneate at base, obtuse at apex, chartaceous, glabrous above, hairy beneath. Flowers pink, in axillary, 5–7 cm long racemes. Pods 2.5–3.5 × 0.4–0.5 cm, curved at apex. Seeds 6–8, subquadrate, oblong.

Fls. & Frts. : July–September.

Illus. : Mahesh. Illus. Fl. Delhi f. 62.1966.

Distrib. : Occasional, near the forest villages. 167942.

TERAMNUS P. Br.

Teramnus labialis (L.f.) Spr. Syst. Veg. 3 : 235.1826; Baker in Hook. f. Fl. Brit. India 2 : 184.1876; Cooke, Fl. Pres. Bombay 1: 387.1958 (Repr. ed.). *Glycine labialis* L. f. Suppl. 325.1781. '*Ran-udid*'.

Herbaceous twiners; stems slender; branchlets appressed-hairy. Leaves 3-foliolate, 5–6 cm long; terminal leaflet obovate-lanceolate, lateral ones oblique, 1.5–3.0 × 1.5–2.0 cm, thinly coriaceous, ovate-elliptic, rounded to acute at base, obtuse, acute, mucronate at apex, pubescent beneath. Flowers pink, in axillary and terminal racemes. Pods 3.5–5.0 × 0.3 cm linear, slightly curved, with hooked-beak. Seeds 8–12, oblong.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 168.1839 (*Glycine labialis*); Matthew, Illus. Fl. Tamilnadu Carnatic. 2 : t. 226.1982.

Distrib. : Common along hedges and bushes. 167359, 167990, 168413.

URARIA Desv.

- | | | |
|------------------------------|-----|---------------------|
| 1. Leaflets 5–7-foliolate | ... | <i>U. picta</i> |
| 1. Leaflets 1 or 3-foliolate | ... | <i>U. rufescens</i> |

Uraria picta (Jacq.) Desv. ex DC. Prodr. 2 : 324.1825; Baker in Hook. f. Fl. Brit. India 2 : 155.1876; Cooke, Fl. Pres. Bombay 1: 367.1958 (Repr. ed.); van Meeuwen in Reinwardtia 5: 452.1961; Sanj.

Leg. India 268.1991. *Hedysarum pictum* Jacq. Coll. Bot. 2 : 262.1788. 'Pithvan'.

Undershrubs, 1–2 m high. Stems stout, covered with hooked hairs. Leaves imparipinnate; leaflets : upper ones; 5–7, 5–20 × 1.5–2.5 cm, linear-oblong, acute at apex, glabrous and blotched with white, finely pubescent beneath. leaflets on lower part of the stem 1–3-foliolate, suborbicular to oblong. Flowers purple, in close clusters of spicate, cylindric racemes 15–25 cm long. Pods glabrous, 3–6-jointed, polished, greyish. Seeds folded on each other.

Fls. & Frts. : August–October.

Illus. : Gillett *et al.* in Milne-Redhead & Polhill, Fl. Trop. E. Africa. Leguminosae, *Subf.* Papilionoideae pt. 3(1) : 479, f. 67.1971.

Distrib. : Poonawala, 10587–94 (BLAT)

Uraria rufescens (DC.) Schindl. in Feddes Rep. 21: 14.1925; van Meeuwen in Reinwardtia 5: 453.1961; Sanj. Leg. India 268.1991. *Desmodium rufescens* DC. Ann. Sci. Nat. Hist. (Paris) 4: 101.1825. *Uraria hamosa* Wall. ex Wight & Arn. Prodr. 222.1834; Baker in Hook. f. Fl. Brit. India 2 : 156.1876.

Undershrubs, 0.5–1.0 m tall. Stems straggling, finely downy pubescent. Leaves 3-foliolate; leaflets 4–9 × 2.5–4.5 cm, oblong or ovate-elliptic, truncate or obtuse at base, obtuse at apex, margins ciliate. Flowers rosy, in 10–20 cm long, terminal and axillary, paniculate-racemes. Pods 0.5–0.9 cm long, 4–8-jointed, joints annular, hairy. Seeds globose or subreniform.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 284.1840 (*Uraria hamosa*).

Distrib. : Borivli, P. S. Herbert, 348, 855 (BLAT); H. Santapau, 995, 997. Salsette (BLAT).

VIGNA Savi

1. Leaflets deeply or prominently lobed :
 2. Stipules ovate-elliptic, foliaceous ... *V. trilobata*
 2. Stipules lanceolate, not foliaceous ... *V. aconitifolia*
1. Leaflets entire or shallowly lobed :
 3. Keel spirally twisted :

- | | | | |
|----|--|-----|---|
| 4. | Pods hairy | ... | <i>V. sublobata</i> |
| 4. | Pods glabrous : | | |
| 5. | Flowers in 2-3-flowered racemes ;
corolla ca. 0.5 cm long | ... | <i>V. dalzelliana</i> |
| 5. | Flowers in 10-20-flowered racemes ;
corolla ca. 1 cm long | ... | <i>V. umbellata</i> |
| 3. | Keel not spirally twisted : | | |
| 6. | Keel with lobe-like appendage; stipules basifixed | ... | <i>V. vexillata</i> |
| 6. | Keel without lobe-like appendage; stipules
not basifixed | ... | <i>V. unguiculata</i>
ssp. <i>cylindrica</i> |

Vigna aconitifolia (Jacq.) Marechal in Bull. Jard. Bot. Nat. Belg. 39: 160.1969; Verdc. in Kew Bull. 23 : 469.1969; Sanj. Leg. India 271.1991. *Phaseolus aconitifolius* Jacq. Obs. Bot. 3 : 2, f. 52.1768; Baker in Hook. f. Fl. Brit. India 2 : 202.1876; Cooke, Fl. Pres. Bombay 1: 403.1958 (Repr. ed.). 'Matki'.

Herbaceous twiners; branches hispid. Leaves trifoliate, 5-6 cm long; leaflets palmately 3-7-lobed; lobes 3-6 × 0.3-0.6 cm, elliptic-lanceolate, acute, appressed-pilose, petioles 3-7 cm long. Flowers yellow, in axillary racemes. Pods 3-6 cm long, subcylindric, turgid, torulose, glabrescent. Seeds 3-7, oblong, smooth.

Fls. & Frts. : August-February.

Illus. : Matthew, Illus. Fl. Palni Hills t. 217.1996.

Distrib. : Occasional near cultivated fields, growing as an escape, 168937.

Vigna dalzelliana (O. Ktze.) Verdc. in Kew Bull. 24: 558.1970; Sanj. Leg. India 272.1991. *Phaseolus dalzellianus* O. Ktze, Rev. Gen. Pl. 1: 202.1891. *P. pauciflorus* Dalz. in Hook. J. Bot. Kew 3 : 209.1851 non G. Don, 1823, nec. Bth.1837 & Dalz. & Gibs.1861; Baker in Hook. f. Fl. Brit. India 2 : 202.1876. *P. dalzelli* T. Cooke, Fl. Pres. Bombay 1: 376.1902 [1: 401.1958 (Repr. ed.)].

Herbaceous twiners or creepers. Leaves 3-foliolate; leaflets 2-6 × 1.2-3.5 cm, ovate or ovate-rhomboid, acuminate at apex, terminal one largest, equilateral, lateral ones smaller and unequal sided. Flowers yellow, in 2-5 cm long, axillary racemes. Pods 3-5 cm long, subterete, beaked. Seeds 6-10, subcylindric, truncate.

Fls. & Frts. : August-December.

Distrib. : Borivli, N.A. Irani, 1271 & D. P. Panthaki, 16301, (BLAT).

Vigna sublobata (Roxb.) Babu & Sharma in Bull. Bot. Surv. India 27: 21.1987; Sanj. Leg. India 276.1991. *Phaseolus sublobatus* Roxb. Fl. Ind. 3 : 288.1832; *P. trinervius* Heyne ex Wight & Arn. Prodr. 245.1834; Baker in Hook. f. Fl. Brit. India 2 : 206.1876. *P. sublobatus* var. *setulosus* (Dalz.) Prain in J. As. Soc. Bengal 66: 423.1897; Cooke, Fl. Pres. Bombay 1: 402.1958 (Repr. ed.). *Vigna radiata* var. *sublobata* (Roxb.) Verdc. in Kew Bull. 24: 559.1970. 'Ran-udid'.

Herbs; stems twining or suberect; branchlets spreading hispid. Leaves trifoliolate, 12-15 cm long; leaflets 5-7 × 2.5 cm, ovate or ovate-rhomboid, acute, appressed-hairy. Flowers yellow, in short 6-12-flowered racemes. Pods 3-6 cm long, linear-oblong, subterete, hairy. Seeds green, smooth.

Fls. & Frts. : July-November.

Distrib. : Frequent in open areas and near the fields. 167300, 167933, 167937.

Vigna trilobata (L.) Verdc. in Taxon 17: 172.1968 & Kew Bull. 24: 560.1970; Sanj. Leg. India 276.1991. *Dolichos trilobatus* L. Mant. Pl. 101.1767. *Phaseolus trilobus* Ait. Hort. Kew ed. 1, 3 : 30.1811 non *Dolichos trilobus* L. 1753; Baker in Hook. f. Fl. Brit. India 2 : 201.1876; Cooke, Fl. Pres. Bombay 1: 401.1958 (Repr. ed.). 'Jungli-methi'.

Herbs; stems prostrate or twining, angular. Leaves trifoliolate; leaflets palmately 3-lobed, mid-lobe larger, obovate-spathulate, lateral ones oblique, 1.5-4.0 × 1.0-4.3 cm, hairy, obtuse, apiculate. Flowers yellow, in axillary racemes. Pods 3-5 cm long, subterete, turgid, pubescent. Seeds 6-10.

Fls. & Frts. : August-October.

Illus. : Mahesh. Illus. Fl. Delhi f. 75.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 227.1982.

Distrib. : Koppikar (1974).

Vigna umbellata (Thunb.) Ohwi & Ohashi in J. Jap. Bot. 44: 31.1969; Verdc. in Kew Bull. 24: 560.1970; Sanj. Leg. India 276.1991. *Dolichos umbellatus* Thunb. in Trans. Linn. Soc. London 2 : 339.1794. *Phaseolus calcaratus* Roxb. Fl. Ind. 3 : 289.1832; Baker in Hook. f. Fl. Brit. India 2 : 203.1876.

Annual herbs; stems prostrate, twining. Leaflets 3, 5–9 × 4–7 cm, ovate–elliptic to ovate, rounded at base, acute at apex, appressed–hairy on both surfaces. Flowers yellow, in racemes. Pods 5–6 cm long, 8–15-seeded.

Fls. & Frts. : August–September.

Illus. : Matthew, *Illus. Fl. Palni Hills* t. 221.1996.

Distrib. : Borivli, *Almeida* (1998).

Vigna unguiculata (L.) Walp. *Repert* 1 : 779.1842 subsp. ***cylindrica*** (L.) van Eseltine in *Hendricks, Veg. New York* 1(2) : 11.1931; *Verdc. in Kew Bull.* 24: 544.1970; *Sanj. Leg. India* 277.1991. *Phaseolus cylindricus* L. in *Stickmann, Herb. Amb.* 23 : 1754 & *Amoem. Acad.* 4: 132.1759. *Vigna catjang* (Burm. f.) Walp. in *Linnaea* 13 : 533.1839, *nom illeg.*; Baker in *Hook. f. Fl. Brit. India* 2 : 205.1876; Cooke, *Fl. Pres. Bombay* 1: 405.1958 (Repr. ed.). '*Chavli*'.

Stems herbaceous, suberect with ascending branches. Leaflets 3, 8–15 cm long, ovate–lanceolate or rhomboid. Flowers yellow or reddish, in axillary racemes. Pods 20–25 cm long, linear, 10–20-seeded.

Fls. & Frts. : April–October.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 213.1998.

Distrib. : Borivli, *Almeida* (1996). Cultivated but often found as an escape.

Vigna vexillata (L.) A. Rich. in *Hist. Fis. Polit. Nat.* 1, 11: 191.1845 & *Eas. Fl. Cuba* 440.1846; Baker in *Hook. f. Fl. Brit. India* 2 : 206.1876; *Verdc. in Kew Bull.* 24: 553.1970; *Sanj. Leg. India* 277.1991. *Phaseolus vexillatus* L. *Sp. Pl.* 724.1753. *Vigna capensis* (L.) Walp. in *Linnaea* 13 : 553.1839; Cooke, *Fl. Pres. Bombay* 1: 404.1958 (Repr. ed.). '*Halunda*'.

- | | | |
|---|-----|-----------------------|
| 1. Leaflets glabrescent; flowers rosy | ... | <i>var. sepiaria</i> |
| 1. Leaflets pubescent; flowers pinkish to bluish purple | ... | <i>var. vexillata</i> |

var. *vexillata*

Herbaceous twiners, sparsely pubescent. Leaflets 2.2–8.0 × 2–6 cm, ovate–rhomboid or ovate–lanceolate, hairy, membranous. Flowers in capitate racemes. Pods 5–18 cm long, linear, suberect, appressed–hairy. Seeds 10–15, subreniform, compressed, black.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 202.1839. (*Phaseolus pulniensis*).

Distrib. : Frequent on bushes and among grasses. 167905, 167971.

var. **sepiaria** (Dalz.) Babu & Sharma in Bull. Bot. Surv. India 27: 27.1987; Sanj. Leg. India 278.1991. *Phaseolus sepiarius* Dalz. in Hook. J. Bot. Kew Gard. Misc. 2 : 33.1850.

Twiners with fusiform roots. Leaves 3-foliolate; leaflets ovate, rounded at base, acuminate at apex, hairy. Flowers rose-coloured, on peduncled racemes. Pods subcylindric, hairy, 10-15-seeded.

Fls. & Frts. : September-October.

Distrib. : Almeida (1998).

ZORNIA J. F. Gmel.

1. Leaflets mostly linear-lanceolate; pods not concealed by bracts ... *Z. diphylla*

1. Leaflets mostly ovate; pods concealed by bracts ... *Z. gibbosa*

Zornia diphylla (L.) Pers. Syn. Pl. 2 : 318.1807; Baker in Hook. f. Fl. Brit. India 2 : 147.1876 *p.p.*; Sanj. Leg. India 279.1991. *Hedysarum diphyllum* L. Sp. Pl. 747.1753. *Zornia diphylla* var. *zeylonensis* (Pers.) Baker in Hook. f. Fl. Brit. India 2 : 148.1876; Cooke, Fl. Pres. Bombay 1: 356.1958 (Repr. ed.).

Herbs with 2-foliolate leaves; leaflets ovate. Flowers in spike like racemes. Pods much longer than bracts joints 4-7, muricated.

Fls. & Frts. : August-October.

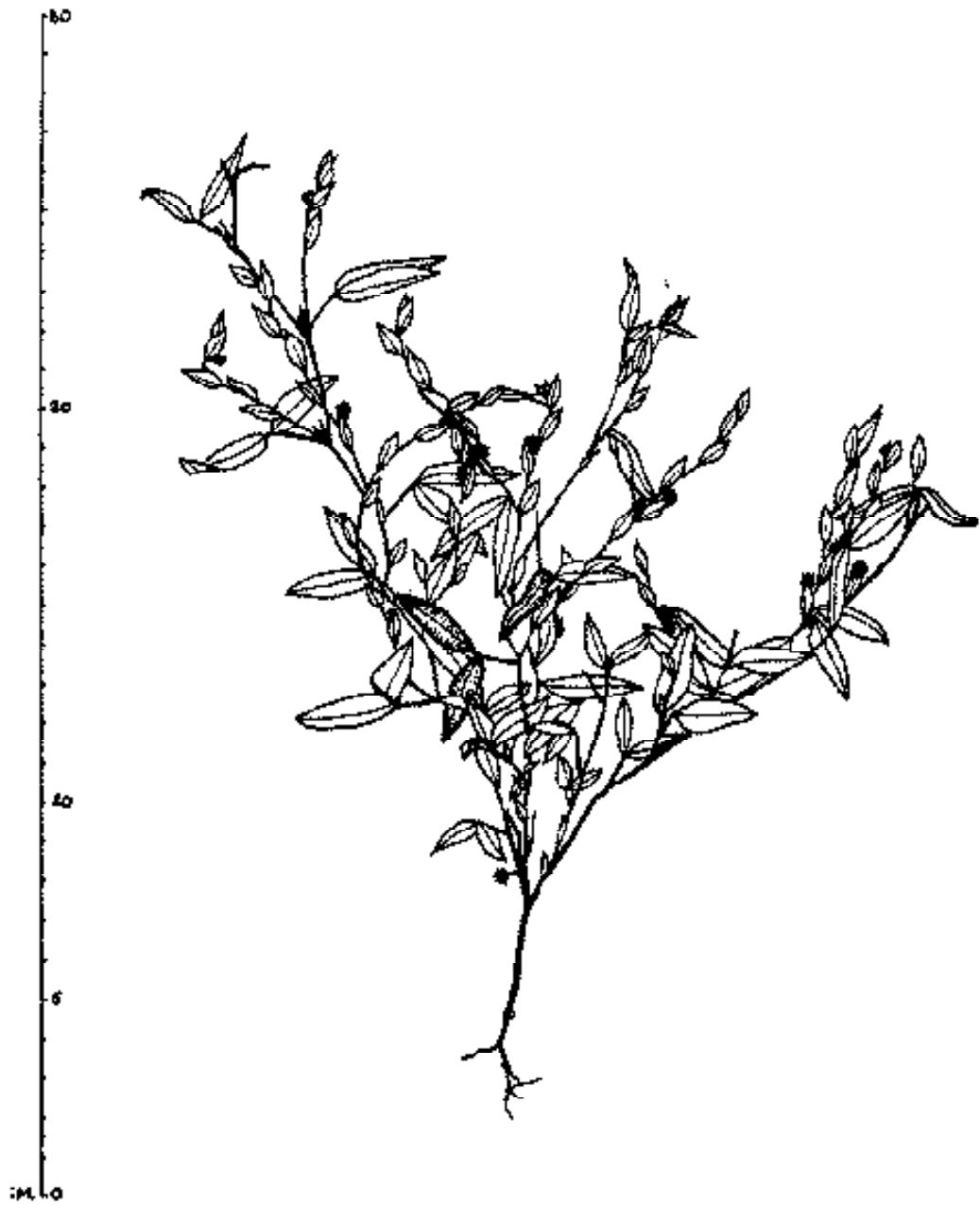
Distrib. : Vihar lake, Almeida (1998).

Zornia gibbosa Span. in Linnaea 15: 192.1841; Mohlenbr. in Webbia 16: 139.1961; Dandy & Milne Redhead in Kew Bull. 17: 74.1963; Sanj. Leg. India 280.1991. *Z. diphylla* auct. non Pers. 1807; Baker in Hook. f. Fl. Brit. India 2 : 147.1876; Cooke, Fl. Pres. Bombay 1: 355.1958 (Repr. ed.). '*Landgu*'.

Herbs; stems prostrate, pubescent. Leaves 0.6-1.8 × 0.3-0.5 cm, lanceolate, obtuse at base, acute at apex, apiculate, sparsely pubescent, petiolate. Flowers yellow, in 3-12-flowered, 4-8 cm long racemes. Pods 0.6-0.8 cm long, 2-6-jointed, echinate. Seeds smooth, polished.

Fls. & Frts. : August-October.

Illus. : Mahesh. Illus. Fl. Delhi f. 64.1966.



f.26. *Zornia gibbosa* Span.

Distrib. : Frequent in cleared forest areas and among grasses. 167283, 168682.

CULTIVATED SPECIES :

Cajanus cajan (L.) Millsp. in. Field Columbian Mus. Bot. Ser. 2(1) : 53.1900; van der Maesen in Agric. Univ. Wageningen Papers 85 (4) : 65, f. 4, t. 2-3, 5-7 (1985).1986; Sanj. Leg. India 100.1991. *Cytisus cajan* L. Sp. Pl. 739.1753. *Cajanus indicus* Spr. Syst. Veg. 3 : 248.1826; Baker in Hook. f. Fl. Brit. India 2 : 217.1876; Cooke, Fl. Pres. Bombay 1: 435.1958 (Repr. ed.). 'Tur'.

Shrubs, 1-3 m tall. Leaves 3-foliolate; leaflets elliptic-lanceolate or oblong, velvety pubescent beneath. Flowers yellow, in few-flowered, axillary, condensed racemes. Pods linear-oblong, pubescent. Seeds ovoid-oblong.

Fls. & Frts. : October-December.

Illus. : van der Maesen, *op. cit.*

Distrib. : Borivli, *E. Blatter*, 934, (BLAT).

Cicer arietinum L. Sp. Pl. 738.1753; Baker in Hook. f. Fl. Brit. India 2 : 176.1876; Cooke, Fl. Pres. Bombay 1: 435.1958 (Repr. ed.); Sanj. Leg. India 113.1991. 'Harbara'.

Herbs. Stems diffuse Leaves compound; leaflets 9-19, ovate-oblong or oblong. Flowers purple, solitary, axillary. Pods turgid, ovoid-oblong, ca. 1.5 cm long, 1-2-seeded.

Fls. & Frts. : October-March.

Illus. : Wight, Ic. t. 20.1838.

Distrib. : G. L. Shah (1969).

Cyamopsis tetragonolobus (L.) Taub. in Engl. & Prantl, Nat. Pflanzenfam. 3, (3) : 259.1894; Sanj. Leg. India 133.1991. *Psoralea tetragonoloba* L. Mant. Pl. 104.1767. *Cyamopsis psoraloides* (Lam.) DC. Prodr 2 : 216.1825; Baker in Hook. f. Fl. Brit. India 2 : 92.1876; Cooke, Fl. Pres. Bombay 1: 328.1958 (Repr. ed.). 'Gawar'.

Herbs, 0.5-0.9 m tall. Leaves 3-foliolate; leaflets broadly ovate to ovate-elliptic. Flowers light-purple, in short, axillary racemes. Pods linear, beaked. Seeds subtetragonous, minutely tuberculate.

Fls. & Frts. : Mostly throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t.191.1982.

Distrib. : Borivli, *J. C. Bridwell*, 50308 (BLAT).

Gliricidia sepium (Jacq.) Kunth ex Walp. *Repert.* 1: 679.1842. Blatt. et al. *Beautif. Ind. Trees* (ed. 2) : 87.1954; Sanj. *Leg. India* 181.1991. *Robinia sepium* Jacq. *Enum. Pl. Carib.* 28.1760.

Shrubs or trees, 5–8 m tall. Leaves imparipinnate; leaflets 6–8 pairs, elliptic–lanceolate. Flowers rose–pink, in racemes. Pods up to 15 cm long, flat.

Fls. & Frts. : February–April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic*, 2 : t. 203.1982.

Distrib. : Cultivated near the nursery. 168985.

Lablab purpureus (L.) Sweet, *Hort. Brit.* (ed.) 1: 481.1827; Verdc. in *Kew Bull.* 24: 410.1970; Sanj. *Leg. India* 199.1991. *Dolichos purpureus* L. *Sp. Pl.* ed. 2, 1021.1763. *D. lablab* L. *Sp. Pl.* 725.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 209.1876; Cooke, *Fl. Pres. Bombay* 1: 406.1958 (Repr. ed.). '*Pavata*', '*Val-papadi*'.

Herbs; stems extensive, twining. Leaves pinnately 3–foliolate; leaflets ovate–rhomboid. Flowers white or lilac, in peduncled racemes. Pods flat, falcate, oblong, recurved, 2–6–seeded.

Fls. & Frts. : February–March.

Distrib. : Borivli, *P. S. Herbert*, 1347 (BLAT)

Lathyrus sativus L. *Sp. Pl.* 730.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 179.1876; Cooke, *Fl. Pres. Bombay* 1: 384.1958 (Repr. ed.); Sanj. *Leg. India* 202.1991. '*Kasarilang*'.

Annual herbs; Stems winged, diffuse, branched. Leaves 2–foliolate; leaflets lanceolate to linear–lanceolate. Flower solitary, violet or bluish–purple. Pods ca. 4 cm long, oblong, winged, 4–5–seeded.

Fls. & Frts. : December–March.

Illus. : Anon. *Wealth of India* 6: 37, ff.19–20.062.

Distrib. : Malad, *Almeida* (1996).

Lens culinaris Medik. Vorles. Churpf. Phys. Ges. 1: 361. (1787) 1788 ('*culinare*'); Sanj. Leg. India 202.1991; Almeida Fl. Mah. 2 : 102.1998; *L. esculenta* Moench. Meth. Pl. 131.1794; Cooke, Fl. Pres. Bombay 1: 435.1958 (Repr. ed.). '*Masur*'.

Erect herbs, branched from the base, hairy. Leaflets 4–6 pairs, lanceolate, rachis ending in a tendril or a bristle. Flowers light-purple or pinkish. Pods flattened, 2-seeded.

Fls. & Frts. : October–February.

Distrib. : Versova, Almeida (1998).

Medicago sativa L. Sp. Pl. 778.1753; Baker in Hook. f. Fl. Brit. India 2 : 90.1876; Cooke, Fl. Pres. Bombay 1: 327.1958 (Repr. ed.); Sanj. Leg. India 210.1991. '*Lasun-ghas*', '*Vilayati-ghas*'.

Annual herbs, 30–50 cm high. Stems erect, hairy. Leaves 3-foliolate; leaflets 1.5–3.0 × 0.3–0.8 cm, oblanceolate or elliptic-oblong. Flowers pink to purple, in racemes. Pods in loose spiral of 3–4-turns.

Fls. & Frts. : October–May.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t.186. ff. 1–11–1988.

Distrib. : G. L. Shah (1984).

Pisum sativum L. Sp. Pl. 727.1753; Baker in Hook. f. Fl. Brit. India 2 : 181.1876; Cooke, Fl. Pres. Bombay 1: 436.1958 (Repr. ed.); Sanj. Leg. India 299.1991. '*Vatana*'.

Annual herbs, often climbing with tendrils. Leaves pinnately compound; leaflets 8–11. Flowers white. Pods turgid, linear-oblong. Seeds globose, green.

Fls. & Frts. : November–March.

Illus. : Matthew, Illus. Fl. Palni Hills t. 201.1996.

Distrib. : G. L. Shah (1969), Malad., Almeida (1998).

Sesbania grandiflora (L.) Poir. in Lam. Encycl. 7: 127.1806; Baker in Hook. f. Fl. Brit. India 2 : 115.1876; Cooke, Fl. Pres. Bombay 1: 350.1958 (Repr. ed.); Gillett in Kew Bull.17: 105.1963; Sanj. Leg. India 244.1991. *Robinia grandiflora* L. Sp. Pl. 722.1753. *Agati grandiflora* (L.) Desv. in. J. Bot. 1: 120.1813; Bailey, Man. Cult. Pl. 557.1949. '*Hadga*'.

Trees up to 10 m tall. Leaves compound; leaflets 25–30, oblong or obovate. Flowers ca. 6 cm long, showy, cream-coloured, in short, axillary racemes. Pods up to 60 cm long, linear, pendent, beaked. Seeds ca. 30, oblong-ellipsoid, flat.

Fls. & Frts. : November–February.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 387, f. 220.1909.

Distrib. : Koppikar (1974).

Trigonella foenum-graceum L. Sp. Pl. 777.1753; Baker in Hook. f. Fl. Brit. India 2 : 87.1876; Bailey, Man. Cult. Pl. 583.1949; Sanj. Leg. India 264.1991. '*Methi*'.

Erect annual herbs, 15–25 cm high. Stems glabrous. Leaflets 3, oblong or obovate-oblong, glabrous. Flowers 1–2, together, creamy-yellow. Pods linear, subtorulose. Seed 10–20, oblong.

Fls. & Frts. : Almost throughout of the year.

Illus. : Matthew, Illus. Fl. Palni Hills t. 211.1996,

Distrib. : G. L. Shah (1961), Malad, Almeida (1996).

Vigna radiata (L.) R. Wilczek, Fl. Cong. Belg. Ruand. Uru. 6: 386.1954; Verdc. in Kew Bull. 24: 559.1970; Sanj. Leg. India 275.1991. *Phaseolus radiatus* L. Sp. Pl. 725.1753; Baker in Hook. f. Fl. Brit. India 2:203.1876; Cooke, Fl. Pres. Bombay 1:403.1958(Repr.ed.). '*Sona-mug*'.

Twiners; stems hirsute, Leaves 3-foliolate; leaflets ovate-rhomboid, appressed-hairy. Flowers yellow, in capitate racemes. Pods linear, terete. Seeds many.

Fls. & Frts. : September–December.

Illus. : Matthew, Illus. Fl. Palni Hills t. 219.1996.

Distrib. : Borivli, Malad, Almeida (1998).

CAESALPINIACEAE

- | | | |
|---|-----|----------|
| 1. Leaflets 2 | ... | BAUHINIA |
| 1. Leaflets many : | | |
| 2. Leaves 1-pinnate : | | |
| 3. Flowers in axillary corymbs; petals absent | ... | SARACA |

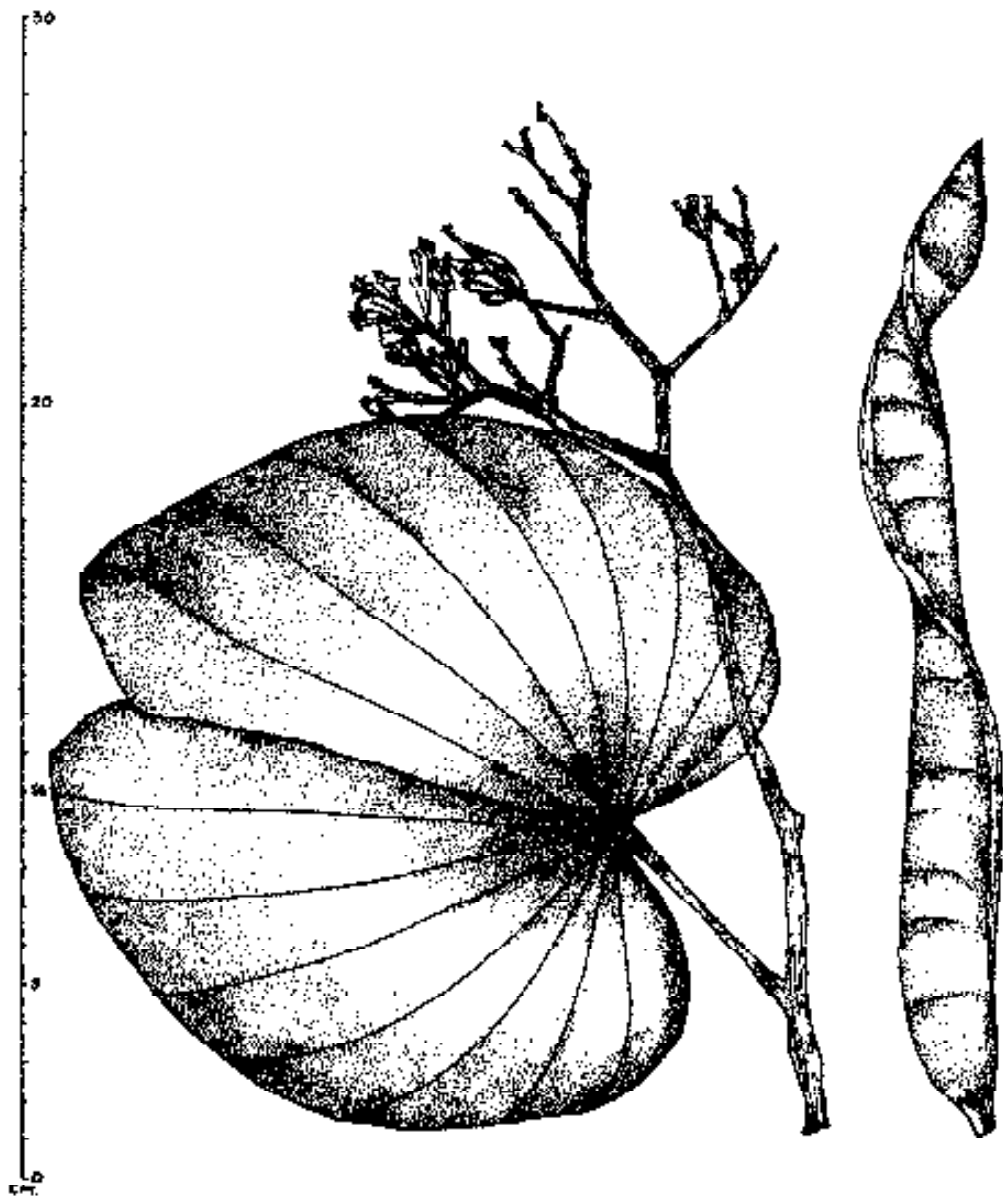
- 3. Flowers solitary, fascicled or in racemose or corymbose-panicles; petals present :
 - 4. Petals 3; stamens 3 ... TAMARINDUS
 - 4. Petals 5; stamens 5-10 :
 - 5. Filaments of 3 abaxial antecephalous stamens sigmoidly curved; bracteoles 1 or 2 at or towards the base of pedicel ... CASSIA
 - 5. Filaments of all stamens straight or simply incurved, bracteoles absent or 2 inserted at or little above the pedicels :
 - 6. Bracteoles 2, androecium actinomorphic ... CHAMAECRISTA
 - 6. Bracteoles absent; androecium zygomorphic ... SENNA
- 2. Leaves 2-pinnate :
 - 7. Flowers nearly sessile, in spicate racemes; calyx petaloid ... MOULLAVA
 - 7. Flowers pedicellate in axillary or terminal racemes or panicles; calyx not petaloid ... CAESALPINIA

BAUHINIA. L.

- 1. Calyx spathaceous ... *B. racemosa*
- 1. Calyx not spathaceous; calyx limb divided into 5-segments :
 - 2. Leaves 7-9-nerved, pods glabrous ... *B. malabarica*
 - 2. Leaves 15-17-nerved; pods rusty-tomentose ... *B. foveolata*

Bauhinia foveolata Dalz. in J. Linn. Soc. 13 : 188.1873; Cooke, Fl. Pres. Bombay 1: 460.1958 (Repr. ed.); Sanj. Leg. India 2 : 1991. *B. lawii* Bth. ex Baker in Hook. f. Fl. Brit. India 2 : 277.1878. *Piliostigma foveolatum* (Dalz.) Thoth. in Bull. Bot. Soc. Bengal 19: 131.1965. '*Chameli*'.

Trees, 20-30 m tall, bark dark brown, rough. longitudinally fissured. Leaves 15-25 cm long, ca. as broad as long, suborbicular, bilobed, divided one fifth of its way down; lobes subacute, glabrous above, pubescent beneath, cordate, nerves prominent beneath. Flowers red, subsessile, in dense, terminal panicles. Pods 15-22 × 1.5-2.5 cm, linear-oblong, twisted, red-tomentose, subwoody.



f.27. *Bauhinia foveolata* Dalz.

Fls. & Frts. : September–December.

Distrib. : Occasional. 167487.

Bauhinia malabarica Roxb. [Hort. Beng. 31.1814] & Fl. Ind. 2 : 321.1832; Baker in Hook. f. Fl. Brit. India 2 : 277.1878; Cooke, Fl. Pres. Bombay 2 : 460.1958 (Repr. ed.). *Ptilostigma malabaricum* (Roxb.) Bth. in Miq. Fl. Jungh. 261.1852; de Wit in Reinwardtia 3 : 531.1956. 'Amlī'.

Shrubby trees. Leaves 3–8 × 3.5–9.0 cm, divided one fourth their way down into two rounded lobes, pale and pubescent beneath, cordate at base, petioles up to 2 cm long. Flowers pedicellate, in dense, axillary, subsessile, racemes. Pods 15–20 × 1.5–2.5 cm, turgid, stalked. Seeds 20–30, globose, ovoid, polished.

Fls. & Frts. : October–December.

Distrib. : Occasional. 167972.

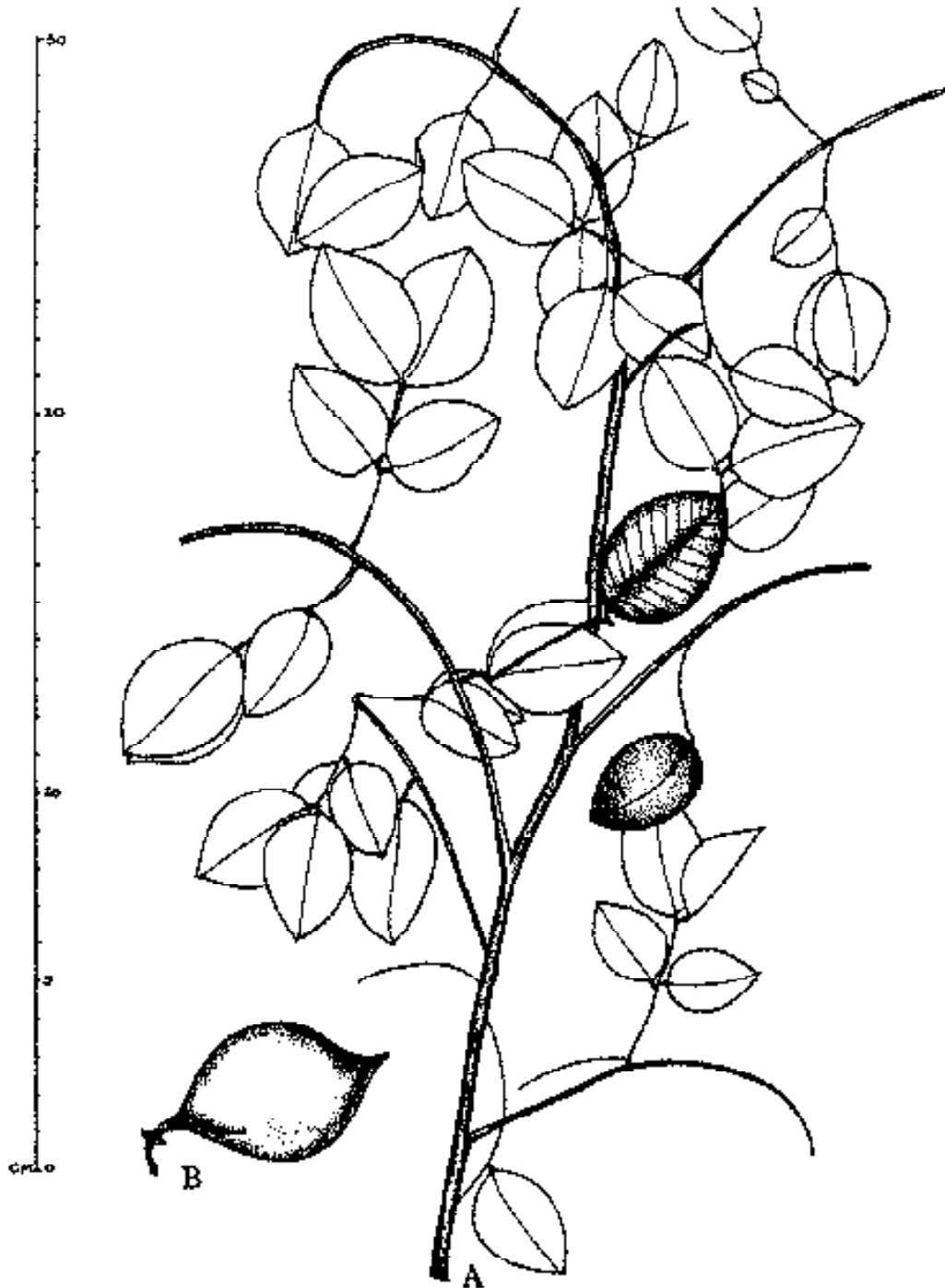
Bauhinia racemosa Lam. Encycl. 1: 390.1785; Baker in Hook. f. Fl. Brit. India 2 : 276.1878; Cooke, Fl. Pres. Bombay 1: 459.1958 (Repr. ed.); de Wit in Reinwardtia 3 : 537.1956; Sanj. Leg. India 5: 1991. 'Apts'.

Trees, 3–5 m tall; branches tomentose. Leaves 2.0–4.5 × 3–5 cm; leaflets rounded, connate about two-thirds of their length, glabrous above, pubescent beneath, cordate at base, obtuse. Flowers white, or yellowish, in terminal or leaf-opposed, 5–10 cm long racemes. Pods 10–15 × 1.5–2.0 cm, falcate, turgid, stalked, obtuse. Seeds ovoid, 12–15.

Fls. & Frts. : May–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 462–63, ff. 262–263.1909; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 229.1982.

Distrib. : Koppikar (1974).



f. 28. *Caesalpinia crista* L.

A = Habit, B = Fruit

CAESALPINIA L.

1. Leaflets 2-3 pairs; pods unarmed ... *C. crista*
 1. Leaflets 6-9 pairs; pods armed with prickles ... *C. bonduc*

Caesalpinia bonduc (L.) Roxb. Fl. Ind. 2 : 3 62.1832 *p.p. excl. pl. descr. emend.* Dandy et Exell. in J. Bot. 76: 179.1938; Hattink in Reinwardtia 9: 17.1974; Sanj. Leg. India 9: 1991. *Guilandina bonduc* L. Sp. Pl. 381.1753. *Caesalpinia bonducella* (L.) Fleming in Asiat. Res. 11: 159.1810 *nom. illeg.*; Baker in Hook. f. Fl. Brit. India 2 : 254.1878; Cooke, Fl. Pres. Bombay 1: 437.1958 (Repr. ed.). 'Sagargota'.

Shrubs. Stems and branchlets straggling, armed with hooked and straight prickles. Leaves 15-40 cm long, pinnately compound; pinnae 4-8 pairs, leaflets 1.5-3.0 × 1-2 cm, elliptic-oblong, ovate-elliptic, truncate-rounded at base, obtuse and mucronate at apex. Flowers yellow, in 12-15 cm long, axillary racemes. Pods 5-8 × 3.5-4.5 cm, oblong-obovoid, beaked, Seeds subglobose or globose.

Fls. & Frts. : July-December.

Illus. : Matthew, Fl. Tamilnadu Carnatic 2 : t. 230.1982. & Fl. Tamilnadu Carnatic 3(1) : 491. t 41 a .1983.

Distrib. : Vihar lake, H. Santapau, 18922-23 (BLAT)

Caesalpinia crista L. Sp. Pl. 380.1753 (*p.p. excl. syn.* Pluk. & Breyn.) *emend.* Dandy & Excell. in J. Bot. 76.179.1938; Hattink in Reinwardtia 9: 20.1974; Sanj. Leg. India 10.1991. *C. nuga* (L.) Ait. f. Hort. Kew ed. 2, 3 : 32.1811; Baker in Hook. f. Fl. Brit. India 2 : 255.1878; Cooke, Fl. Pres. Bombay 1: 438.1958 (Repr. ed.).

Shrubby climbers. Stems extensive with rough bark, armed with hooked prickles. Leaves 20-25 cm long; pinnae 3-4 pairs, 5-8 cm long, leaflets 2.5-5.0 × 1.0-2.5 cm, ovate or elliptic, rounded at base, acute at apex. Flowers yellow, in 20-30 cm long, terminal racemes. Pods 5.0-5.5 × 3.5 cm, oblong-ellipsoid, oblique, beaked, stalked, 1-seeds. Seeds ovoid.

Fls. & Frts. : January-February.

Illus. : Wight, Ic. t. 36.1838. *Caesalpinia paniculata* (Lam.) Roxb. Hort. Beng. 32.1914.

Distrib. : Occasional, along coast line 167953.

CASSIA L.

Cassia fistula L. Sp. Pl. 377.1753; Baker in Hook. f. Fl. Brit. India 2 : 261.1878; Cooke, Fl. Pres. Bombay 1: 444.1958 (Repr. ed.); Pandey in J. Bombay nat. Hist. Soc. 68: 313.1971; Sanj. Leg. India 15.1991; V. Singh in Monogr. Indian *Cassiinae* (*Caesalpinaceae*) 25. 2001. '*Bahava*'.

Trees, 6–10 m tall. Leaves 20–35 cm long; leaflets 4–8 pairs, 2.5–6.0 cm, ovate or ovate-oblong, acute, glabrous and bright green above, paler and pubescent beneath. Flowers bright yellow, pedicellate, in drooping, lax, 30–50 cm long racemes. Pods 1.5–2.5 cm across, pendulous, cylindric, smooth, indehiscent, 40–100-seeded. Seeds broadly ovate, flat.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t. 269.1840. (*Cassia rhombifolia* Roxb. Fl. Ind. 2 : 334.1832); Talbot, For. Fl. Bombay Pres. & Sind. 1: 449, t. 253.1909.

Distrib. : Not frequent. 167254.

CHAMAECRISTA Moench.

- | | | |
|------------------------------|-----|----------------------|
| 1. Leaves imparipinnate | ... | <i>C. kolabensis</i> |
| 1. Leaves paripinnate : | | |
| 2. Leaflets in 2 pairs | ... | <i>C. absus</i> |
| 2. Leaflets in 10–60 pairs : | | |
| 3. Fertile stamens 6 | ... | <i>C. pumila</i> |
| 3. Fertile stamens 10 : | | |
| 4. Leaflets up to 30 pairs | ... | <i>C. nictitans</i> |
| 4. Leaflets 40–80 pairs | ... | <i>C. mimosoides</i> |

Chamaecrista absus (L.) Irwin & Barneby in Mem. New York Bot. Gard. 35(2) : 664.1982; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 55. 2001. *Cassia absus* L. Sp. Pl. 376.1753; Baker in Hook. f. Fl. Brit. India 2 : 265.1878; Cooke, Fl. Pres. Bombay 1: 451.1958 (Repr. ed.); de Wit in Webbia 11: 279.1955; Sanj. Leg. India 14.1991. '*Chimar*'.

Herbs, 15–45 cm tall. Stems and branches glandular-pubescent. Leaflets in two pairs, 1.5–3.0 × 1.0–2.5 cm, elliptic-oblong or elliptic-obovate, oblique, obtuse or subacute, mucronulate, glabrous above, hairy beneath. Flowers reddish-yellow, in terminal or leaf-opposed racemes. Pods 2.5–3.0 × 0.5–0.6 cm, nearly straight, flat, bristly hairy. Seeds 4–6, rhomboid, ovoid, black, shining.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 231.1982 (*Cassia absus*).

Distrib. : Common. 167263, 167986.

Chamaecrista kolabensis (Kothari, Moorthy & Nayar) V. Singh in *J. Econ. Tax. Bot.* 16(3) : 600.1992 & *Monogr. Indian subtribe Cassiinae (Caesalpinaceae)* 65. 2001. *Cassia kolabensis* Kothari, Moorthy & Nayar in *Proc. Ind. Acad. Sci. (Plant Sci.)* 90(3) : 199. f. 1–9.1981; *Sanj. Leg. India* 17.1991.

Herbs, 30–50 cm high. Stems reddish–brown or brownish–green. Leaves imparipinnate, leaflets 5–9, 1.0–1.4 × 0.3–0.4 cm. linear–oblong, terminal one 1.2–1.5 × 0.7–0.9 cm, elliptic–oblong or obovate–oblong. upper surface glabrous, minutely hairy on nerves beneath. Flowers yellow, 2–3, rarely 1, pedicellate and supra–axillary. Pods compressed. 2.8–3.2 × 0.4–0.5 cm, pilose. Seeds 4–8, compressed, subrhomboid, smooth, black.

Fls. & Frts. : August–October.

Illus. : Kothari *et al. op. cit.*

Distrib. : Borivli, *H. Santapau*, 23514–17 (BLAT); Borivli, Vihar lake, *Almeida* (1998).

Chamaecrista mimosoides (L.) Greene in *Pittonia* 4: 2.1899; Lock in *Kew Bull.* 43(2) : 337.1988; Larsen & Hou *et al. Fl. Malesiana* 12(2) : 567.1996; V. Singh in *Monogr. Indian subtribe Cassiinae (Caesalpinaceae)* 67. 2001. *Cassia mimosoides* L. *Sp. Pl.* 379.1753; Baker in *Hook. f. Fl. Brit. India* 2 : 266.1878 *excl. var.*; Cooke, *Fl. Pres. Bombay* 1: 453.1958 (Repr. ed.); V. Singh in *J. Bombay nat. Hist. Soc.* 75: 439.1978; *Sanj. Leg. India* 17.1991.

Herbs, 50–90 cm high. Stems erect or diffuse, spreading, woody at base. Leaves pinnately compound, *ca.* 2 cm long; leaflets 30–60 pairs, 0.4–0.8 × 0.1–0.2 cm, linear–oblong or elliptic, inequilateral, obtuse at base and apex. Flowers yellow, axillary, solitary or 2–3 in clusters. Pods 3.5–4.5 × 0.5 cm, flat, strap–shaped, sericeous. Seeds ellipsoid, 15–25.

Fls. & Frts. : July–December.

Illus. : *Collect. Fl. Siml.* 148. f. 42.1902; Matthew, *Fur, Illus. Fl. Tamilnadu Carnatic* 4. t. 228.1988. (*Cassia mimosoides*).

Distrib. : Borivli, R. R. Fernandez, 25 & P. S. Herbert, 219 (BLAT).

Chamaecrista nictitans (L.) Moench. ssp. **patellaria** (Collad.) Irwin & Barneby var. **glabrata** (Voigl) Irwin & Barneby in Mem. New York Bot. Gard. 35(2) : 822.1982; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 73. 2001. *Cassia patellaria* Collad. var. *glabrata* Vogel, Syn. Gen. Cass. 66.1837. *C. mimosoides* L. var. *wallichiana* (DC.) Baker in Hook. f. Fl. Brit. India 2 : 266.1878. *C. mimosoides* L. ssp. *lechenaultiana* (DC.) Ohashi. in J. Jap. Bot. 50 : 308.1975; Sanj. Leg. India 17.1991.

Annual herbs, branched from the base. Leaves 5–8 cm long with a raised gland; leaflets up to 30 pairs. 6–12 cm long, linear-lanceolate, obtuse at apex, margins entire. Flowers 1–2, axillary. Pods 2–5–3.0 cm long, slightly curved. mucronate.

Fls. & Frts. : September–October.

Distrib. : Borivli, Almeida (1998).

Chamaecrista pumila (Lam.) V. Singh in J. Econ. Tax. Bot. 16(3) : 600.1992 & Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 84. 2001. *Cassia pumila* Lam. Encycl. Meth. Bot. 1(2) : 651.1785; Baker in Hook. f. Fl. Brit. India 2 : 266.1878; Cooke, Fl. Pres. Bombay 1: 452.1958 (Repr. ed.); de Wit in Webbia 11. 288.1955; V. Singh in J. Bombay nat. Hist. Soc. 15 : 442.1978; Sanj. Leg. India 19.1991. 'Sarmal'.

Herbs. Stems prostrate, decumbent or suberect. Leaves pinnate, 3–6 cm long; leaflets 10–20 pairs, 0.5–1.0 × 0.2–0.4 cm, oblong-elliptic, cuneate at base, obtuse and mucronate at apex, margins ciliate. Flowers yellow, axillary, solitary or 2–3 in clusters, pedicellate. Pods 2–3 × 0.4–0.5 cm, linear-oblong, flat, obtuse, shortly stipitate. Seeds subquadrate, rounded or slightly acute at ends.

Fls. & Frts. : August–December.

Illus. : Pandey in J. Bombay nat. Hist. Soc. 68 : 318: 1971, t. 2, ff.18–25; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 233.1988 (*Cassia pumila*).

Distrib. : Borivli, P. S. Herbert, 2108 (BLAT)

MOULLAVA (Rheed) Adans.

Moullava spicata (Dalz.) Nicols. in Manilal Bot. & Hist. Hort. Malab.184.1980; Sanj. Leg. India 33.1991. *Caesalpinia spicata* Dalz. in

Hook. J. Bot. Kew Gard. Misc. 3 : 90.1851. *Wagatea spicata* (Dalz.) Wight, Ic. t.1995.1853; Baker in Hook. f. Fl. Brit. India 2 : 261.1878; Cooke, Fl. Pres. Bombay 1: 443.1958 (Repr. ed.). 'Wagati'.

Lianas, branches with recurved prickles. Leaves bipinnate, 20–25 cm long; pinnae 4–6 pairs, 8–10 cm long; leaflets 5–7 pairs, 2–5 × 1.5–2.0 cm, oblong, rounded or cordate at base, obtuse or acute at apex, dark green and shining above, Flowers deep-orange, in 10–50 cm long, terminal, paniculate-racemes. Pods 3.5–7.0 × 1.0–1.5 cm, linear-oblong, constricted between the seeds, 3–4-seeded. Seeds obovate, oblong, transverse.

Fls. & Frts. : January–March.

Illus. : Wight, *op. cit.*; Talbot, For. Fl. Bombay Pres. & Sind 1: 447, f. 252.1909 (*Wagatea spicata*).

Distrib. : Koppikar (1974).

SARACA L.

Saraca asoca (Roxb.) de Wilde in Blumea 15: 393.1968; Sanj. Leg. India 35.1991. *Jonesia asoca* Roxb. in Asiat. Res. 4: 365.1795. *Saraca indica auct. non L.*1753; Baker in Hook. f. Fl. Brit. India 2 : 271.1878; Cooke, Fl. Pres. Bombay 1: 456.1958 (Repr. ed.). 'Ashok'.

Evergreen trees, 6–9 m tall. Leaves 15–25 cm long; leaflets 4–6 pairs, 10–20 × 3–5 cm, oblong-lanceolate, obtuse or acute, dark green. Inflorescence 6–10 cm long. Flowers yellowish to orange, numerous. Pods 10–25 × 3.0–5.5 cm, linear-oblong, coriaceous, flat, tapering at ends. Seeds 4–8, ellipsoid-oblong, compressed.

Fls. & Frts. : December–May.

Illus. : Wight, Ic. t. 296.1839; Talbot, For. Fl. Bombay Pres. & Sind 1: 458; f. 259.1909 (*Jonesia asoca*).

Distrib. : Rare, locally abundant at Kanheri hills at Ashokban. 167440. Scattered in wild in the National Park.

SENNA Miller

- | | | |
|---|-----|------------------------|
| 1. Stamens 10, all perfect; staminodes absent | ... | <i>S. sulphurea</i> |
| 1. Perfect stamens 7, staminodes 3 : | | |
| 2. Leaflets acute at apex | ... | <i>S. occidentalis</i> |
| 2. Leaflets obtuse to subacute at apex : | | |

3. Gland present between each of the lowest pairs of leaflets ... *S. tora*
3. Gland present between the pair of leaflets ... *S. obtusifolia*.

Senna obtusifolia (L.) Irwin & Barneby in Mem. New York Bot. Gard. 35(1) : 252.1982; Larsen & Hou in Hou *et al.* Fl. Malesiana 12(2) : 681.1996; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 164. 2001. *Cassia obtusifolia* L. Sp. Pl. 377.1753; Cooke, Fl. Pres. Bombay 1: 447.1958 (Repr. ed.); V. Singh in J. Bombay nat. Hist. Soc. 75: 437.1978; Sanj. Leg. India 19.1991. *C. tora sensu* Baker in Hook. f. Fl. Brit. India 2 : 263.1878. 'Takla' 'Tarwad'.

Annual herbs 0.6–2 m tall. Leaves 7–10 cm long; leaflets 3–pairs, 2–3.5 × 1–2.0 cm, obovate–oblong, rounded or oblique base. Flowers yellow, usually 2, axillary, pedicellate. Pods 15–20 × 0.5 cm, subterete, obliquely septate between the seeds glabrous. Seeds 30–35, rhomboidal.

Fls. & Frts. : August–October.

Distrib. : Malad, Almeida (1998).

Senna occidentalis (L.) Link, Hand. 2 : 140.1831; Irwin & Barneby in Mem. New York Bot. Gard. 35(1) : 436.1982; Larsen & Hou in Hou *et al.* Fl. Malesiana 12(2) : 681.1996; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 170.2001. *Cassia occidentalis* L. Sp. Pl. 377.1753; Baker in Hook. f. Fl. Brit. India 2 : 262.1878; Cooke, Fl. Pres. Bombay 1: 445.1958 (Repr. ed.); de Wit in Webbia 11: 256.1955; Sanj. Leg. India 19.1991. 'Ran-takla'.

Undershrubs, 0.5–2.0 m tall. Leaves 12–16 cm long, pinnately compound; leaflets 4–5 pairs, 2–8 × 1.5–3.0 cm, oblong–lanceolate, rounded at base, acute at apex, pubescent beneath. Flowers yellow, in shortly peduncled, few-flowered, axillary and terminal, corymbose–racemes. Pods 10–12 × 0.8–1.0 cm, slightly falcate, linear–oblong, torulose. Seeds ovoid, 20–30.

Fls. & Frts. : October–March.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4.t. 292.1988.

Distrib. : Borivli, P. S. Herbert, 2567–8 (BLAT).

Senna sulphurea (DC. ex Collad.) Irwin & Barneby in Mem. New York Bot. Gard. 35(1) : 78.1982; Larsen & Hou in Hou *et al.* Fl. Malesiana 12(2) : 687.1996; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpinaceae*) 210.2001. *Cassia sulphurea* DC. ex Collad. in Hist. Nat. Med. Cass. 84.1816. *C. glauca* Lam. Encycl. Meth. 1: 647.1785 *non Senna glauca* Roxb.1832; Bth. in Trans. Linn. Soc.

London 27: 555.1871. *p.p.*; Baker in Hook. f. Fl. Brit. India 2 : 265.1878; Cooke, Fl. Pres Bombay 1: 453.1958 (Repr. ed.). '*Motha-tarwad*'.

Small trees, 5–6 m tall. Leaves 10–20 cm long; leaflets 4–6 pairs, 3.8 × 2.5–3 cm, elliptic-oblong, rounded at base, acute at apex, glabrous above, glaucous and slightly pubescent or glabrous beneath. Flowers yellow, in axillary corymbose–racemes. Pods 15–20 × 1–2 cm, stalked, straight with tapering ends. Seeds 20–30, oblong, compressed and with a shallow oblong pit on each side of the flat faces.

Fls. & Frts. : September–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 453, f. 256.1909 (*C. glauca*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 237. ff. 1–10.1988.

Distrib. : Borivli, Almeida (1998).

Senna tora (L.) Roxb. Fl. Ind. 2 : 340.1832; Larsen & Hou in Hou *et al.* Fl. Malesiana 12(2) : 689.1996; V. Singh in Monogr. Indian subtribe *Cassiinae* (*Caesalpiniaaceae*) 222. 2001. *Cassia tora* L. Sp. Pl. 376.1753; Baker in Hook. f. Fl. Brit. India 2 : 263.1878 *p. p.*; Cooke, Fl. Pres. Bombay 1: 447.1958 (Repr. ed.); Brenan in Kew Bull. 13 : 248.1958; V. Singh in J. Bombay nat. Hist. Soc. 75: 447.1978; Sanj. Leg. India 19.1991. '*Takla*'.

Herbs, 60–75 cm high, annuals. Leaves 8–10 cm long; leaflets in 3–pairs, 2.5–4.0 × 1.5–2.5 cm, opposite, obovate-oblong, rounded and oblique at base. Flowers light yellow, in axillary pairs, subsessile. Pods 12–20 × 0.3–0.4 cm, linear, subtetragonous, sutures broad. Seeds 25–30, rhomboid.

Fls. & Frts. : July–December.

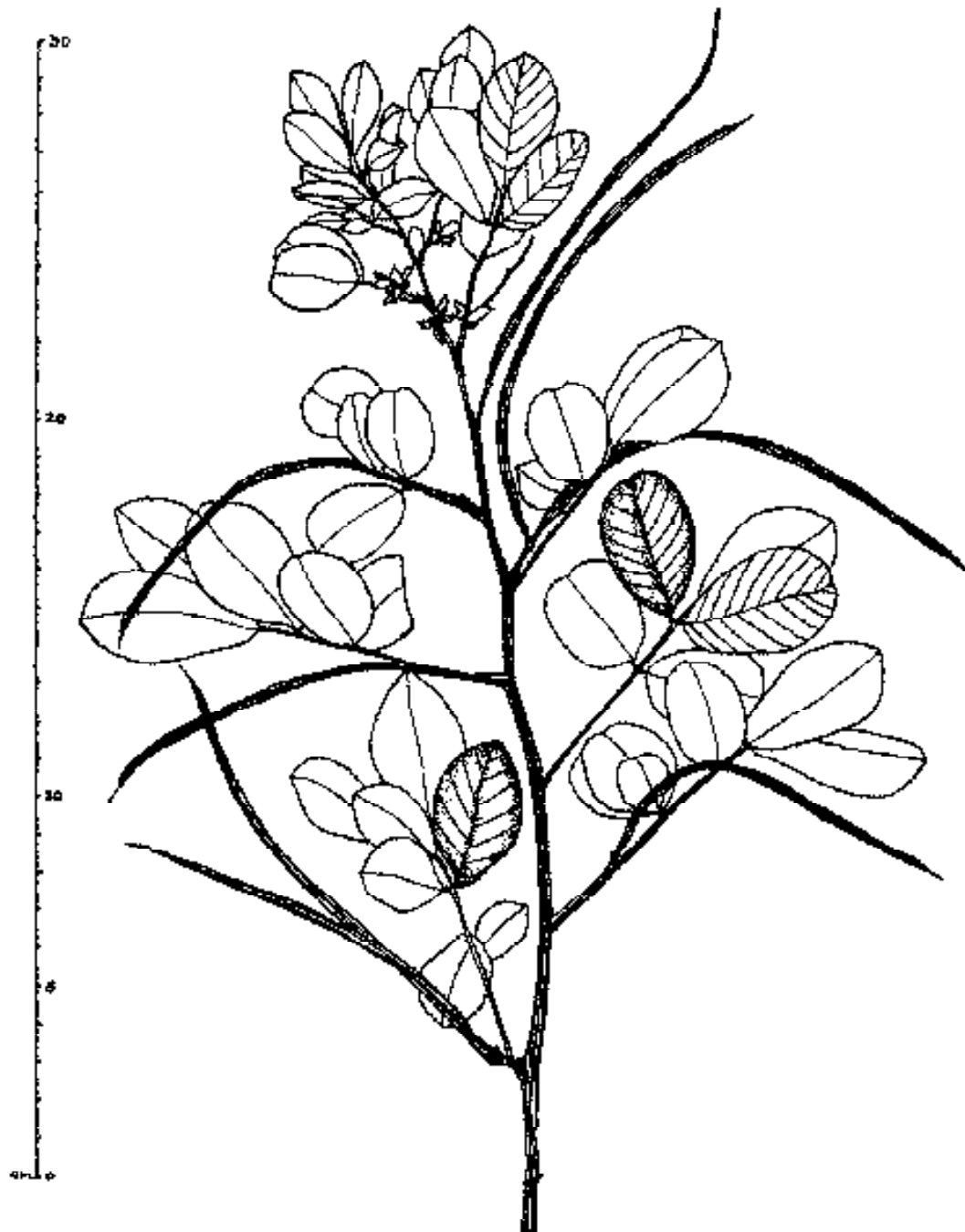
Illus. : Pandey in J. Bombay nat. Hist. Soc. 68: 316.1971. t. 2, ff. 32–38.

Distrib. : Common. 167254.

TAMARINDUS L.

Tamarindus indica L. Sp. Pl. 34.1753; Baker in Hook. f. Fl. Brit. India 2 : 273.1878; Cooke, Fl. Pres. Bombay 1: 457.1958 (Repr. ed.); Sanj. Leg. India 36.1991. '*Chinch*'.

Trees, 15–20 m tall. Leaves 5–10 cm long; leaflets 10–20 pairs, 1.0–1.5 × 0.3–0.4 cm, linear-oblong, obtuse. Flowers yellow or reddish-yellow, in 6–10 cm long racemes. Pods 4–15 × 2.0–2.5 cm,



f.29. *Senna tora* (L.) Roxb.

0.6–0.8 cm thick, slightly curved. Seeds oblong, truncate, subcompressed, smooth, shining brown.

Fls. & Frts. : March–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 238.1982.

Distrib. : Occasional as an escape. 168405.

CULTIVATED SPECIES :

Bauhinia purpurea L. Sp. Pl. 375.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 284.1878; Cooke, *Fl. Pres. Bombay* 1: 461.1958 (Repr. ed.); de Wit in *Reinwardtia* 3 : 406.1956; K. K. Nair in *J. Bombay nat. Hist. Soc.* 81. 532.1984; Sanj. Leg. India 5: 1991. '*Rakta-kanchan*'.

Trees, 8–10 m tall. Leaves, bilobed; leaflets connate about half-way; lobes rounded, as broad as long, cordate at base. Flowers purple, fragrant, in terminal and axillary, corymbose–racemes. Pods 15–30 × 2.2 cm, woody, flat, pointed at both ends, oblong. Seeds ovoid, flat, beaked.

Fls. & Frts. : September–November.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 215.1988.

Distrib. : 167785.

Bauhinia tomentosa L. Sp. Pl. 375.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 275.1878; Cooke, *Fl. Pres. Bombay* 1: 459.1958 (Repr. ed.); de Wit in *Reinwardia* 3 : 409.1956; Sanj. Leg. India 6: 1991.

Shrubs or trees, 5–7 m tall; branchlets downy pubescent. Leaves bilobed; lobes nearly orbicular, broader than long; truncate or subcordate at base, obtuse to subacute at apex. Flowers yellow, in terminal racemes. Pods 8–12 × 1.2–2.0 cm, flat, oblong, pointed, stipitate, slightly puberulous. Seeds ovoid.

Fls. & Frts. : October–January.

Distrib. : Borivli, *G. Kalianiwalla*, 1129; *Santapau*, 236364 (*BLAT*). ornamental.

Bauhinia variegata L. Sp. Pl. 375.1753; Baker in Hook. f. *Fl. Brit. India* 2 : 284.1878; Cooke, *Fl. Pres. Bombay* 1: 462.1958 (Repr. ed.); Sanj. Leg. India 6.1991. '*Kanchan*'.

Trees up to 10 m tall. Leaves bilobed; leaflets rounded, connate for about two-thirds, cordate, obtuse, glabrous above, puberulous along nerves beneath. Flowers pale pink & yellow, in terminal racemes. Pods up to 20 × 1.5–2.0 cm, narrowed at base and apex.

Fls. & Frts. : November–March.

Illus. : Talbot, Fl. Bombay Pres. & Sind. 1: 467, f. 264.1909.

Distrib. : Koppikar (1974).

Caesalpinia pulcherrima (L.) Sw. Obs. Bot. 166.1791; Baker in Hook. f. Fl. Brit. India 2 : 225.1878; Cooke, Fl. Pres. Bombay 1: 440.1958. (Repr. ed.); Sanj. Leg. India 13.1991. *Poinciana pulcherrima* L. Sp. Pl. 380.1753; 'Shankasur'.

Shrubs, 1.5–3.0 m tall. Leaves 20–30 cm long, pinnately compound; pinnae 4–9 pairs; leaflets 8–12 pairs, oblong or ovate-oblong, sessile. Flowers yellow or reddish, in 10–30 cm long, terminal racemes. Pods 8–10 × 0.1–2 cm, linear, flat. Seeds 8–10, ovate-oblong.

Fls. & Frts. : More or less throughout the year.

Distrib. : Borivli, G. Kalianiwalla, 136 (BLAT).

Delonix regia (Boj. ex Hook.) Raf. Fl. Tell. 2 : 92.1837; Sanj. Leg. India 27.1991. *Poinciana regia* Boj. ex Hook. in Curtis, Bot. Mag. 56: 5, t. 2884.1829; Baker in Hook. f. Fl. Brit. India 2 : 260.1878; Cooke, Fl. Pres. Bombay 1: 442.1958 (Repr. ed.). 'Gulmohar'.

Trees, 8–12 m tall, deciduous. Leaves up to 30 cm long, bipinnate; pinnae 8–20 pairs; leaflets oblong. Flowers reddish–orange, large, showy, in terminal racemes. Pods 30–40 × 3–4 cm, linear, flat, beaked, woody. Seeds oblong.

Fls. & Frts. : March–June.

Distrib. : Koppikar (1974).

Parkinsonia aculeata L. Sp. Pl. 375.1753; Baker in Hook. f. Fl. Brit. India 2 : 260.1878; Cooke, Fl. Pres. Bombay 1: 442.1958 (Repr. ed.); Sanj. Leg. India 33.1991. 'Vedi–bahali'.

Armed shrubs, 3–5 m tall. Leaves bipinnate; pinnae 1–3 pairs, 13–30 cm long, leaflets numerous, minute, ovate to oblanceolate. Flowers yellow, in lax, axillary racemes. Pods 7–10 × 0.6–1.0 cm, linear, moniliform. Seeds 2–6, ellipsoid-oblong, smooth.

Fls. & Frts. : January–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 235.1982.

Distrib. : Koppikar (1974).

Peltophorum pterocarpum (DC.) Baker ex K. Heyne, Nutt. *Fl. Ned. Ind.* (ed. 2), 2 : 755.1927; Sanj. Leg. India 33.1991. *Inga pterocarpa* DC. *Prodr.* 2 : 411.1825. *Peltophorum roxburghii* (G. Don) Degener, *Fl. How. Fam.* 1696.1938; Blatt. *et al.* *Beautif. Ind. Trees* 109.1954. 'Tamraphali'.

Evergreen trees, 6–15 cm tall, tender parts rusty–brown or greyish tomentose. Leaves pinnate, 10–30 cm long, alternate; pinnae 7–13 pairs; leaflets 5–15 pairs, oblong. Flowers bright yellow, in 15–30 cm long, terminal or axillary, rusty–brown tomentose panicles. Pods 5–9 × 1.5–2.0 cm, oblong, woody, acute at apex. Seeds compressed, obovate–oblong.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 236.1982.

Distrib. : Borivli, P. S. Herbert, 130 (BLAT)

Senna siamea (Lam.) Irwin & Barneby in *Mem. New York Bot. Gard.* 35(1) : 98.1982; Larsen & Hou in Hou *et al.* *Fl. Malesiana* 12(2) : 685.1996; V. Singh in *Monogr. Indian subtribe Cassiinae (Caesalpinaceae)* 193. 2001. *Cassia siamea* Lam. *Encycl. Meth. Bot.* 1(2) : 648.1785; Baker in Hook. *f. Fl. Brit. India* 2 : 264.1878; Cooke, *Fl. Pres. Bombay* 1: 454.1958 (Repr. ed.); de Wit in *Webbia* 11: 263.1955; Sanj. Leg. India 20.1991. 'Kassod'.

Trees, 10–15 m tall. Leaves pinnately compound; leaflets 7–12 pairs, ovate–oblong, obtuse at base and apex. Flowers yellow, in terminal, 5–12 cm long, corymbose–panicles. Pods 15–25 × 1.0–2.3 cm, strap–shaped, flat, woody, with thick sutures, beaked. Seeds flat, 20–30.

Fls. & Frts. : Throughout the year.

Distrib. : Borivli, P. S. Herbert, 121; Vihar lake, H. Santapau, 17849–50 (BLAT).

Senna surattensis (Burm. f.) Irwin & Barneby in *Mem. New York Bot. Gard.* 35(1) : 81.1982; Larsen & Hou in Hou *et al.* *Fl. Malesiana* 12(2) : 688.1996; V. Singh in *Monogr. Indian subtribe Cassiinae (Caesalpinaceae)* 215. 2001. *Cassia surattensis* Burm. f. *Fl. Ind.* 97.1768.

Shrubs or trees, 3–6 m tall. Leaves abruptly pinnate, 10–15 cm long; leaflets 7–9 pairs, cuneate at base, obtuse at apex. Flowers yellow,

in axillary corymbose-racemes. Pods 12-18 × 1.5-2.0 cm, linear-oblong, obtuse at apex, long stipitate. Seeds oblong, ellipsoid, beaked.

Fls. & Frts. : January-May.

Distrib. : Borivli, G. Kalianiwalla, 87 & P. S. Herbert, 505 (BLAT).

MIMOSACEAE

- | | | |
|-----------------------------------|-----|----------|
| 1. Stamens definate, 4 or 10 : | | |
| 2. Plants floating, aquatic | ... | NEPTUNIA |
| 2. Plants terrestrial : | | |
| 3. Stems climbing | ... | ENTADA |
| 3. Stems erect : | | |
| 4. Pods turgid or woody : | | |
| 5. Flowers in elongate spikes | ... | PROSOPIS |
| 5. Flowers in globose heads | ... | XYLIA |
| 4. Pods thin, flat : | | |
| 6. Plants armed | ... | MIMOSA |
| 6. Plants unarmed | ... | LEUCAENA |
| 1. Stamens indefinite, numerous : | | |
| 7. Stamens free | ... | ACACIA |
| 7. Stamens monadelphous | ... | ALBIZIA |

ACACIA P. Mill.

- | | | |
|--|-----|------------------------|
| 1. Flowers in heads : | | |
| 2. Pods moniliform | ... | <i>A. nilotica</i> |
| 2a. Bark very less fissured | ... | ssp. <i>indica</i> |
| 2b. Bark much fissured | ... | ssp. <i>astringens</i> |
| 2. Pods not moniliform | ... | <i>A. pennata</i> |
| 1. Flowers in spikes : | | |
| 3. Calyx and corolla pubescent; bark whitish or ash-coloured | ... | <i>A. catechu</i> |
| 3. Calyx and corolla glabrous; bark brown | ... | <i>A. chundra</i> |

Acacia catechu (L. f.) Willd. Sp. Pl. 4: 1079.1806; Baker in Hook. f. Fl. Brit. India 2 : 295.1878; Cooke, Fl. Pres. Bombay 1: 476.1958 (Repr. ed.); Sanj. Leg. India 38.1991. *Mimosa catechu* L. f. Suppl. Pl. 439, 1781. *Acacia polycantha* Willd. Sp. Pl. 4: 1079.1806; Brenan in

Kew Bull. 1956.195.1956; *A. suma* (Roxb.) Buch.-Ham. ex Voigt. Hort. Suburb. Calc. 260.1845; Baker in Hook. f. *op. cit.* 294; Cooke, *op. cit.* 'Sonkhairi'.

Trees, 10–15 m tall, armed with thorns. Leaves pinnately compound, alternate, 10–20 cm long pinnae 4–6 cm long; leaflets 30–50; pairs, 0.5–0.8 × 0.1 cm, elliptic, truncate at base, subacute, obtuse at apex, margins ciliate. Flowers cream-coloured, in 8–10 cm long, axillary spikes. Pods 8–13 × 1.5–2.0 cm, strap-shaped, stipitate, woody, beaked, Seeds 5–10.

Fls. & Frst. : August–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 239.1982.

Distrib. : Borivli, Z. J. Kapadia, 34; P. S. Herbert, 17448. (BLAT).

Acacia chundra (Roxb. ex Rottl.) Willd. Sp. Pl. 4: 1078.1806; Koster. in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 482.1980; Sanj. Leg. India 38: 1991. *Mimosa sundra* Roxb. ex Rottl. in Ges. Naturf. Freunde Berlin Neue Schr. f. 4: 207.1803. *Acacia sundra* (Roxb. ex Rottl.) DC. Prodr. 2 : 458.1825; Baker in Hook. f. Fl. Brit. India 2 : 295.1878 ('Sandra'). *A. catechu* Willd. var. *sundra* (Roxb.) Prain in J. Asiat. Soc. Bengal 66: 508.1897; Cooke, Fl. Pres. Bombay 1: 477.1958 (Repr. ed.). 'Khair'.

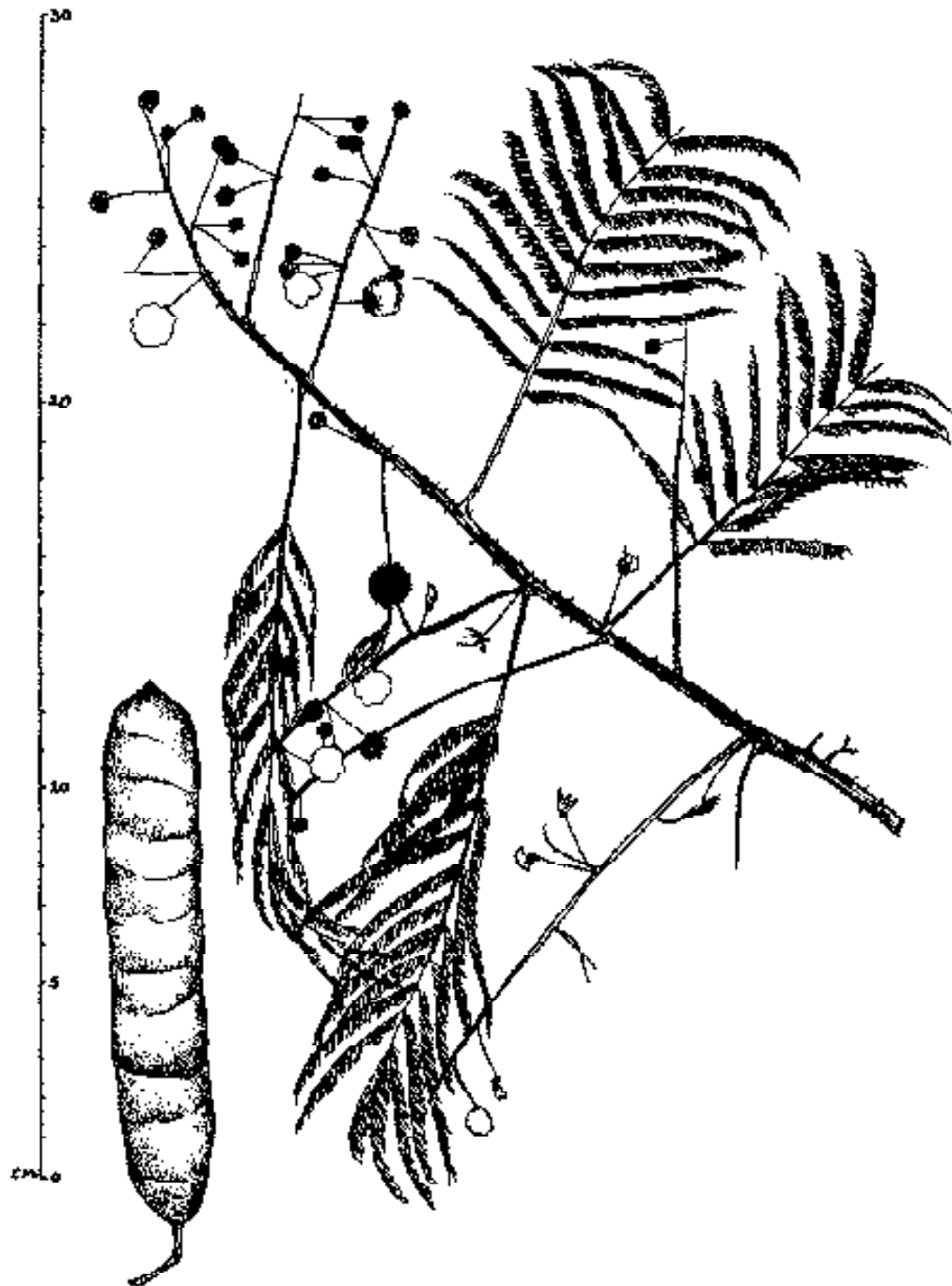
Trees, 7–10 m tall. Leaves bipinnately compound; leaflets 30–50 pairs, 0.1–0.4 cm, long elliptic, oblique at base, subacute at apex; stipular thorns hooked, 0.6–0.8 cm long. Flowers white, 1–3 in clusters or in axillary in spikes 6–8 cm long. Pods 7–12 × 2.5 cm, flat, apically beaked slightly constricted between the seeds, ca. 4–6-seeded. Seeds ovoid.

Fls. & Frts. : August–November.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 83.1966.

Distrib. : Frequent. 167920, 168449, 168930.

Acacia nilotica (L.) Willd. ex Del. ssp. **astringens** (Schum. & Thonn.) Roberty in Candollea 11: 150.1948; Sanj. Leg. India 41.1991. *Mimosa astringens* Schum. & Thonn. Beskr. Guin. Pl. 327.1827. *Acacia nilotica* (L.) Del. var. *adansonii* (Guill. & Perry) O. Ktze. Gen. Pl. 1: 156.1991; Almeida Fl. Mah. 2 : 205.1998. *A. arabica* (Lam.) Willd. var. *vediana* T. Cooke, Fl. Pres. Bombay 1: 444.1903 [1: 473.1958 Repr. ed.]. 'Vedi-babhal'.



f.30. *Acacia pennata* (L.) Willd.

Small trees with deeply cracked bark, thorns usually *ca.* 6.2 cm long stout, white. Pods. 10–12 × 0.2 cm, shortly stalked, slightly constricted between the seeds.

Fls. & Frts. : August–December.

Distrib. : Versova, Almeida (1998).

ssp. *indica* (Bth.) Brenan in Kew Bull. 12 : 84.1957; Sanj. Leg. India 42.1991. *A. arabica* (Lam.) Willd. var. *indica* Bth. in Hook. J. Bot. Kew Gard. Misc. 1: 500.1842. *A. arabica auct. non* (Lam.) Willd. 1806; Baker in Hook. f. Fl. Brit. India 2 : 293.1878; Cooke, Fl. Pres. Bombay 1: 472.1958 (Repr. ed.). '*Babhul*'.

Trees, 6–10 m tall. Leaves bipinnately compound; pinnae 4–9 pairs, leaflets 10–25 pairs, 0.4–0.6 × 0.2 cm, elliptic, oblique at base, rounded at apex; stipular thorns straight, 2–3 cm long, white. Flowers yellow, in globose heads *ca.* 1 cm across. Pods 12–18 × 1–5 cm, constricted between the seeds, beaked at apex, 10–13-seeded.

Fls. & Frts. : August–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 480, f. 272.1909. (*Acacia arabica*).

Distrib. : Occasional. 168989.

Acacia pennata (L.) Willd. Sp. Pl. 4: 1090.1806; Baker in Hook. f. Fl. Brit. India 2 : 297.1878 *p.p.*; Cooke, Fl. Pres. Bombay 1: 480.1958 (Repr. ed.); Nielsen in Adansonia 19: 352.1980; Sanj. Leg. India 42.1991. *Mimosa pennata* L. Sp. Pl. 522.1753. '*Chilar*', '*Shembi*'.

Straggling shrubs, Stems and branches armed with prickles. Leaves bipinnately compound; pinnae 10–15 pairs, leaflets 40–50 pairs, 0.5–0.8 cm, elliptic, obliquely truncate at base, sessile. Flowers cream-coloured, in heads *ca.* 1.5 cm across, 1–3, in terminal and axillary racemes. Pods 5–15 × 2.0–2.4 cm, obtuse and beaked at apex, stipitate, 8–12-seeded.

Fls. & Frts. : August–October.

Distrib. : Frequent. 167272.

ALBIZIA Durazz.

- | | | | |
|----|--|-----|-------------------|
| 1. | Flowers pedicelled; heads in umbels calyx <i>ca.</i> 0.4 cm long | ... | <i>A. lebbek</i> |
| 1. | Flowers sessile; heads in panicles, calyx less than 0.3 cm long | ... | <i>A. procera</i> |

Albizia lebbeck (L.) Bth. in Hook. London J. Bot. 3 : 87.1844 *p.p.* (*lebbeck*); Baker in Hook. f. Fl. Brit. India 2 : 298.1878; Cooke, Fl. Pres. Bombay 1: 481.1958 (Repr. ed.); Neilsen in Adansonia 19: 220.1979; Sanj. Leg. India 56.1991. *Mimosa lebbeck* L. Sp. Pl. 516.1753. '*Shirish*'.

Trees, 15–20 m tall; branchlets pubescent. Leaves bipinnately compound; pinnae 2–3 pairs; leaflets 4–8 pairs, 2–4 × 1.3–2.2 cm, basal ones oblong–elliptic, terminal ones obovate, obliquely obtuse at base, obtuse to retuse at apex, glabrous above, pubescent on nerves beneath. Flowers greenish–yellow, in heads, *ca.* 3 cm across, axillary in umbellate clusters or solitary. Pods 8–20 × 3.5–4.5 cm, shining yellow, obtuse at base and apex, *ca.* 10–seeded.

Fls. & Frts. : March–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 495, f. 280 & 281.1909; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 241.1982.

Distrib. : Occasional. 167762.

Albizia procera (Roxb.) Bth. in Hook. London J. Bot. 3 : 89.1844; Baker in Hook. f. Fl. Brit. India 2 : 299.1878; Cooke, Fl. Pres. Bombay 1: 482.1958 (Repr. ed.); Neilsen in Adansonia 19: 223.1979; Sanj. Leg. India 58.1991. *Mimosa procera* Roxb. Pl. Cor. 2 : 12, t. 121.1799. '*Kalashirish*'.

Trees, 15–20 m tall. Leaves pinnately compound, 10–25 cm long; leaflets 6–12 pairs, 2–4 × 1.5–2.0 cm, ovate–oblong. Flowers greenish–yellow, in terminally paniced heads, Pods 8–15 × 1.5–2.3 cm, brown, flat, oblong, apex acute. Seeds spherical, compressed, 6–10.

Fls. & Frts. : May–November.

Illus. : Ic. Roxb. Fasc. 6, t. 15.1973. (Repr. ed.).

Distrib. : Borivli, P. S. Herbert, 2660 (BLAT).

ENTADA Adans. (*nom. cons.*)

Entada rheedeii Spreng. Syst. Veg. 2 : 325.1825; Panigr. in Taxon 34: 714.1985; Sanj. Leg. India 65.1991. *E. pursaetha* DC. Prodr. 2 : 425.1825; Brenan in Kew Bull. 20 : 363.1967. *E. scandens auct. non* Bth.1841; Baker in Hook. f. Fl. Brit. India 2 : 287.1878; Cooke, Fl. Pres. Bombay 1: 465.1958 (Repr. ed.). '*Thorli-gunj*'.

Lianas up to 30 m long. Leaves bipinnately compound; pinnae 2 pairs, leaflets 4 pairs, 2–5 × 1.5–2.5 cm, ovate–obovate, subacute–cuneate at base, obtuse and retuse at apex, tendrils forked, hooked. Flowers polygamous, cream–coloured, in pendulous *ca.* 20 cm

long spikes. Pods up to 80 cm long *ca.* 10 cm broad, woody, segmented. Seeds *ca.* 10, 4–6 cm across, ovoid, compressed.

Fls. & Frts. : March–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 243.1982 (*Entada pursaetha*).

Distrib. : Koppikar (1974).

LEUCAENA Bth.

Leucaena latisiliqua (L.) Gillis in *Taxon 23* : 190.1974; Sanj. Leg. India 67.1991. *Mimosa latisiliqua* L. Sp. Pl. 519.1753. *Leucaena glauca* Bth. in Hook. London. J. Bot. 4: 416.1845; Baker in Hook. f. Fl. Brit. India 2 : 290.1878; Cooke, Fl. Pres. Bombay 1: 469.1958 (Repr. ed.). '*Kubabhul*'.

Trees up to 16 m tall, deciduous. Leaves bipinnately compound; pinnae 3–6 pairs, leaflets 10–15 pairs, 0.5–1.0 × 0.2–0.3 cm, linear-oblong, oblique at base, acute at apex, glabrous above, pubescent beneath. Flowers creamy, in dense, globose heads 1.5–2.5 cm across. Pods 6–16 × 1.5–2.0 cm, flat, linear-oblong strap-shaped, 15–20-seeded.

Fls. & Frts. : July–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 245, 1982.

Distrib. : Cultivated for artificial afforestation and becoming naturalised. 167711, 168904.

MIMOSA L.

Mimosa pudica L. Sp. Pl. 518.1753; Baker in Hook. f. Fl. Brit. India 2 : 291.1878; Cooke, Fl. Pres. Bombay 1: 470.1958, Sanj. Leg. India 69.1991 (Repr. ed.). '*Lajalu*'.

Herbs, Stems and branches spreading, diffuse, prickly. Leaves pinnately compound; pinnae 2–3 pairs; leaflets 12–20 pairs, 0.6–0.8 × 0.5–0.6 cm, elliptic-oblong, truncate or obtuse at base, acute at apex, margins ciliate, sensitive. Flowers pink, in axillary, 2–3 globose heads *ca.* 1.5 cm. across. Pods 1.5–2.0 × 0.5 cm, flat, falcate, obtuse at apex, shortly beaked, margins bristly. Seeds 2–5, ovoid.

Fls. & Frts. : September–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 246.1982.

Distrib. : Bushes, frequent in open areas along coastal line. 168458.

NEPTUNIA Lour.

Neptunia oleracea Lour. Pl. Cochinch. 654.1790; Baker in Hook. f. Fl. Brit. India 2 : 285.1878; Cooke, Fl. Pres. Bombay 1: 463.1958 (Repr. ed.); Sanj. Leg. India 69.1991.

Herbs. Stems floating, soft, swollen; roots fibrous, from nodes. Leaves bipinnate, alternate, ca. 6 cm long; pinnae 2-3 pairs, leaflets 10-15 pairs, 0.8-1.2 × 0.1-0.3 cm, narrowly oblong, truncate at base, obtuse at apex, petioles 4-5 cm long. Flowers yellow, in axillary, solitary, peduncled, oblong heads. Pods 1.5-2.5 × 0.6-0.8 cm, oblong, turgid, septate. Seeds 6-9, obovoid-oblong.

Fls. & Frts. : October-December.

Illus. : Windler in Austr. J. Bot. 14: 401. f. 10.1966.

Distrib. : Vihar lake Collector? 10377, 11291 (BLAT)

PROSOPIS L.

Prosopis juliflora (Sw.) DC. Prodr. 2 : 447.1825; Kosterm. in Dassan. & Forb. Rev. Handb. Fl. Ceylon 1: 468.1980. Burkart in J. Arnold 57. 499.1976; Sanj. Leg. India 72.1991. *Mimosa juliflora* Sw. Prodr. 85.1788.

Scandent shrubs or small trees up to 8 m tall. Stems and branches armed with axillary spines ca. 1.5 cm long. Leaves bipinnately compound; pinnae 1-2 pairs, leaflets 12-20 pairs, 0.6-1.5 × 0.2-0.3 cm, oblong, obtuse at base and apex, inequilateral. Flowers creamy, in axillary spikes, solitary or 2-4 in clusters. Pods 10-20 × 0.6-0.7 cm, straight or curved, flat, septate, drooping, indehiscent. Seeds ovoid.

Fls. & Frts. : January-May.

Illus. : Mahesh. Illus. Fl. Delhi f. 78.1966.

Distrib. : Occasional. 167498.

XYLIA Bth.

Xylia xylocarpa (Roxb.) Taub. Bot. Centralbl. 67: 395.1891; Sanj. Leg. India 73.1991; Londhe in Singh & Karthik. Fl. Maharashtra 1: 824. 2000. *Mimosa xylocarpa* Pl. Cor. 1: 68, t. 100.1796 & Fl. Ind. 2 : 543.1832. *Xylia dolabriformis* Bth. in Hook. London J. Bot. 4: 417.1845;

Baker in Hook. f. Fl. Brit. India 2 : 286.1878; Cooke, Fl. Pres. Bombay 1: 465.1958 (Repr. ed.). '*Jambha*'.

Trees 15–20 m tall. Leaves bipinnate; leaflets 2–4 pairs diminishing in size downwards, terminal 6–15 × 3–4 cm, lowest pair 3.0–3.5 cm long. oblong, elliptic-oblong, rounded at base, acute at apex, glabrous. Flowers creamy-white, in dense globose, peduncled heads 1.2–1.8 cm across. Pods 10–15 × 2.5–3.5 cm, woody, oblong, falcate, rusty-tomentose, dehiscent, 6–10-seeded. Seeds oblong-ellipsoid, compressed.

Fls. & Frts. : March–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 468. f. 265.1909.

Distrib. : Anjankar & Bharati (1999).

CULTIVATED SPECIES :

Acacia auriculiformis A. Cunn. ex Bth. in Hook. J. Bot. Kew Gard. Misc. 1: 377.1842; Sen & Naskar in Bull. Bot. Surv. India 7: 31.1958. Sanj. Leg. India 45.1991.

Trees up to 15 m tall. Phyllodes, alternate, oblong-elliptic, falcate, attenuate at base, obtuse at apex, coriaceous, palminerved, petioles up to 2 cm long. Flowers numerous, yellow, in axillary, solitary or paired spikes 6–8 cm long, pods spirally twisted, *ca.* 5-seeded.

Fls. & Frts. : August–February.

Illus. : Mahesh. Illus. Fl. Delhi f. 71.1966.

Distrib. : Cultivated along road sides and in gardens. 167310, 168953.

Parkia biglandulosa Wight & Arn. Prodr. 279.1834; Baker in Hook. f. Fl. Brit. India 2 : 289.1878; Cooke, Fl. Pres. Bombay 1: 486.1958 (Repr. ed.); Sanj. Leg. India 70.1991. '*Chendu-phul*'.

Trees up to 20 m tall. Leaves bipinnately compound; pinnae 20–40 pairs, leaflets 60–100 pairs, oblong, truncate at base, obtuse-acute at apex, glabrous above, puberulous beneath. Flowers polygamous, creamy, in pendulous, globose, solitary heads *ca.* 3–5 cm across, peduncles 5–20 cm long. Pods 12–25 × 0.5–0.6 cm, linear, stipitate, reticulate. Seeds ellipsoid-oblong, compressed to ovoid.

Fls. & Frts. : December–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 248.1982.

Distrib. : Noted specimen in garden; *Pradhan s.n.* (Native of Africa planted in gardens).

Pithecellobium dulce (Roxb.) Bth. in Hook. London. J. Bot. 3 : 199.1844 (*Pithecolobium*); Baker in Hook. f. Fl. Brit. India 2 : 302.1878; Cooke, Fl. Pres. Bombay 1: 485.1985 (Repr. ed.); Sanj. Leg. India 71.1991. *Mimosa dulcis* Roxb. Pl. Cor. 1: 67, t. 99.1798 & Fl. Ind. 2 : 556.1832. '*Vilayati-chinch*'.

Trees, 3–7 m tall, branches tomentose, Leaves bipinnate; pinnae 2 pairs, leaflets in pairs, oblong-oblancheolate, inequilateral, obtuse at base and apex; stipular spines erect *ca.* 2 cm long. Flowers creamy, in terminal and axillary, paniced heads. Pods 6–8 × 1 cm, strap-shaped, circinate, falcate, moniliform, turgid. Seeds orbicular; aril whitish, edible.

Fls. & Frts. : January–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 249.1982.

Distrib. : Native of Mexico & Central America, cultivated in gardens. 168950.

Samanea saman (Jacq.) Merr. in Journ. Wash. Acad. Sci. 6: 46.1916; Sanj. Leg. India 72.1991. *Mimosa saman* Jacq. Frag. Bot. 15, t. 9.1800. *Pithecolobium saman* (Willd.) Bth. in Hook. London J. Bot. 3 : 199.1844; Cooke, Fl. Pres. Bombay 1: 485.1958 (Repr. ed.). '*Rain tree*'.

Lofty trees with spreading branches. Leaves with 3–7 pairs of pinnae, dark green. Flowers pink, in globose heads. Pods fleshy, dark brown with firm sutures.

Fls. & Frts. : March–July.

Illus. : Chakrevarty *et al.* Beaut. Trees & Shrubs of Calcutta 159.1984.

Distrib. : Native of Tropical America, planted in gardens. Malad Almeida (1998).

VAHLIACEAE

VAHLIA Thunb. (*nom. cons.*)

Vahlia digyna (Retz.) O. Ktze. Rev. Gen. Pl. 3 : 227.1891; Bridson in Kew Bull. 30 : 164 f. 1, A–H, 1975. *Oldenlandia digyna* Retz. Obs. Bot. 4: 23.1786. *Vahlia viscosa* Roxb. Fl. Ind. 2 : 89.1832; C. B. Cl. in

Hook. f. Fl. Brit. India 2 : 399.1878; Cooke, Fl. Pres. Bombay 1: 493.1958 (Repr. ed.).

Herbs. Stems erect or diffuse. Leaves 1.2–2.3 × 0.3–0.6 cm, oblong–lanceolate, truncate–obtuse at base, acute at apex. Flowers yellowish, in pairs, in upper leaf axils, sessile. Capsules 0.2–0.3 cm across, subglobose. Seeds, ovoid, numerous.

Fls. & Frts. : January–April.

Illus. : Bridson, *op. cit.*; Matthew *Illus. Fl. Tamilnadu Carnatic* 2 : t. 253.1982.

Distrib. : Borivli, *P. S. Herbert*, 705. & *H. Santapau*, 23561 (BLAT).

CRASSULACEAE

KALANCHOE Adans.

Kalanchoe pinnata (Lam.) Pers. Syn. Pl. 1: 446.1805; Backer in Steenis, Fl. Males. 1, 4: f. 1.199.1951; Sant. & Wagh in Bull. Bot. Surv. India 5: 107 (1963) 1964. *Cotyledon pinnata* Lam. Encycl. 2 : 141.1786. *Bryophyllum calycinum* Salisb. Parad. Lond. t. 3.1805; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 443.1878; Cooke, Fl. Pres. Bombay 1: 494.1958 (Repr. ed.). '*Panphuti*'.

Herbs, 0.3–1.0 m tall, succulent. Leaves decussate, lower ones simple, seldom compound, upper ones 3–5 or 7–foliolate; leaflets ovate, elliptic–oblong, margins crenate. Flowers reddish–purple, pedicellate, pendent in panicles. Fruits enclosed by persistent calyx. Seeds minute, oblong, ellipsoid.

Fls. & Frts. : January–February.

Illus. : Backer *op. cit.*

Distrib. : Borivli, *H. Santapau*, 237 (BLAT)

DROSERACEAE

DROSERA L.

Drosera indica L. Sp. Pl. 282.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 424.1878; Cooke, Fl. Pres. Bombay 1: 499.1958 (Repr. ed.).

Herbs, 2.5–6.0 cm high; stems suberect or decumbent, glandular–pubescent. Lower leaves 2.5–6.0 cm long; linear, circinate, deflexed; upper ones 1.0 – 4.0 cm long, narrow, linear, glandular–tentacled above, glabrous beneath. Flowers rosy, in 7–20 cm, long, leaf–opposed racemes. Capsules 3–valved. Seeds minute, obovoid, reticulate.

Fls. & Frts. : October–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 255.1982.

Distrib. : Salsette, *G. L. Shah* (1962); Borivli, Malad, *Almeida* (1998).

HALORAGACEAE

MYRIOPHYLLUM L.

Myriophyllum oliganthum (Wight & Arn.) F. V. Muell. *Fragm. Phyt. Austr.* 10 : 54.1876; van der Meijden in *Blumea* 17: 308.1969. *Haloragis oligantha* Wight & Arn. *Prodr.* 338.1834. *Myriophyllum intermedium* Wight, *Illus.* 2 : 23, t. 102 excl. f. 8.1850 *auct. non* DC.1828; C. B. Cl. in *Hook. f. Fl. Brit. India* 2 : 433.1878; Cooke, *Fl. Pres. Bombay* 1: 500.1958 (Repr. ed.).

Aquatic herbs, submerged or floating. Leaves 1.5–3.0 × 0.05 cm, linear, upper leaves mostly alternate and decussate with serrate margins, lower ones whorled, pinnatifid with filiform segments. Flowers yellow, 3–5, in axillary clusters, bisexual or unisexual. Drupes minute, oblong, rugose; mericarps 4, each 1-seeded.

Fls. & Frts. : July–September.

Illus. : Wight, *lc.* t. 1061.1846 (*Haloragis oligantha*); Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : 257.1968.1982.

Distrib. : *Koppikar* (1974).

RHIZOPHORACEAE

1. Flowers bracteolate :

2. Calyx 4-lobed

... RHIZOPHORA

2. Calyx lobes more than 4 :

- | | | | |
|----|--|-----|-----------|
| 3. | Stigmas simple | ... | CERIOPS |
| 3. | Stigmas 3-5-lobed or fid : | | |
| 4. | Seeds albuminous; roots not viviparous | ... | CARALLIA |
| 4. | Seeds exalbuminous; roots viviparous | ... | KANDELIA |
| 1. | Flowers ebracteolate | ... | BRUGUIERA |

BRUGUIERA Lam.

- | | | | |
|----|---|-----|----------------------|
| 1. | Flower solitary, 2.5-3.5 cm long | ... | <i>B. gymnorhiza</i> |
| 1. | Flowers 2-5, in axillary cymes, less than 1.2 cm long : | | |
| 2. | Calyx ribbed, tube much longer than lobes | ... | <i>B. parviflora</i> |
| 2. | Calyx not ribbed, tube as long as lobes | ... | <i>B. cylindrica</i> |

Bruguiera cylindrica (L.) Bl. Enum. Pl. Jav. 1: 93.1827; Ding Hou in Steenis, Fl. Males. 1, 5: 467.1958; Mitra & Banerjee in Bull. Bot. Surv. India 21: 149.1981; *Rhizophora cylindrica* L. Sp. Pl. 443.1753. *Bruguiera caryophylloides* (Burm. f.) Bl. op. cit.; Henslow in Hook. f. Fl. Brit. India 2 : 438.1878; Cooke, Fl. Pres. Bombay 1: 505.1958 (Repr. ed.).

Shrubs or trees, 3-4 m tall. Leaves 5-9 × 2.5-3.0 cm, elliptic, oblanceolate, elliptic-lanceolate, cuneate at base, acute at apex. Flowers greenish, in axillary, 3-flowered, peduncled cymes. Fruits ca. 21 cm long, oblong-obovoid. Radicle ca. 10 × 0.8 cm.

Fls. & Frts. : August-September.

Distrib. : Ghodbundar, C. McCann, 5001-3 (BLAT)

Bruguiera gymnorhiza (L.) Savi. in Lam. Encycl. 4: 696.1798; Henslow in Hook. f. Fl. Brit. India 2 : 437.1878; Cooke, Fl. Pres. Bombay 1: 504.1958 (Repr. ed.); Ding Hou in Steenis; Fl. Males. 1, 5: 446.1958. *Rhizophora gymnorhiza* L. Sp. Pl. 443.1753.

Shrubs or trees. 4-8 m high. Leaves 8-15 × 4-7 cm, elliptic or elliptic-lanceolate, cuneate at base, acute at apex. Flowers reddish outside, creamy inside, axillary; pedicels ca. 1 cm long. Fruits ca. 2 cm long, obconic, scarlet. Radicle fusiform, up to 30 cm long.

Fls. & Frts. : December-February.

Illus. : Ic. Roxb. Fasc. 6, t. 23.1973 (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 258.1982.

Distrib. : Borivli, P. S. Herbert, 369, Ghodhundar, H. Santapau, 17945-6 (BLAT)

Bruguiera parviflora (Roxb.) Wight & Arn. Prodr. 311.1834 & in Griff. Trans. Med. Phys. Soc. Cal. 8: 10.1836; Henslow in Hook. f. Fl. Brit. India 2 : 438.1878; Cooke, Fl. Pres. Bombay 1: 505.1958 (Repr. ed.). *Rhizophora parviflora* Roxb. Fl. Ind. 2 : 461.1832.

Shrubs or small trees 3–5 m high, evergreen. Leaves 6–10 × 2.5–3.5 cm, oblong–lanceolate, cuneate at base, acute at apex, shining above. Flowers white, in lax, erect cymes. Fruits covered by persistent calyx. Radicle cylindric, 8–12 cm long.

Fls. & Frts. : December–March.

Distrib. : Ghodbundar, *McCann*, 3693 (BLAT).

CARALLIA Roxb. (*nom. cons.*)

Carallia brachiata (Lour.) Merr. in Phillip. J. Sci. Bot. 15: 249.1919; Ding Hou in Steenis, Fl. Males. 1, 5: 485. f. 24.1958; Rathak. & Ram Saran in J. Bombay nat. Hist. Soc. 80 : 665.(1983) 1984. *Diatoma brachiata* Lour. Fl. Cochinch. 296.1790. *Carallia integerrima* DC. Prodr. 3 : 33.1828; Henslow in Hook. f. Fl. Brit. India 2 : 439.1878 p. p.; Cooke, Fl. Pres. Bombay 1: 506.1958 (Repr. ed.). '*Phanashi*'.

Trees, 13–18 m high, evergreen. Leaves 5–10 × 2.5–6.0 cm, broadly elliptic, obovate–oblong to oblong–lanceolate, cuneate at base, rounded, emarginate or shortly acuminate at apex. Flowers white, sessile, in small, axillary heads forming peduncled cymes. Fruits filiform, ca.0.6 cm across, red. Seed 1, orange.

Fls. & Frts. : December–March.

Illus. : Wight. Ic. t. 605.1848. Talbot, For. Fl. Bombay Pres. & Sind 2 : 10, f. 292.1911 (*Carallia integerrima*).

Distrib. : Borivli, *McCann*. 4637–8 (BLAT).

CERIOPS Arn.

Ceriops tagal (Perr.) C. B. Robins. in Phillip. J. Sci. Bot. 3 : 306.1908; Ding Hou in Steenis, Fl. Males. 1, 5: 469. f. 24.1958. *Rhizophora tagal* Perr. in Mem. Soc. Linn. 3 : 138.1824. *Ceriops candolleana* Arn. in Ann. Nat. Hist. 1: 364.1838; Henslow in Hook. f. Fl. Brit. India 2 : 436.1878; Cooke, Fl. Pres. Bombay 1: 503.1958 (Repr. ed.). '*Chauri*'.

Shrubs, 0.7–2.5 m tall with lenticellate bark. Leaves 4–8 × 1.5–4.0 cm, obovate–oblong or spatulate, fleshy, tapering at base, rounded or emarginate at apex. Flowers white, nearly sessile, in axillary clustered

cymes. Fruits 1.0–1.5 cm long, slightly conical with persistent fleshy calyx.

Fls. & Frts. : February–May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 11, f. 293.1911 (*Ceriops candolleana*); Ding Hou *op. cit.*

Distrib. : Very common along mangrove belt at Ghodbunder. 167379.

KANDELIA Wight & Arn.

Kandelia candel (L.) Druce in Rep. Bot. Exch. Club. Brit. Isles 1913, 3 : 420.1914; Ding Hou in Steenis, Fl. Males. 1, 5: 472. f. 26.1958. *Rhizophora candel* L. Sp. Pl. 443.1753. *Kandelia rheedii* Wight & Arn. Prodr. 1: 311.1834; Henslow in Hook. f. Fl. Brit. India 2 : 437.1878; Cooke, Fl. Pres. Bombay 1: 504.1958. (Repr. ed.).

Trees up to 3 m tall. Leaves 6–12 × 2.5–3.5 cm, elliptic–oblong, narrowed at base, obtuse at apex. Flowers in axillary cymes; petals bifid with lobes divided into numerous capillary segments. Drupes 1.25–2.5 cm long; calyx persistent, reflexed, hypocotyl 15–30 cm long, cylindrical.

Fls. & Frts. : February–July.

Illus. : Wight, Ic. t. 239.1839. (*Kandelia rheedii*); Talbot, For. Fl. Bombay Pres. & Sind 2 : 6. f. 290.1911; Ding Hou *op. cit.*

Distrib. : Salsette, Almeida (1998).

RHIZOPHORA L.

Rhizophora mucronata Poir. in Lam. Tabl. Encycl. 2 : 517.1794 & Encycl. Method. 6: 189.1804; Henslow in Hook. f. Fl. Brit. India 2 : 435.1878; Cooke, Fl. Pres. Bombay 1: 501.1958 (Repr. ed.); Ding Hou in Blumea 10 : 629.1960. '*Kandel*'.

Trees up to 15 m tall. Leaves 5–15 × 4.5–8.0 cm, oblong–elliptic, cuneate at base, acute at apex, mucronate. Flowers creamy white, subsessile, in pedunculate, branched cymes. Drupes 3.0–4.0 cm long, conical–ovoid with persistent calyx lobes.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 238.1839; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 260.1982.

Distrib. : G. L. Shah. (1962).

COMBRETACEAE

- | | | |
|---------------------------------------|-----|--------------|
| 1. Petals present : | | |
| 2. Leaves alternate; calyx persistent | ... | LUMNITZERA |
| 2. Leaves opposite; calyx deciduous | ... | COMBRETUM |
| 1. Petals absent : | | |
| 3. Calyx persistent, accrescent | ... | CALYCOPTERIS |
| 3. Calyx deciduous, not accrescent : | | |
| 4. Flowers in globose heads | ... | ANOGEISSUS |
| 4. Flowers in spikes | ... | TERMINALIA |

ANOGEISSUS (DC.) Guill. & Perr.

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill. & Perr. Fl. Seneg. Tent. 1: 280.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 450.1878; Cooke, Fl. Pres. Bombay 1: 512.1958 (Repr. ed.); Scott in Kew Bull. 33 : 560.1979. *Conocarpus latifolia* Roxb. ex DC. Prodr. 3 : 17.1828. 'Dhavada'.

Trees, 15-20 m tall, deciduous. Leaves 6-11 × 3-5 cm, alternate or subopposite, elliptic or oblong-elliptic to ovate-oblong, coriaceous, rounded at base, obtuse at apex. Flowers yellow, sessile, in small dense, axillary, pedunculate heads. Fruits 0.4-0.6 cm across, 2-winged, orbicular, beaked, several crowded in globular heads. Seeds ellipsoid.

Fls. & Frts. : March-July.

Illus. : Wight, Ic. t. 994.1845 (*Conocarpus latifolia*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 261.1982.

Distrib. : Frequent in forests. 167777.

CALYCOPTERIS Lam.

Calycopteris floribunda (Roxb.) Poir. in Lam. Encycl. (Suppl.) 2 : 41.1811 & Tabl. Encycl. 2 : t. 357.1793; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 449.1878; Cooke, Fl. Pres. Bombay 1: 512.1958 (Repr. ed.). *Getonia floribunda* Roxb. Pl. Cor. t. 87.1798 & Fl. Ind. 2 : 428.1832. 'Ukshi'.

Lianas, 8-12 m long; branchlets tomentose. Leaves 5-12 × 2.5-5.0 cm, alternate or subopposite, oblong or elliptic-oblong, rounded at

base, acuminate at apex, glabrous above, tomentose beneath. Flowers in dense, terminal or axillary, 15–30 cm long panicles. Fruits 0.8–1.0 cm, ovoid–ellipsoid, 5–ribbed, crowned by persistent calyx lobes, tomentose, 1-seeded.

Fls. & Frts. : February–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : tt. 262 & 969.1982.

Distrib. : Abundant. 168960.

COMBRETUM Loefl. (*nom. cons.*)

Combretum albidum G. Don in *Trans. Linn. Soc. London* 15: 429.1824; Gang. & T. Chakrav. in *J. Econ. Tax. Bot.* 21: 301.1997. *C. ovalifolium* Roxb. *Fl. Ind.* 2 : 226.1832; C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 458.1878; Cooke, *Fl. Pres. Bombay* 1: 515.1958 (Repr. ed.). '*Mad-vel*'.

Large scandent shrubs 20–40 m long. Leaves 5–10 × 3–5 cm, decussate, oblong or ovate–lanceolate, narrowed at base, acuminate and apiculate at apex, subacute or cuneate at base, glabrous. Flowers greenish–yellow, polygamo–dioecious, bisexual, in terminal and or axillary paniculate spikes. Fruits 2.0–2.5 cm, 4–5–angular, 4-winged. Seeds solitary.

Fls. & Frts. : January–April.

Illus. : Ic. Roxb. *Fasc.* 7, t. 5.1976 (Repr. ed.). Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 263.1982.

Distrib. : Abundant in National park. 167457, 16897–168993.

LUMNITZERA Willd.

Lumnitzera racemosa Willd. in *Ges. Naturf. Fr. Berlin Neue Schr.* 4: 187.1803; C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 452.1878; Cooke, *Fl. Pres. Bombay* 1: 514.1958 (Repr. ed.); Exell in Steenis, *Fl. Males.* 1, 4: 588.1954; Gang. & T. Chakrav. in *J. Econ. Tax. Bot.* 21: 326.1997.

Shrubs or small trees. Leaves 2.5–5.0 × 1.5–2.0 cm. oblanceolate or obovate, tapering at base, rounded or emarginate at apex, margins entire or crenulate, glabrous and fleshy, crowded at the ends of branches. Flowers white, in short, axillary spikes. Fruits ca. 1 cm long, ovoid, angled, crowned by persistent calyx.

Fls. & Frts. : January–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 24, f. 302.1911.

Distrib. : G. L. Shah (1969), Malad, Almeida (1998).

TERMINALIA L. (*nom. cons.*)

- | | | |
|-----------------------------|-----|---------------------|
| 1. Fruits distinctly winged | ... | <i>T. elliptica</i> |
| 1. Fruits not winged | ... | <i>T. bellirica</i> |

Terminalia bellirica (Gaertn.) Roxb. Pl. Cor. 2 : 54, t.198.1805 & Fl. Ind. 2 : 431.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 445.1878; Cooke, Fl. Pres. Bombay 1: 508.1958 (Repr. ed.). *Myrobalanus bellirica* Gaertn. Fruct. Sem. Pl. 2 : 90, t. 97.1791. 'Behda'.

Trees, 15–20 m tall; branchlets warty with persistent leaf scars. Leaves 10–20 × 6–15 cm, crowded at the ends of branches, alternate, ovate, obovate or broadly elliptic, cuneate or attenuate, obtuse and oblique at base, rounded or emarginate at apex, margins subcrenulate. Flowers greenish–yellow, axillary, solitary or clustered in spikes up to 8 cm long. Drupes ca. 2.5 × 2.0 cm, subglobose, tomentose.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 91.1838; Talbot, For. Fl. Bombay Pres. & Sind 2 : 13, f. 294.1911.

Distrib. : Occasional. 168905.

Terminalia elliptica Willd. Sp. Pl. 4: 969.1806; Gang. & T. Chakrav. in J. Econ. Tax. Bot. 10 : 601.1992 & Ibid. 21: 351, f. 21 A.1997. *T. alata* Roth, Nov. Sp. Pl. 379.1821. *T. crenulata* Roth, Nov. Sp. Pl. 380.1821. *T. tomentosa* (DC.) Wight & Arn. Prodr. 314.1834; *non* Mart.1829; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 447.1878; Cooke, Fl. Pres. Bombay 1: 510.1958 (Repr. ed.).

Trees up to 20 m tall; branchlets rusty–pubescent. Leaves 5–18 × 5–7 cm, subopposite or alternate, elliptic or obovate–oblong, subcordate and oblique at base, acute or obtuse at apex. Flowers yellow, in terminal and axillary, ca. 15 cm long, pedunculate spikes; peducles ca. 4 cm long. Drupes ca. 4 × 5 cm 5-winged, ovoid.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t.195.1839; Talbot, For. Fl. Bombay Pres. & Sind 2 : 18, f. 297.1911. (*T. tomentosa*).

Distrib. : Frequent in deciduous forests. 167776.

CULTIVATED SPECIES :

Quisqualis indica L. Sp. Pl. ed. 2 : 556.1762; C. B. Cl. in Hook. f. Fl. Birt. India 2 : 459.1878; Cooke, Fl. Pres. Bombay 1: 517.1958 (Repr. ed.); Gang. & T. Chakrav. in J. Econ. Tax. Bot. 21: 357, f. 22 B 1997. '*Rangoon-vel*', '*Rangoon creeper*'.

Large straggling shrubs. Leaves elliptic-oblong, rounded or subcordate at base, acuminate at apex. Flowers in terminal, corymbose spikes, white, turning pink to red. Fruits ovoid or ellipsoid.

Fls. & Frts. : Almost through out the year.

Illus. : Gang. & T. Chakrav. *op. cit.*

Distrib. : Malad, Almeida (1998).

Terminalia catappa L. Syst. Nat. ed. 2, 674.1767; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 444.1878; Cooke, Fl. Pres. Bombay 1: 511.1958 (Repr. ed.); Gang. & T. Chakrav. in J. Econ. Tax. Bot. 21: 343, f.18 B.1997. '*Jangli-badam*'.

Trees 8-12 m tall. branches radiating, forming horizontal whorls. Leaves crowded at the ends of branches, obovate. Flowers whitish, in axillary spikes, Fruits ellipsoid. reddish-green.

Fls. & Frts. : April-October.

Illus. : Wight, Ic. t.172.1839; Gang. & T. Chakrab. *op. cit.*

Distrib. : G. L. Shah (1984).

MYRTACEAE

SYZYGIVM Gaertn. (*nom. cons.*)

- 1. Petioles 0.3-0.9 cm long :
 - 2. Inflorescence terminal; calyx campanulate ... *S. caryophyllatum*
 - 2. Inflorescence and calyx not as above ... *S. heyneanum*
- 1. Petioles 1.2-2.5 cm long :
 - 3. Fruits ca. 2 cm long, ovoid ... *S. cumini*
 - 3. Fruits less than 1 cm long, irregular in shape ... *S. caryophyllifolia*

Syzygium caryophyllum (L.) Alst. in Trim. Handb. Fl. Ceylon 6: 116.1931; Sant. Fl. Khandala ed. 3, 92.1967; Bole & Almeida in J. Bombay nat. Hist. Soc. 79: 309.1982; Almeida, Fl. Mah. 2 : 269.1988. *Myrtus caryophyllum* L. Sp. Pl. 472.1753. *Eugenia corymbosa* Lam. Encycl. Meth. 3 : 199.1789; Cooke, Fl. Pres. Bombay 1: 522.1958 (Repr. ed.). *E. caryophyllaea* Wight, Illus. 2 : 15.1850; Duthie in Hook. f. Fl. Brit. India 2 : 490.1879. '*Ran-lavang*'.

Shrubs or small trees, 2–5 m high. Leaves 6–8 × 2–3.5 cm, subcoriaceous, obovate or elliptic, tapering at base, obtuse, acute or abruptly acuminate at apex. Flowers white, numerous, small in terminal corymbose, trichotomously branched, lax cymes. Fruits ca. 1 cm across, depressed globose, dark purple, ripening black.

Fls. & Frts. : March–May.

Illus. : Wight, Ic. t. 540.1842 (*Eugenia caryophyllaea*)

Distrib. : Navalkar (1956).

Syzygium caryophyllifolia (Lam.) DC. Prodr. 3 : 259.1828; Almeida, Fl. Mah. 2 : 270.1998. *Eugenia caryophyllifolia* Lam. Dict. 3 : 198.1789. *E. jambolana* Lam. var. *caryophyllifolia* (Lam.) Duthie in Hook. f. Fl. Brit. India 2 : 499.1879.

Leaves ovate, acuminate. Fruits ca. 1 cm long, irregular in size and shape. It resembles *Syzygium cumini* (L.) Skeels in all other characters.

Fls. & Frts. : March–May.

Illus. : Wight, Ic. t. 553.1842. (*Eugenia caryophyllifolia*)

Distrib. : Borivli, Almeida (1998).

Syzygium cumini (L.) Skeels in U. S. Dept. Agri. Bur. Pl. Industr. Bull. 248, 25.1912; Kulkarni in Singh *et al.* Fl. Maharashtra 2 : 10.2001. *Myrtus cumini* L. Sp. Pl. 471.1753. *Eugenia jambolana* Lam. Encycl. 3 : 198.1789; Duthie in Hook, f. Fl. Brit. India 2 : 499.1879; Cooke, Fl. Pres. Bombay 1: 523.1958 (Repr. ed.). '*Jambhul*'.

Trees, 10–15 m tall. Leaves 5–12 × 3–7 cm, elliptic or ovate-lanceolate, cuneate at base, acuminate at apex, coriaceous, glossy-green above, paler beneath, pellucid-dotted. Flowers dirty white, in heads on ends of lax, paniced cymes. Berries 1–2 × 0.8–1.5 cm, subglobose, to ellipsoid shining, purplish-black, edible. Seed 1, oblong.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 535.1842 (*Eugenia jambolana*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 271.1982.

Distrib. : Frequent. 167480, 168996.

Syzygium heyneanum (Duthie) Wall. ex Gamble, *Fl. Pres. Madras* 482.1919 [1: 341.1967 (Repr. ed.)]. *Eugenia heyneana* Duthie in Hook. f. *Fl. Brit. India* 2 : 500.1879; Cooke, *Fl. Pres. Bombay* 1: 524.1958 (Repr. ed.).

- | | | |
|---------------------------|-----|-----------------------|
| 1. Inflorescence lateral | ... | var. <i>heyneanum</i> |
| 1. Inflorescence axillary | ... | var. <i>alternans</i> |

var. *heyneanum*

Shrubs or small trees 2–5 m tall. Leaves 8–10 × 1.5–2.5 cm, oblong–lanceolate, or oblanceolate, tapering at base, subobtuse at apex, shining. Flowers white, sessile or shortly pedicelled, in paniced, extra–axillary cymes. Berries *ca.* 1.2–2.5 × 1 long, oblong–ellipsoid with persistent calyx.

Fls. & Frts. : March–May.

Illus. : Gandhi in Sald. & Nicol. *Fl. Hassan Dt.* 279, f. C–Cb.1976.

Distrib. : Borivli, Collector,? 28629 (*BLAT*)

var. *alternans* (Duthie) B. G. Kulkarni & Lakshminaras. in Singh *et al.* *Fl. Maharashtra* 2 : 11. 2001. *Eugenia heyneana* var. *alternans* Duthie in Hook. f. *Fl. Brit. India* 2 : 500.1879; Cooke, *Fl. Pres. Bombay* 1: 524.1958 (Repr. ed.). *Syzygium alternans* (Wight) Miq. ex Duthie in Hook. f. *Fl. Brit. India* 2 : 500.1879.

This variety differs from *Syzygium heyneanum* proper in having cymes in the axil of the upper leaves, all other characters are the same.

Fls. & Frts. : February–May.

Distrib. : Borivli, Malad, Almeida (1998).

CULTIVATED SPECIES :

Melaleuca leucodendron (L.). L. Mant. Pl. 105.1767; Duthie in Hook. f. *Fl. Brit. India* 2 : 465.1878; Bailey, *Man. Cult. Plants* 726.1949. (2nd. ed.). *Myrtus leucodendron* L. Mant. 105.1771.

Trees with thick spongy bark and pendulous branches. Leaves 5-12 × 1.2-0.6 cm, elliptic or oblong, tapering, at ends. Flowers creamy-white, in terminal, 5-8 cm spikes.

Distrib. : Borivli, *P. S. Herbert*, 606, & 1654-8 (*BLAT*)

Psidium guajava L. Sp. Pl. 470.1753; Duthie in Hook. f. Fl. Brit. India 2 : 468.1878; Cooke, Fl. Pres. Bombay 1: 529.1958 (Repr. ed.). 'Peru'.

Shrubs, 3-5 m tall with bark peeling off. Leaves oblong-elliptic. Flowers creamy-white, axillary, solitary. Berries 3-4-cm across. ovoid, pulpy.

Fls. & Frts. : November-June.

Distrib. : Native of Tropical America, cultivated for its edible fruits. *G. L. Shah* (1984).

Syzygium aromaticum (L.) Merr. & L. M. Perry in Amer. Acad. Arts & Sci. 18.196. 1939; Bennet, Name Changes Flower. Pl. India & Adj. Reg. 549.1987. *Caryophyllus aromaticus* L. Sp. Pl. 515.1753. 'Lavang'.

Dried flower buds are used as spices.

Distrib. : Salsette, *Graham* (1839).

LECYTHIDACEAE

CAREYA Roxb.

Careya arborea Roxb. Pl. Cor. 3 : 14, t. 218.1819 & Fl. Ind. 2 : 638.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 511.1879; Cooke, Fl. Pres. Bombay 1: 528.1958 (Repr. ed.); Manna & D. C. S. Raju in Bull. Bot. Surv. India 36: 225. (1994) 1997. 'Kumbhi'.

Trees, 15-20 m tall, deciduous; branchlets pubescent. Leaves 15-30 × 7-16 cm, broadly oblong-ovate, cuneate-subacute at base, shortly acuminate at apex, margins crenulate-denticulate, shining above. Flowers white, 6-8 cm across, fleshy, sessile, in terminal spikes on woody peduncles. Berries 5.0-7.5 cm across, globose, green.

Fls. & Frts. : March-April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 49, f. 316.1911; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 274.1982.

Distrib. : Frequent. 167446.

BARRINGTONIACEAE

BARRINGTONIA J. R. & J. G. A. Forst. (*nom. cons.*)

Barringtonia acutangula (L.) Gaertn. Fruct. Sem. Pl. 2 : 97, t. 101.1791; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 508.1879; Cooke, Fl. Pres. Bombay 1: 528.1958 (Repr. ed.); Payens in Blumea 15: 226.1967. *Eugenia acutangula* L. Sp. Pl. 421.1753. 'Tivar, Ingli'.

Trees, 6-5 m tall; branchlets densely tomentose. Leaves 7-13 × 3.5-7.5 cm, obovate-oblong or oblanceolate, attenuate at base, obtuse, subacute at apex, margins denticulate-crenulate, shining. Flowers scarlet, in axillary, 30-40 cm long racemes. Berries 3.0-3.5 × 1.2-1.8 cm, ovoid, angular. Seed 1, ovoid.

Fls. & Frts. : September-October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 273.1982.

Distrib. : Borivli, P. S. Herbert. 638, 930, 7056.

MELASTOMATACEAE

- | | | |
|--|-----|-----------|
| 1. Flowers in umbellate cymes; ovary glabrous | ... | MEMECYLON |
| 1. Flowers not in umbellate cymes; ovary apically bristled | ... | OSBECKIA |

MEMECYLON L.

Memecylon umbellatum Burm. f. Fl. Ind. 87.1768; Cooke, Fl. Pres. Bombay 1: 535.1958 (Repr. ed.). *M. edule* Roxb. Pl. Cor. 1. 59, t. 82.1798; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 563.1879 *p.p.* 'Anjan'.

Trees, 6-8 m tall. Leaves 6-9 × 3-5 cm, elliptic-ovate, attenuate at base, subacute or shortly acuminate, glossy above. Flowers blue, in umbellate clusters on old wood, pedicellate. Berries ca.0.6 cm across, globose, purplish-black, crowned by persistent calyx limb, 2-seeded.

Fls. & Frts. : January-April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 276.1982.

Distrib. : Frequent on hill tops. 167473.

OSBECKIA L.

Osbeckia muralis Naud. in Ann. Sci. Nat. Bot. 3, 14: 56.1850; Pradhan in Singh *et al.* Fl. Maharashtra 2 : 27. 2001. *O. truncata* D. Don ex Wight & Arn. Prodr. 322.1834. *p.p.*; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 514.1879; Cooke, Fl. Pres. Bombay 1: 530.1958 (Repr. ed.).

Annual herbs, 10–20 cm high; stems 4-gonous, covered with long stiff hairs. Leaves 1–3 × 0.5–1.5 cm, elliptic, subacute at base and apex, margins entire or finely serrulate, hairy, petioles bristly. Flowers purple, in capitate cymes; pedicels bristly hairy. Fruits ovoid-oblong.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 375.1840.

Distrib. : G. L. Shah (1969).

LYTHRACEAE

- | | | |
|--|-----|---------------|
| 1. Herbs : | | |
| 2. Capsules septicidal, faintly cross-veined | ... | RODALA |
| 2. Capsules circumscissile or bursting irregularly; smooth | ... | AMMANNIA |
| 1. Shrubs or trees : | | |
| 3. Petal margins fimbriate or crisped | ... | LAGERSTROEMIA |
| 3. Petal margins neither fimbriate, not crisped | ... | WOODFORDIA |

AMMANNIA L.

- | | | |
|---|-----|----------------------|
| 1. Calyx winged on angles | ... | <i>A. octandra</i> |
| 1. Calyx not winged on angles : | | |
| 2. Capsules wholly covered by calyx; petals developed | ... | <i>A. multiflora</i> |
| 2. Capsules not wholly covered by calyx;
petals minute or absent | ... | <i>A. baccifera</i> |

Ammannia baccifera L. Sp. Pl. 120.1753 & ed. 2, 175.1762; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 569.1879; Cooke, Fl. Pres. Bombay 1: 541.1958 (Repr. ed.); Almeida, Fl. Mah. 2 : 280.1998.

Herbs, 30–60 cm tall. Stems erect. Leaves 1.5–5.0 × 0.5–0.7 cm, elliptic-oblong, elliptic-lanceolate or oblanceolate, cuneate at base, acute at apex. Flowers in dense, axillary clusters or in short cymes. Capsules 0.1–0.15 cm across, depressed-globose, red. Seeds turgid, *ca.* 20.

Fls. & Frts. : December–February.

Illus. : Tad. & G. V. Narayana, Handb. S. Indian Weeds 174, f. 68.1955 (Rev. ed.).

Distrib. : Borivli, *C. Saldanha*, 6569 (*BLAT*)

Ammannia multiflora Roxb. Fl. Ind. 1: 447.1820 & Ibid. Carry. ed. 1: 426.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 570.1879; Cooke, Fl. Pres. Bombay 1: 541.1958 (Repr. ed.); Almeida, Fl. Mah. 2 : 281.1998.

Herbs, 15–30 cm tall. Stems erect, 4-gonous or slightly winged. Leaves 0.5–3.5 × 0.2–0.4 cm, sessile, linear-oblong, oblanceolate or elliptic-oblong, auricled or subcordate at base, obtuse at apex. Flowers violet, minute, in axillary cymes. Capsules 0.15–0.2 cm across, globose, deep-red. Seeds many, minute, hemispherical, turgid.

Fls. & Frts. : August–January.

Illus. : Ic. Roxb. Fasc. 7, t.19.1979 (Repr. ed.).

Distrib. : Borivli, *H. Santapau*, 16110, & *P. S. Herbert* 951 (*BLAT*).

Ammannia octandra L. f. Suppl. Pl. 127.1781; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 571.1879; Cooke, Fl. Pres. Bombay 1: 540.1958 (Repr. ed.); Almeida, Fl. Mah. 2 : 282.1998.

Herbs, 20–75 cm high; stems erect, stiff, woody beneath. Leaves 3.5–5.5 × 0.5–0.7 cm, linear-lanceolate to oblong-lanceolate, auriculate-subcordate at base, acuminate at apex. Flowers rose-coloured, in short-peduncled, 3-flowered cymes. Capsules ca.0.45 cm long, globose-ellipsoid, enclosed in persistent calyx. Seeds turgid.

Fls. & Frts. : October–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 278.1982.

Distrib. : Salsette, *Graham* (1839).

LAGERSTROEMIA L.

- | | | |
|------------------------------------|-----|----------------------|
| 1. Flowers less than 2 cm across : | | |
| 2. Calyx lobes appressed to fruit | ... | <i>L. parviflora</i> |
| 2. Calyx lobes reflexed in fruit | ... | <i>L. microcarpa</i> |
| 1. Flowers more than 5 cm across | ... | <i>L. reginae</i> |

Lagerstroemia microcarpa Wight Ic. t. 109.1839; Furtado & Srisuko in Gard. Bull. Singapore 24 : 192 f. 2a-b.1969; *L. lanceolata* Wall. ex C. B. Cl. in Hook. f. Fl. Brit. India 2 : 576.1879; Cooke, Fl. Pres. Bombay 1: 545.1958 (Repr. ed.); Almeida, Fl. Mah. 2 : 284.1998.

Trees, 10-20 m tall, deciduous, bark ash-coloured, peeling off in large strips. Leaves 4-9 × 2-5 cm, elliptic-lanceolate or ovate-lanceolate, acute at apex, hoary-tomentose beneath. Flowers white or creamy, in large, compound panicles. Capsules 1-2 cm long, ellipsoid. Seeds winged.

Fls. & Frts. : April-December.

Illus. : Wight, *op. cit.*

Distrib. : Borivli, Y. A. Merchant, 1156 & P. S. Herbert. 2536-8 (BLAT)

Lagerstroemia parviflora Roxb. Fl. Cor. 1: 47 t. 66.1795 & Fl. Ind. 2 : 505.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 575.1979; Cooke, Fl. Pres. Bombay 1: 545.1958 (Repr. ed.); Furtado & Srisuko in Gard. Bull. Singapore 24: 195. f. 3a-b.1969. '*Bondara*'

Trees, 8-15 m tall. Leaves 4-10 × 2-5 cm, elliptic-oblong or obovate-elliptic, cuneate to subacute at base, obtuse, acute or acuminate at apex, glabrous above, hairy or tomentose beneath. Flowers white, in axillary or terminal panicles, 10-12 cm long. Capsules 1.8-3.0 × 1.2-1.8 cm, ellipsoid, dehiscent by valves. Seeds winged.

Fls. & Frts. : May-August.

Illus. : Wight, Ic. t. 69.1840; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 279.1982.

Distrib. : Koppikar (1974).

Lagerstroemia reginae Roxb. Pl. Cor. 46 t. 65.1795 & Fl. Ind. 2 : 505.1832; Furtado & Srisuko in Gard. Bull. Singapore 24: 261, f. 29 B.1969. *L. flos-reginae* Retz. Obs. Bot. 5: 25.1788; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 577.1879; Cooke, Fl. Pres. Bombay 1: 546.1958 (Repr. ed.).

Trees, 10-20 m tall. Leaves 8-20 × 3-7 cm, oblong-lanceolate or elliptic-oblong, rounded or acute at base, subacute at apex. Flowers purple, 5-7 cm across, showy, in panicles 20-30 × 1.3-2.5 cm. Capsules 2-3 × 1.5-2.5 cm, ellipsoid or subglobose, shortly apiculate. Seeds pale brown.

Fls. & Frts. : April–August.

Illus. : Wight, Ic. t. 413.1843; Furtado & Srisuko, *op. cit.*

Distrib. : Rare, 167982.

ROOTALA L.

- | | | |
|---|-----|------------------------|
| 1. Leaves ternately whorled; petals absent | ... | <i>R. occultiflora</i> |
| 1. Leaves opposite, decussate, petals present : | | |
| 2. Capsules 2-valved | ... | <i>R. indica</i> |
| 2. Capsules 3-valved : | | |
| 3. Leaves rounded at base | ... | <i>R. densiflora</i> |
| 3. Leaves cordate at base | ... | <i>R. rosea</i> |

Rotala densiflora (Roth ex Roem. & Schult.) Koehne, in Engl. Bot, Jahrb. Syst. 1: 164.1880; C. D. K. Cook in Boissiera 29: 82, f.17A–H. 1979. *Ammannia densiflora* Roth ex Roem. & Schult. in L. Syst. Veg. 3 : 304.1818. *A. pentandra sensu* C. B. Cl. in Hook. f. Fl. Brit. India 2 : 568.1879; *p.p. non* Roxb.1820; Cooke, Fl. Pres. Bombay 1: 539.1958 (Repr. ed.).

Herbs, 10–30 cm tall; stems erect. Leaves 0.8–1.8 × 0.1–0.4 cm, decussate, linear–lanceolate, subcordate–obtuse at base, subacute–obtuse at apex. Flowers sessile, pink, solitary, axillary. Capsules ca.0.15 cm across, globose, 3-valved. Seeds subglobose.

Fls. & Frts. : August–October.

Illus. : C. D. K. Cook *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 282.1982.

Distrib. : Borivli, P. S. Herbert, 828, 2631 (BLAT)

Rotala indica (Willd.) Koehne in Engl. Bot. Jahrb. Syst. 1: 172.1880; C. D. K. Cook in Boissiera 29 : 108, f. 25 A–F.1979; Almeida, Fl. Mah. 2 : 289.1998. *Peplis indica* Willd. Sp. Pl. 2(1) : 244.1799. *Ammannia peploides* Spr. Syst. Veg. 1: 444.1824; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 566.1879; Cooke, Fl. Pres. Bombay 1: 538.1958 (Repr. ed.).

Herbs 10–30 cm tall; stems erect or decumbent. Leaves 1.2–1.8 × 0.6–1 cm, decussate, elliptic–spathulate to elliptic–lanceolate, cuneate or obtuse at base, rounded or emarginate at apex. Flowers pink, solitary or in spikes. Capsules ca. 1.5 cm long, ellipsoid, dehiscent. Seeds many, ellipsoid.

Fls. & Frts. : November–January.

Illus. : C. D. K. Cook, *op. cit.*

Distrib. : On moist ground and fallow fields. 168472.

Rotala occultiflora Koehne in Engl. Bot. Jahrb. Syst. 1: 152.1880; Blatt. & Hallb. in J. Bombay nat. Hist. Soc. 26 : 705.1918; C. D. K. Cook in Boissiera 29: 41, f. 5A–I.1979; Almeida, Fl. Mah. 2 : 291.1998.

Herbs, 5–10 cm tall; stems erect. or ascending. Leaves 0.5–1.5 cm long, narrowly linear, upper leaves dilated at base, convolute, retuse, bimucronate. Flowers red, minute. Capsules ellipsoid, oblong, dehiscent.

Fls. & Frts. : August–October.

Illus. : C. D. K. Cook, *op. cit.*

Distrib. : Frequent along stream banks and moist fields. 167280, 167968.

Rotala rosea (Poir.) C. D. K. Cook in Boissiera 29: 86. f.18A–H. 1979. *Ammannia rosea* Poir. in Lam. Encycl. (Suppl.1) : 329.1810. *A. pentandra* Roxb. Fl. Ind. 1: 427.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 568.1879 *p.p.* Cooke, Fl. Pres. Bombay 1: 539.1958 (Repr. ed.).

Herbs, 8–15 cm tall. Stems erect or creeping and rooting at basal nodes. Leaves 0.6–2.2 × 0.3–0.6 cm, lanceolate–elliptic, elliptic–oblong, cuneate at base, obtuse at apex, decussate. Flowers pink, sessile, solitary, axillary. Capsules ca.0.5 cm across, globose. Seeds many, hemispherical, compressed.

Fls. & Frts. : August–October.

Illus. : C. D. K. Cook, *op. cit.*

Distrib. : Borivli, G. Kalianiwalla, 1113. Kanheri Caves, E. Blatter & Hallberg 3715 (BLAT).

WOODFORDIA Salisb.

Woodfordia fruticosa (L.) Kurz in J. Asiat. Soc. Bengal 40 (2) : 56.1871; Woward & Jayaweera in Bailey 10 : 14.1962; Almeida, Fl. Mah. 2 : 294.1998. *Lythrum fruticosum* L. Sp. Pl. (ed. 2), 641.1762. *Woodfordia floribunda* Salisb. Parad. Lond. t. 42.1806; C. B. Cl. in

Hook. f. Fl. Brit. India 2 : 572.1879; Cooke, Fl. Pres. Bombay 1: 543.1958 (Repr. ed.). '*Dhayati*'.

Shrubs 1.2–3.0 m tall. Stems and branches straggling. Leaves 4–7 × 1.2–2.5 cm, opposite or subopposite, sessile, ovate–lanceolate, rounded or cordate at base, acute at apex, hoary–tomentose and nigro–punctate beneath. Flowers red, axillary or in cymes. Capsules 0.8–0.9 cm long, oblong. Seeds cuneate, obovoid, smooth.

Fls. & Frts. : December–May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 58, f. 322.1911 (*Woodfordia floribunda*).

Distrib. : Frequent along hill slopes and in forests. 168973.

CULTIVATED SPECIES :

Lagerstroemia floribunda Jacq. in Malay. Misc. 1: 38.1820; Furtado & Srisuko in Gard. Bull. Singapore 24: 328, t. 55.1969; Almeida, Fl. Mah. 2 : 283.1998.

Trees *ca.* 10 m tall. Leaves subsessile, oblong, rounded at base, acute at apex. Flowers rosy, in large panicles. Capsules oblong; calyx teeth persistent, spreading in fruits.

Fls. & Frts. : August–September.

Distrib. : Borivli, P. S. Herbert 107 (BLAT)

Lagerstroemia indica L. Syst. Nat. ed. 10 : 1076.1759; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 575.1879; Almeida, 2 : 286.1998.

Shrubs, 2–3 m tall. Leaves alternate to subopposite, elliptic or oblong. Flowers pink, in axillary and terminal panicles. Capsules globose *ca.* 1 cm across. Seeds winged, compressed.

Fls. & Frts. : May–August.

Distrib. : Native of China. Cultivated as ornamental plant in gardens Malad, Almeida (1998).

Lawsonia inermis L. Sp. Pl. 349.1753; Cooke, Fl. Pres. Bombay 1: 544.1958 (Repr. ed.); Almeida, Fl. Mah. 2 : 286.1998. *L. alba* Lam. Encycl. Method. 3 : 106.1789; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 573.1879.

Shrubs up to 4 m tall; Leaves sessile or nearly so, elliptic–obovate to ovate–lanceolate, tapering at base, obtuse to acute, often

mucronulate at apex. Flowers yellowish-white, in terminal, pyramidal panicles. Capsules 0.6–0.8 cm across, globose. Seeds turbinate.

Fls. & Frts. : April–July.

Illus. : Matthew, *Illus.* : Fl. Tamilnadu Carnatic 2 : t. 280.1982.

Distrib. : *Koppikar* (1974.) ; *G. L. Shah* (1984).

SONNERATIACEAE

SONNERATIA L. f. (*nom. cons.*)

- | | | | |
|----|---|-----|----------------------|
| 1. | Calyx 4–5-lobed; petals absent, stigmas umbrella-shaped | ... | <i>S. apetala</i> |
| 1. | Calyx 6-lobed; petals present, 6; stigmas not as above | ... | <i>S. caseolaris</i> |

Sonneratia apetala Buch.–Ham. in M. Symes, *Emb. Ava* 3 : 313, t. 25.1800; C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 579.1879; Cooke, *Fl. Pres. Bombay* 1: 547.1958 (Repr. ed.); P. Lakshminaras. & P. Venkanna in Singh *et al.* *Fl. Maharashtra* 2 : 40.2001.

Trees, 8–10 m tall. Leaves 4–12 × 2.5–4.0 cm, decussate, oblong or linear-lanceolate, attenuate at base and apex, coriaceous. Flowers cream-coloured, 3 in terminal, pedunculate clusters. Berries ca. 2 cm across, globose. Seeds numerous, curved, angular.

Fls. & Frts. : February–April.

Illus. : Matthew, *Illus.* Fl. Tamilnadu Carnatic 2 : t. 284.1982.

Distrib. : Common along Ghodbundar Creek. 167455, 167484.

Sonneratia caseolaris (L.) Engl. *Pflanzenweltost-Afrikas* C. 286.1895; Hoogl. in *Taxon* 37 : 981.1988; P. Lakshminaras. & P. Venkanna in Singh *et al.* *Fl. Maharashtra* 2 : 41. 2001. *Rhizophora caseolaris* L. in Stickmann, *Herb. Amb.* 13.1754. *Sonneratia acida* L. f. *Suppl.* 252.1782; C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 579.1879; Cooke, *Fl. Pres. Bombay* 1: 547.1958. '*Kandal*'.

Trees ca. 5 m tall. Leaves 5.0–7.5 × 2–6 cm, elliptic-oblong, or obovate. attenuate at base, obtuse at apex, somewhat succulent. Flowers large, solitary, terminal, on short, thick pedicels, trimerous, dark rose-coloured. Berries 2.5–5.0 cm across, cushion-shaped with persistent long style base and calyx.

Fls. & Frts. : February–July.

Illus. : Wight, *Ic.* t. 340.1840; Talbot, *For. Fl. Bombay Pres. & Sind* 2 : 67, f. 328.1911.

Distrib. : Salsette, Cooke, *op. cit.*

CULTIVATED SPECIES :

Duabanga grandiflora (Roxb. ex DC.) Walp. Repert 2 : 114.1843; Jayaweera in J. Arnold Arbor. 48: 96, f. 5.1967; P. Lakshminaras. & P. Venkanna in Singh *et al.* Fl. Maharashtra 2 : 41. 2001. *Lagerstroemia grandiflora* Roxb. ex DC. Mem. Soc. Hist. Nat. Geneve 32 : 84.1824 & Prodr. 3 : 93.1828. *Duabanga sonneratioides* Buch.-Ham. in Trans. Linn. Soc. 17.178.1835; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 579.1879.

Trees, 15–20 m tall. Stems erect, straight; bark ash-coloured, fissured; branches spirally arranged, drooping. Leaves opposite, distichous, ovate, oblong or ovate-oblong, cordate at base, acuminate at apex. Flowers 2–3 cm across, many in lax, drooping corymbs, at ends of branches. Capsules ovoid or globose with persistent calyx segments.

Fls. & Frts. : November–April.

Illus. : Jayaweera *op. cit.*

Distrib. : Rare (cultivated) on Gandhi hill. 168944.

ONAGRACEAE

LUDWIGIA L.

- | | | |
|---|-----|--|
| 1. Petals 5–6; capsules woody | ... | <i>L. adscendens</i> |
| 1. Petals 4; capsules membranous : | | |
| 2. Capsules pubescent | ... | <i>L. perennis</i> |
| 2. Capsules glabrous : | | |
| 3. Stamens as many as sepals | ... | <i>L. octovalvis</i>
<i>sap. sessiliflora</i> |
| 3. Stamens twice as many as sepals : | | |
| 4. Seeds free, not embedded in endocarp,
multiseriate | ... | <i>L. erecta</i> |
| 4. Seeds embedded in endocarp, uniseriate
at least beneath | ... | <i>L. hyssopifolia</i> |

Ludwigia adscendens (L.) H. Hara in J. Jap. Bot. 28 : 291.1953. Raven in Reinwardtia 6: 387.1963; Sreem. in Bull. Bot. Surv. India 8: 79.1966; *Jussiaea adscendens* L. Mant. Pl. 1: 69.1767. *J. repens* L. Sp. Pl. 388.1753 *non Ludwigia repens* Forst. 1771. C. B. Cl. in Hook. f. Fl. Brit. India 2 : 587.1879; Cooke, Fl. Pres. Bombay 1: 549.1958 (Repr. ed.).

Herbs, stems prostrate, rooting at nodes or floating, aquatic. Aerophores spongy, fusiform, ribbed. Leaves 1.5–6.0 × 0.6–2.4 cm, oblanceolate or obovate-oblong, attenuate at base, obtuse at apex. Flowers pale-yellow or white, pedicellate. Capsules 1.0–3.5 × 0.4–0.5 cm, cylindric, 10-ribbed. Seeds 1-seriate.

Fls. & Frts. : November–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 285.1982.

Distrib. : Koppikar (1974).

Ludwigia erecta (L.) Hara in *J. Jap. Bot.* 28 : 292.1953; Raven in *Reinwardtia* 6: 348.1963; Sreem. in *Indian Forester* 96 : 451.1970; Almeida, *Fl. Mah.* 2 : 298.1998. *Jussiaea erecta* L. *Sp. Pl.* 388.1753.

Herbs 0.3 to 3 m or more high; stems erect more or less woody at base, angled. Leaves 2–13 × 0.2–4.5 cm, lanceolate to elliptic, obtuse to acute at apex. Flowers solitary, in upper axils, tetramerous, yellow. Capsules 1.0–1.9 × 0.2–0.25 cm, 4-ribbed, 4-angled. Seeds, ovoid-oblong.

Fls. & Frts. : October–January.

Distrib. : Borivli National Park (*Sreemadhavan*, 1325 CAL).

Ludwigia hyssopifolia (G. Don) Excell in *Garcia de Orta* 5: 471.1957; Raven in *Reinwardtia* 6: 385.1963; Babu in *J. Bombay nat. Hist. Soc.* 69. 227.1972; Almeida, *Fl. Mah.* 2 : 298.1998. *Jussiaea hyssopifolia* G. Don, *Gen. Syst.* 2 : 693.1832.

Herbs or undershrubs 0.5–3.0 m tall, woody at base aerophores arising from roots. Leaves 2–8 × 0.3–3.0 cm, elliptic-oblong, lanceolate, attenuate at base, acuminate at apex. Flowers yellow, axillary, pedicellate. Capsules 1.5 × 1.0–1.2 cm, subterete, 8-ribbed, puberulous, torulose at base. Seeds multiseriate in upper portion.

Fls. & Frts. : August–January.

Distrib. : Common in ponds. 167217, 167807.

Ludwigia octovalvis (N. Jacq.) Raven subsp. **sessiliflora** (Micheli) Ravan in *Kew Bull.* 15: 476.1962 & *Reinwardtia* 6: 362, f. 8.1963. *Jussiaea octonervia* var. *sessiliflora* Micheli in *Mart. Fl. Bras.* 13(2) : 180. *Pl.* 35.1875. *J. suffruticosa* L. *Sp. Pl.* 388.1753; C. B. Cl. in *Hook. f. Fl. Brit. India* 2 : 587.1879; Cooke, *Fl. Pres. Bombay* 1: 549.1958 (Repe. ed.), '*Pan-lavang*'.

Undershrubs, 1.0–1.2 m tall. Stems erect, woody below, branched. Leaves 5–7 × 0.6–2.0 cm, lanceolate-oblong or elliptic-ovate, attenuate at base and apex. Flowers yellow, pedicellate, bracteate. Capsules 2.5–3.5 cm. long, terete, 8-ribbed, pubescent. Seeds ovoid, multiseriate.

Fls. & Frts. : August–October.

Illus. : Raven *op. cit.* (seed only).

Distrib. : Koppikar (1974).

Ludwigia perennis L. Sp. Pl. 119.1753; Raven in Reinwardtia 6: 367.1963; Sreem. in Bull. Bot. Surv. India 8: 80.1966. *L. parviflora* Roxb. Fl. Ind. 1: 440.1820; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 588.1879; Cooke, Fl. Pres. Bombay 1: 550.1958 (Repr. ed.).

Herbs or undershrubs, 20–60 cm tall. Stems erect or diffuse. Leaves 2–7 × 0.5–1.8 cm, elliptic-lanceolate, to lanceolate, attenuate at base, acuminate at apex. Flowers yellow, axillary, solitary. Capsules 0.8–1.5 cm long, oblong, 4-ribbed, 4-angled. Seeds ellipsoid, many.

Fls. & Frts. : May–August.

Illus. : Ic. Roxb. Fasc. 7, t. 20.1976. (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 286.1982.

Distrib. : Borivli, P. S. Herbert 55, 230 (BLAT)

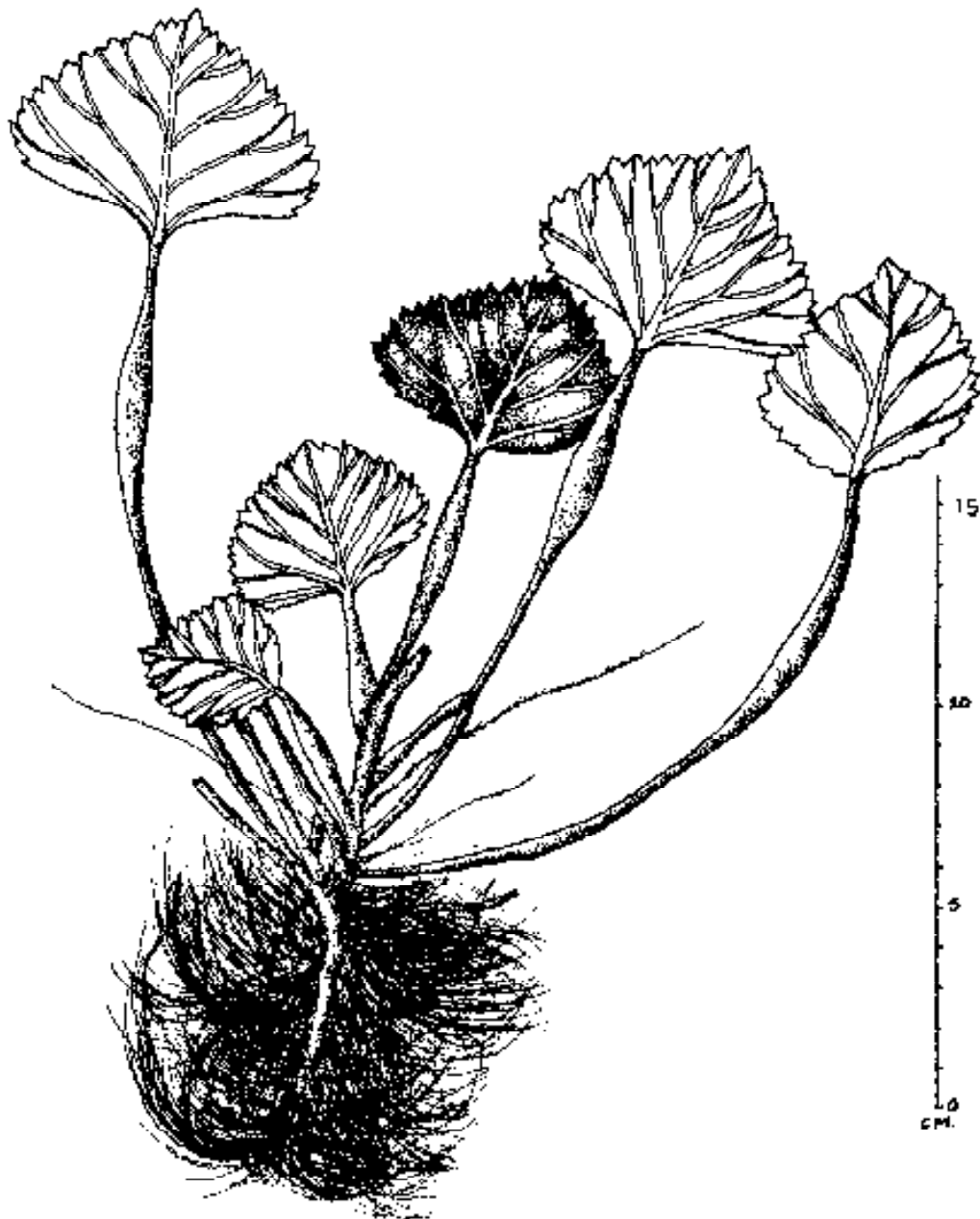
TRAPACEAE

TRAPA L.

Trapa natans L. var. **bispinosa** (Roxb.) Makino in Iinuma Somoku–Dzusetzii (ed. 3), 1: 137.1907; Gopalan in N. C. Nair *et al.* Fl. Tamilnadu Anal. 1: 168.1983. *T. bispinosa* Roxb. Pl. Cor. 3 : 29, t. 234.1815 & Fl. Ind. (ed. Carry), 1: 428.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 590.1879; Cooke, Fl. Pres. Bombay 1: 551.1858 (Repr. ed.). 'Shingada'.

Aquatic herbs, floating. Leaves 2–5 × 2.5–6.5 cm, broadly ovate-rhomboid, truncate at base, triangular at apex, incise-serrate in upper part, entire at base, petiolate; petioles swollen at basal part forming spongy floats. Flowers tubular, white, axillary, solitary, with short, stout pedicels. Fruits 2.0–2.5 cm long, obovoid, with conical beak in centre of apex and spinous horn on either side. Seed 1.

Fls. & Frts. : February–March.



f.31. *Trapa bispinosa* Roxb.

Illus. : Subram. Aquat. Angios. 127, f. 15.1962.

Distrib. : Vihar lake, *H. Santapau* 18941.

TURNERACEAE

TURNERA L.

Turnera ulmifolia L. Sp. Pl. 271.1753; Backer in Steenis, Fl. Males. 1, 4 (3) : 231, f. 2.1951; Brizicky in J. Arnold Arbor. 42 : 208.1961; Almeida, Fl. Mah. 2 : 301.1998.

Perennial herbs ca. 1 m tall, glandular-pubescent. Leaves 4.5–15 × 1.5–3 cm, lanceolate, cuneate-decurrent at base, acuminate at apex, margins serrate, petiolate; petioles ca. 1.3 cm long. Flowers yellow, 4–5 cm across, pentamerous. Capsules globose, 0.8 cm across, 2–5-seeded.

Fls. & Frts. : June–November.

Illus. : Backer in Steenis *op. cit.*

Distrib. : *G. L. Shah* (1969).

PASSIFLORACEAE

PASSIFLORA L.

Passiflora foetida L. Sp. Pl. 959.1753; Bor & Riaz. Beautif. Ind. Climbers Shrubs 258.1954; Cooke, Fl. Pres. Bombay 1: 557.1958 (Repr. ed). '*Veli-ghani*'.

Herbaceous tendrillate climbers. Leaves 2–10 × 1.5–8.7 cm, ovate triangular, 3-lobed, margins ciliate. Flowers white, solitary, axillary; bracts prominently pectinate, segments linear. Berries 1.5–2.5 cm across, globose, orange-red when ripe. Seeds tetragonous, oblong, pitted.

Fls. & Frts. : November–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 289.1982.

Distrib. : Frequent in hedges and bushes. 167798.

CARICACEAE

CULTIVATED SPECIES :

Carica papaya L. Sp. Pl. 1036.1753; Cooke, Fl. Pres. Bombay 1: 557.1958 (Repr. ed.); Bailey. Man. Cult. Pl. 692, f. 137.1949. '*Papaya*'.

Dioecious trees, 3.0–4.5 cm tall. Wood soft with latex. Leaves palmately and deeply 7-lobed; each lobe pinnately lobed, petioles 28–50 cm long, hollow. Flowers greenish–yellow, unisexual on separate plant. Berries fleshy, ovoid, oblong. Seeds black.

Fls. & Frts. : Mostly throughout the year.

Illus. : Bailey, *op. cit.*; Naik, Fl. Marathwada 1: 396, f. 54.1998.

Distrib. : G. L. Shah (1984).

CUCURBITACEAE

1. Tendrils unbranched :
 2. Corolla campanulate, shortly 5-fid ... COCCINIA
 2. Corolla divided or 5-partite to the base, not campanulate :
 3. Male flowers subumbellate, 15–20 on peduncle; ovary ribbed ... SOLENA
 3. Male flowers solitary or a few, fascicled; ovary not ribbed :
 4. Fruits 0.3–0.5 cm across ... MUKIA
 4. Fruits more than 2 cm long or across :
 5. Connectives of anthers produced above into an appendage ... CUCUMIS
 5. Connectives of anthers not produced into an appendage ... MOMORDICA
1. Tendrils 2–3-branched :
 6. Male flowers in racemes :
 7. Petals fimbriate; ovary not ribbed ... TRICHOSANTHES
 7. Petals not fimbriate; ovary distinctly ribbed ... LUFFA
 6. Male flowers in fascicles or solitary :
 8. Leaves usually 3-lobed or 5–7-lobed, lobes deeply pinnatifid or sinuate-lobulate ... CITRULLUS
 8. Leaves cordate, 3–5-lobed, lobes oblong, oblong-lanceolate, not as above ... DYPLOCYCLOS

CITRULLUS Schrad. (*nom. cons.*)

Citrullus colocynthis (L.) Schrad. in *Linnaea* 12 : 414.1838; C. B. Cl. in *Hook. f. Fl. Brit. India* 2 : 620.1879; Cooke, *Fl. Pres. Bombay* 1: 571.1958 (Repr. ed.); Jeffrey in *Kew Bull.* 34 : 791.1980; Chakrav. in *Fasc. Fl. India* 11: 20, f. 1–2.1982. *Cucumis colocynthis* L. *Sp. Pl.* 1011.1753.

Herbaceous, perennial, climbers, monoecious. Stems creeping, hirsute; tendrils simple or 2-fid. Leaves 3-9 × 2.5-7.0 cm, deltoid, 3-7-lobed, each lobe deeply sinuate-lobulate or pinnatifid with obtuse segments. Flowers unisexual; male flowers on 0.6-1.2 cm long peduncles; calyx campanulate, hairy; corolla yellow, female flowers: ovary ellipsoid, hairy. Fruits 5-7 cm across, globular. Seeds 0.4-0.8 cm long.

Fls. & Frts. : October-January.

Illus. : Chakrav. *op. cit.*

Distrib. : Salsette, *Graham* (1839).

COCINIA Wight & Arn.

Coccinia grandis (L.) J. Voigt, Hort. Suburb. Calc. 59.1845; Jeffrey in Kew Bull. 34 : 794.1980; Chakrav. in Fasc. Fl. India 11: 24, f. 1-9.1982. *Bryonia grandis* L. Mant. Pl. 126.1767. *Coccinia indica* Wight & Arn. Prodr. 347.1833; Cooke, Fl. Pres. Bombay' 1: 572.1958 (Repr. ed.). *Cephalandra indica* (Wight & Arn.) Naud. in Ann. Sci. Nat. Bot. 5, 5 : 16.1859; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 621.1879. '*Tondli*'.

Herbaceous, slender climbers. Leaves 4.0-10 × 3-10 cm, 5-angled or 5-lobed, subrotund-cordate at base, obtuse and mucronate at apex, margins denticulate, tendrils simple, slender. Flowers white, solitary, unisexual. Fruits 4-7 × 1-2 cm, ovoid-oblong. Seeds compressed, oblong-ovoid, papillose.

Fls. & Frts. : August-September.

Illus. : Ic. Roxb. Fasc. 8, t.18.1978 (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 293.1982; Chakrav. *op. cit.*

Distrib. : Versova, *H. Santapau* 59.19. Borivli; *G. Kalianiwalla* 40, 303 (*BLAT*) (as an escape).

CUCUMIS L.

- | | | |
|---|-----|-------------------|
| 1. Fruits setose (bristly) | ... | <i>C. setosus</i> |
| 1. Fruits smooth or pubescent, not setose : | | |
| 2. Ovary hispidulous, young fruits tuberculate | ... | <i>C. sativus</i> |
| 2. Ovary softly hairy, young fruits not tuberculate | ... | <i>C. melo</i> |

Cucumis melo L. Sp. Pl. 1011.1753; Jeffrey in Kew Bull. 34: 793.1980; Chakrav. in Fasc. Fl. India 11: 32, f. 1-10.1982. *C. trigonus* Roxb. Fl. Ind. 3 : 722.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 619.1879; Cooke, Fl. Pres. Bombay 1: 569.1958 (Repr. ed.). *C. melo* var. *agrestis* Naud. in Ann. Sci. Nat. 4, 11 : 73.1859; Cooke, *op. cit.*; Chakrav. *op. cit.* 35. *C. callosus* (Rottl.) Cong. in Engl. Das. pflanzenr. 88: 129.1924; Chakrav. *op. cit.* 31.

Herbaceous climbers. Leaves 3.5-6.5 × 4-6 cm. 5-angular or shallowly 3-5-lobed, suborbicular or reniform, chartaceous, hispid, denticulate; petioles 2.5-5.0 cm long, hispid, tendrils simple. Flowers yellow, solitary, unisexual. Fruits ca. 3 cm long, ellipsoid-oblong. Seeds many, narrowly ovoid, flat, smooth.

Fls. & Frts. : July-December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 296.1982; Chakrav. *op. cit.*

Distrib. : Rare, growing as an escape. 167225.

Cucumis sativus L. Sp. Pl. 1012.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 620.1879; Cooke, Fl. Pres. Bombay 1: 570.1958 (Repr. ed.); Jeffrey in Kew Bull. 34 : 794.1980; Chakrav. in Rec. Bot. Surv. India 17: 105.1959 & Fasc. Fl. India 11: 36.1982. '*Kakadi*'.

Herbs, stems prostrate or climbing. Leaves 5-12 × 7-11 cm, broadly cordate-ovate, palmately 5-angled or 5-lobed, margins bidenticulate, acute at apex, hispid; petioles 5-10 cm long. Flowers yellow, unisexual. Fruits narrowly oblong. Seeds, oblong with subacute ends.

Fls. & Frts. : May-December.

Distrib. : Rare. 168929. An escape.

Cucumis setosus Cogn. in A. & C. DC. Mon. Phan. 3 : 491.1881; Jeffrey in Kew Bull. 34 : 794.1980; Chakrav. in Fasc. Fl. India 11 : 38.1982; Almeida, Fl. Mah. 2 : 361.1998.

Herbaceous climbers, monoecious. Leaves 4-6 cm long, as broad as long, ovate to orbicular, slightly 3-lobed, densely hispid. Flowers yellow, axillary, solitary. Berries 2.0-2.3 × 1 cm, ellipsoid-oblong, setose.

Fls. & Frts. : August–October.

Illus. : Chakravarty in Rec. Bot. Surv. India 17: 106, f. 44.1959 & Chakrav. *op. cit.*

Distrib. : Occasional climber among grasses and on other bushes. 167853.

DIPLOCYCLOS (Endl.) van Post et O. Ktze.

Diplocyclos palmatus (L.) C. Jeffrey in Kew Bull. 15: 352.1962 & *Ibid.* 34. 800.1980; Chakrav. in Fasc. Fl. India 11: 48.1982. *Bryonia palmata* L. Sp. Pl. 1 : 1012.1753. *exel. syn. Bryonopsis laciniosa* (L.) Naud. in Ann. Sc. Nat. 4, 12 : 141.1859; Cooke, Fl. Pres. Bombay 1: 568.1958. (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 135.1959. 'Shivalingi'.

Herbaceous climbers; stems extensive. Leaves 3–7 × 4–9 cm, palmately 5-lobed; lobes elliptic-oblong, cordate at base, denticulate, subcrenate, scabrid above, glabrous beneath; tendrils simple; petioles 2.5–7.5 cm long. Flowers greenish-yellow, unisexual, in axillary clusters. Fruits subglobose, ca. 1.5 cm across. Seeds ovoid.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 500.1841. (*Bryonopsis laciniosa*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 297.1982.

Distrib. : On fences, hedges and thickets. 167306.

LUFFA Mill.

Luffa acutangula (L.) Roxb. Fl. Ind. 3 : 713.1832; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 615.1879; Cooke, Fl. Pres. Bombay 1: 566.1958 (Repr. ed.); Jeffrey in Kew Bull. 34: 792.1980; Chakrav. in Fasc. Fl. India 11: 67, f. 1–7.1982. *Cucumis acutangula* L. Sp. Pl. 1: 1011.1753. *Luffa acutangula* var. *amara* (Roxb.) C. B. Cl. in Hook. f. *op. cit.* 1879; Cooke. *op. cit.* 567. 'Shirole'.

Climbers. Stems extensive, 5-angled. Leaves 10–20 cm long and nearly as broad, palmately 5–7-angled. or sublobate, scabrid, cordate; tendrils, 3-fid. Flowers unisexual, yellowish-green; male flowers in many-flowered racemes, female flower solitary. Fruits 15–30 cm long, clavate-oblong, tapering towards base, longitudinally ribbed, ribs winged. Seeds ovoid-oblong, flat.

Fls. & Frts. : June–November.

Illus. : Ic. Roxb. Fasc. 8, t. 11.1978 (Repr. ed.). (*Luffa acutangula* var. *amara*); Chakrav. *op. cit.*

Distrib. : Frequent on trees. 167208, 167328, 168481.

MOMORDICA L.

Momordica dioica Roxb. ex Willd. Sp. Pl. 4: 605.1805; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 617.1879 *excl. syn.*; Cooke, Fl. Pres. Bombay 1: 563.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 91.1959; Jeffrey in Kew Bull. 34: 790.1980. '*Kartoli*'

Herbaceous slender climbers. Leaves 3-5-lobed, 1.8 × 3.5-6.0 cm, broadly ovate, cordate, obtuse-acute, chartaceous, margins denticulate; petioles 1.5-3.0 cm long, tendrils simple. Flowers unisexual; male flower solitary, peduncles 6-10 cm long; bracts orbicular, reniform, cucullate. Fruits 2.5-6.0 cm long, ellipsoid, beaked, densely echinate, spines soft.

Fls. & Frts. : July-November.

Illus. : Wight, Ic. tt. 505 & 506.1841; Ic. Roxb. Fasc. 8, t.17.1978 (Repr. ed.)

Distrib. : Common on thickets in forest. 167894.

MUKIA Arn.

Mukia maderaspatana (L.) Roem. Syn. Monogr. 2 : 47.1846; Jeffrey in Kew Bull. 34: 795.1980. *Cucumis maderaspatanus* L. Sp. Pl. 1012.1753. *Mukia scabrella* (L. f.) Ann. in Hook. J. Bot. 3 : 276.1841; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 623.1879; *Melothria maderaspatana* (L.) Cogn. in A. & C. DC. Monogr. Phan. 3 : 623.1881; Cooke, Fl. Pres. Bombay 1: 573.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 141.1959 & Fasc. Fl. India 11: 83.1982. '*Chiroti*'

Herbaceous annuals. Stems prostrate or climbing, slender, hispid. Leaves 2.5-13 × 2-10 cm, deltoid-ovate, entire, 3-5-angled or lobed, cordate at base, acuminate at apex, margins dentate or subserrate, tendrils simple; petioles 0.6-2.5 cm long. Flowers yellow, unisexual; male flowers in fascicles, on short peduncles, female flowers almost sessile, axillary, 2-3. Fruits ca. 1 cm across, globose, sessile, red when ripe. Seeds ellipsoid, flat, scrobiculate.

Fls. & Frts. : July-October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 302.1982.

Distrib. : Common on thickets & hedges etc. 167246, 167814, 168418.

SOLENA Lour.

Solena amplexicaulis (Lam.) Gandhi in Sald. & Nicols. Fl. Hassan Dt. 179.1976; Jeffrey in Kew Bull. 34: 793.1980. *Bryonia amplexicaulis* Lam. Encycl. 1: 496.1785. *Zehneria umbellata* Thw. Enum. Pl. Zeyl. 125.1859; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 625.1879 p.p. *Melothria heterophylla* (Lour.) Cogn. in A. & C. DC. Monogr. Phan. 3 : 618.1881; Cooke, Fl. Pres. Bombay 1: 575.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 159.1959 & Fasc. Fl. India 11. 79.1982. 'Gometi'.

Herbaceous perennial climbers, dioecious, roots tuberous, stems branched. Leaves 5-9 × 4-6 cm, ovate, 3-5-angled or lobed, usually cordate, sometimes hastate at base, acute to acuminate at apex, minutely denticulate; tendrils simple. Flowers yellowish-white; male flowers many, in pedunculate, subumbellate cymes, female flower solitary, pedicellate. Fruits 3.5 cm long, oblong-ovoid, apically beaked.

Fls. & Frts. : June-January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 303.1982 (*Solena heterophylla* Lour. Fl. Cochinch. 1: 514.1790).

Distrib. : Occasional on thickets. 167763.

TRICHOSANTHES L.

- | | | |
|--|-----|------------------------|
| 1. Male flowers more than 2 in racemes : | | |
| 2. Bracts in male racemes well developed, foliaceous | ... | <i>T. tricuspidata</i> |
| 2. Bracts absent in male racemes | ... | <i>T. cucumerina</i> |
| 1. Male flowers 1-2 | ... | <i>T. dioica</i> |

Trichosanthes cucumerina L. Sp. Pl. 1008.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 609.1879; Cooke, Fl. Pres. Bombay 1: 560.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 31.1959 & Fasc. Fl. India 11 : 112.1982; Jeffrey in Kew Bull. 34: 796.1980. 'Jangli Padval'.

Herbaceous tendrillate climbers, sparsely hispid. Leaves 4-12 × 5-15 cm, 3-5-angled or lobed; lobes obovate, cordate at base, acute at apex, margins distantly denticulate. Flowers white, unisexual; male flowers in 2-4 cm long racemes, female flower solitary. Fruits 4.7 × 6.5 cm, ovoid-fusiform, beaked. Seeds semi-ellipsoid, compressed, rugulose.

Fls. & Frts. : July–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 88.1966.

Distrib. : Vihar lake, *H. Santapau* 19576, Borivli; *P. S. Herbert* 2302–5 (*BLAT*).

Trichosanthes dioica Roxb. *Fl. Ind.* 3 : 701.1832; C. B. Cl. in *Hook. f. Fl. Brit. India* 2 : 609.1879; Jeffrey in *Kew Bull.* 34 : 798.1980. Chakrav. in *Fasc. Fl. India* 11: 114.1982.

Climbing herbs, stems slender. Leaves 7–10 × 5–8 cm, ovate-oblong, cordate at base, acute at apex, margins sinuate-dentate. Flowers white, unisexual; male flower solitary, pedicellate, female flower solitary. Berries 5–12 × 2–6 cm, oblong. Seed globose.

Fls. & Frts. : April–September.

Illus. : Ic. Roxb. *Fasc.* 8, t. 7.1978 (Repr. ed.).

Distrib. : Malad, *Almeida* (1998).

Trichosanthes tricuspidata Lour. *Fl. Cochinch.* 589.1790; Jeffrey in *Kew Bull.* 34: 797.1980. *T. palmata* Roxb. *Fl. Ind.* 3 : 704.1832; C. B. Cl. in *Hook. f. Fl. Brit. India* 2 : 606.1879; Cooke, *Fl. Pres. Bombay* 1 : 560.1958 (Repr. ed.). *T. bracteata* (Lam.) Voigt, *Hort. Suburb. Calc.* 58.1845; Chakrav. in *Rec. Bot. Surv. India* 17: 44.1959 & *Fasc. Fl. India* 11 : 109.1982. '*Mukal*'.

Climbers. Stems extensive, up to 10 m long, robust, woody beneath. Leaves 18–13 × 9–12 cm, ovate, suborbicular, cordate at base, acuminate at apex, margins subentire or distantly denticulate; tendrils stout, 2–3-cleft; petioles 2.5–5.0 cm long. Flowers white, unisexual; male flowers in axillary racemes, female flower solitary, axillary. Fruits 2.5–5.0 cm across, globose, red when ripe. Seeds numerous, ellipsoid.

Fls. & Frts. : May–August.

Illus. : Ic. Roxb. *Fasc.* 8, t. 5.1978 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 304 & 971a.1982.

Distrib. : Occasional. 167939.

CULTIVATED SPECIES :

Citrullus lanatus (Thunb.) Mats & Nakai, Cat. Semet. Sport. Hort. Bot. Univ. Imp. Tokyo 1916: 30.1916 & *Ibid.* 1920: 38.1920; Hara in Taxon 18: 346.1969; Jeffrey in Kew Bull. 34: 791. 1980; Chakrav. in Fasc. Fl. India 11: 22.1982. *Momordica lanata* Thunb. Prodr. Pl. Cap. 13.1800. *Citrullus vulgaris* Schrad. in Ecklon & Zeyher, Enum. Pl. Africa & Austral. 279.1836 & Linnaea 12: 412.1838; Cooke, Fl. Pres. Bombay 1: 571.1958 (Repr. ed.). 'Kalingad'.

Hairy herbaceous climbers or creepers; Leaves deeply 3-fid; segments 2-pinnatifid; tendrils stout, 2-fid. Flowers yellow, unisexual. Fruits globose or ovoid, Seeds many black.

Fls. & Frts. : March-May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 292.1982.

Distrib. : Borivli, H. Santapau 13062; P. S. Herbert, 1790, 1026 (cultivated.).

Cucurbita maxima Duch. ex Lam. Encycl. 2: 151.1786; C. B. Cl. in Hook. f. Fl. Brit. India 2: 622.1879; Cooke, Fl. Pres. Bombay 1: 582.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 123.1959 & Fasc. Fl. India 11: 40.1982; Jeffrey in Kew Bull. 34: 799.1980. 'Tambada-bhopla'.

Herbs, stems trailing. Leaves entire or lobed, suborbicular hairy. Flowers reddish-yellow, 5-10 cm across. Berries oblong or globose.

Fls. & Frts. : Almost throughout the year.

Illus. : Wight, Illus. Ind. Bot. t. 105 (121).1950 in parts.

Distrib. : Cultivated. Salsette, G. L. Shah (1962).

Lagenaria siceraria (Mol.) Standl. in Publ. Field. Mus. Nat. Hist. Chicago Bot. Ser. 3: 435.1930; Jeffrey in Kew Bull. 34: 790.1980; Chakrav. in Fasc. Fl. India 11: 65.1982. *Cucurbita siceraria* Mol. Sagg. Chile 133: 335.1782. *Lagenaria leucantha* Rusby in Mem. Tor. Bot. Cl. 6: 43.1896. *nom. lilleg. superfl. L. vulgaris* Seringe, Mem. Soc. Phys. Hist. Nat. Geneve 3(1): 25, t. 2.1825; C. B. Cl. in Hook. f. Fl. Brit. India 2: 613.1879. 'Dudhi-bhopla'.

Annual herbaceous climbers. Leaves 10-40 cm long and broad. Flowers white. Fruits large, ca. 1.0 x 0.13 m, cylindrical, clavate, greenish-yellow.

Fls. & Frts. : August-February.

Distrib. : Cultivated for fruits G. L. Shah (1969). Malad. Almeida (1998).

Luffa cylindrica (L.) M. J. Roem. Syn. Mon. 2 : 63.1846; Chakrav. in Rec. Bot. Surv. India 17 : 75.1959 & Fasc. Fl. India 11 : 70.1982; Jeffrey in Kew. Bull. 15. 355.1962 & Ibid. 34. 791.1980. *Momordica cylindrica* L. Sp. Pl. 1009.1753. *Luffa aegyptiaca* Mill. Gard. Dict. ed. 8.1768; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 614.1879; Cooke, Fl. Pres. Bombay 1: 565.1958 (Repr. ed.). '*Ghosavle*'.

Herbaceous, slender climbers. Leaves 5-7-lobed, lobes ovate, cordate at base, acute to acuminate at apex, margins sharply serrate; tendrils 3-fid. Flowers yellow, unisexual; female flower solitary. Fruits 15-30 × 5-8 cm, oblong, cylindric. Seeds ovoid, many.

Fls. & Frts. : June-September.

Illus. : Ic. Roxb. Fasc. 8, t. 13-14.1978 (Repr. ed.); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 300.1982.

Distrib. : Borivli, *G. Kalianiwalla*, 1268 & *P. S. Herbert*, 235 (BLAT).

Momordica charantia L. Sp. Pl. 1009.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 616.1879; Cooke, Fl. Pres. Bombay 1: 562.1958 (Repr. ed.); Chakrav. in Rec. Bot. Surv. India 17: 88.1959 & Fasc. Fl. India 11: 89, f. 8-10.1982; Jeffrey in Kew Bull. 34: 789.1980. '*Karle*'.

Herbaceous climbers, hairy. Leaves orbicular, deeply 5-7-lobed, cordate at base, acuminate at apex. Flowers unisexual, yellow, solitary. Fruits oblong-obovate or cylindric with gradually tapering ends, tubercled. Seeds ovoid, compressed, sculptured variously.

Fls. & Frts. : May-October.

Illus. : Wight, Ic. t. 504.1841; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 301.1982.

Distrib. : Borivli, *G. Kalianiwalla*, 1074 (BLAT).

Trichosanthes anguina L. Sp. Pl. 1008.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 610.1879; Cooke, Fl. Pres. Bombay 1: 561.1958 (Repr. ed.); Chakrav. in Fasc. Fl. India 11: 108.1982. '*Padval*'.

Herbaceous, climbing annuals, monoecious, pubescent in young parts. Leaves 5-7-lobed, sparsely hairy beneath. Flowers unisexual. Berries 60-130 × 2-3 cm, straight or curved or spirally twisted, linear-cylindric with tapering ends, green.

Fls. & Frts. : July-October.

Distrib. : Koppikar (1974); G. L. Shah (1984).

BEGONIACEAE

BEGONIA L.

Begonia crenata Dryand in Trans. Linn. Soc. Lond. 1: 164, t. 14, f. 3.1791; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 651.1879; Cooke, Fl. Pres. Bombay 1: 584.1958 (Repr. ed.).

Herbaceous annuals, 7–20 cm tall, slender. Roots subtuberous. Leaves 2.5–7.0 × 2.5 cm, ovate, acute or suborbicular, cordate, crenate; petioles 1.5–3.0 cm long. Flowers pinkish–white, unisexual. Capsules 0.8–0.5 cm, long, 3-winged, membranous. Seeds minute, ellipsoid.

Fls. & Frts. : August–September.

Illus. : Bedd. Ic. t. 110.1874 (*Begonia minima*).

Distrib. : Common on damp rocks and walls. 167872, 167980.

CACTACEAE

OPUNTIA Mill.

- | | | |
|-----------------------------------|-----|---|
| 1. All spines of areole straight | ... | <i>O. elatior</i> |
| 1. Some spines of areole curved : | | |
| 2. Spines 1–3 per areole | ... | <i>O. monacantha</i> |
| 2. Spines 5–7 per areole | ... | <i>O. stricta</i>
var. <i>dillenii</i> |

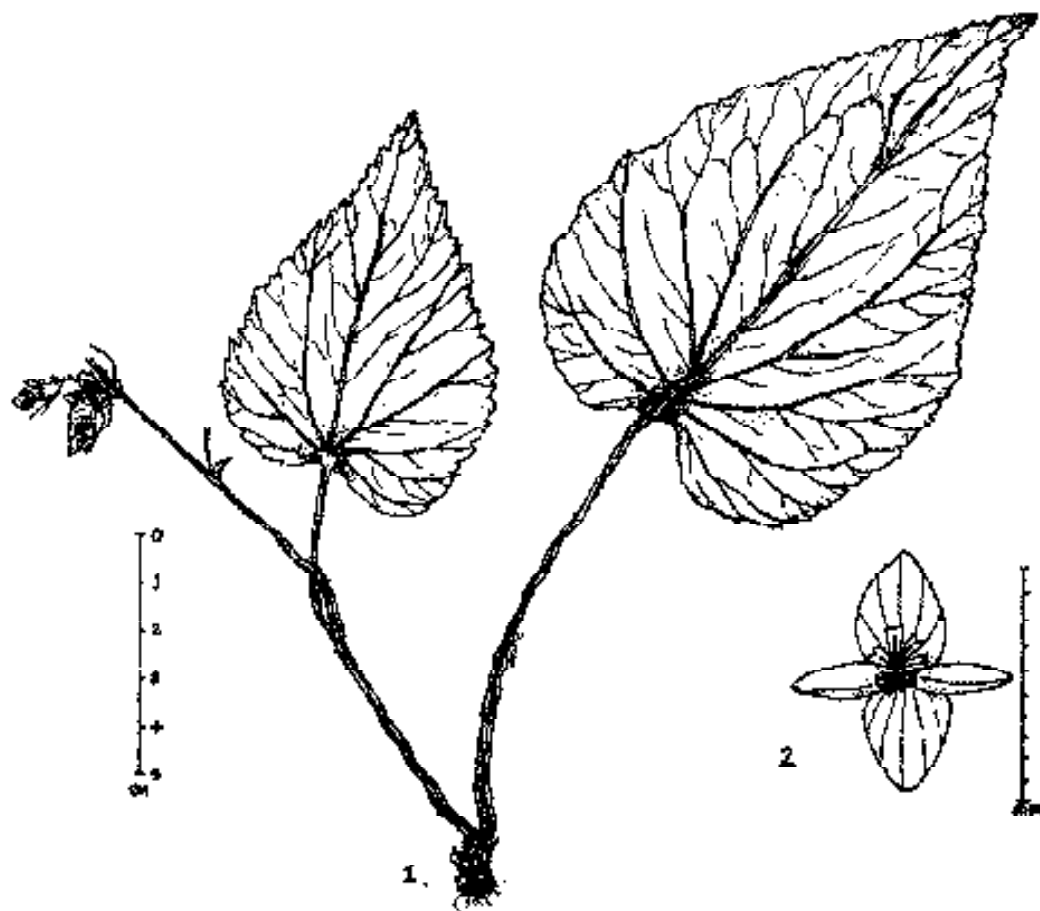
Opuntia elatior Mill. Gard. Dict. (ed. 8), no. 4.1768; Almeida, Fl. Mah. 2 : 337.1998. *O. dillenii* Grah. ex Dalz. & Gibs. Bombay Fl. Suppl. 39: 1861; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 657.1879. *p.p.* *O. nigricans* Woodrow in Rec. Bot. Surv. India 1: 89.1895; (*non* Haw.1819). Cooke, Fl. Pres. Bombay 1: 587.1958 (Repr. ed.). '*Phadya-nivadunga*'.

Shrubs, 1–2 m tall. Stem a phylloclade, joints 5.0–25.0 × 3.0–12.0 cm, succulent, leafless, spiny, obovate, glaucous–green. Flowers yellow or pale pink, red or reddish at length, solitary, axillary. Berries red when ripe.

Fls. & Frts. : December–May.

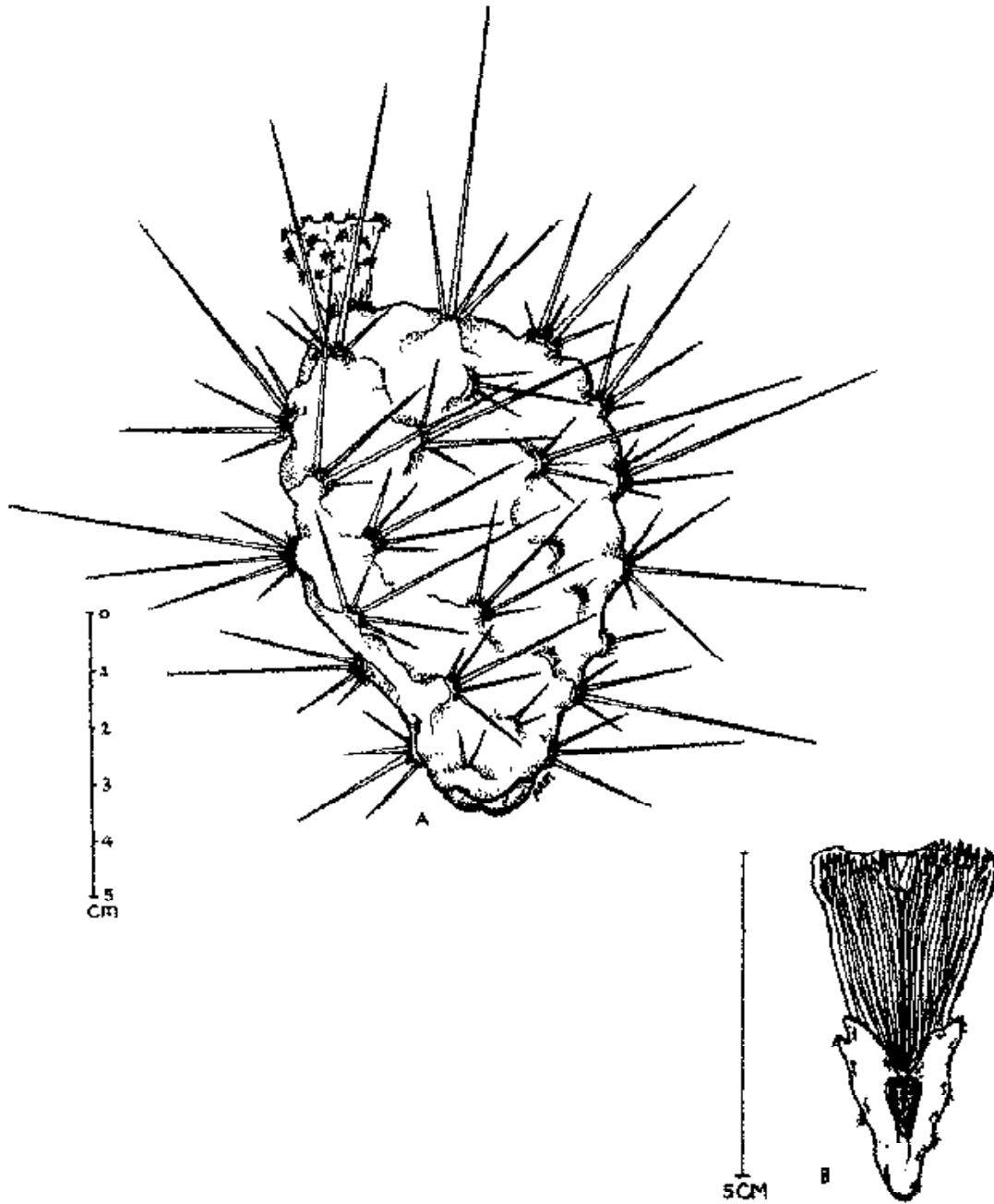
Distrib. : Salsette, G. L. Shah (1962).

Opuntia monacantha (Willd.) Haw. Suppl. Pl. Succ. 81 : 1891; Burkill in Rec. Bot. Surv. India 4: 292.1911; Almeida, Fl. Mah. 2 : 337.1998.



f. 32. *Begonia crenata* Dryand

1 = Habit 2 = Flower



f. 33. *Opuntia elatior* Mill.

A = Habit B = L. S. of flower

Undershrubs 1–2 m tall. Phylloclade flat, obovate, areoles woolly with 1–3 unequal spines, 0.5–0.6 cm long. Flowers *ca.* 8 cm across with many tepals, yellow with pinkish shade; stamens many, ovary glochidate, styles 3–5-branched. Berries *ca.* 6 cm long, ovoid.

Fls. & Frts. : December–May.

Distrib. : Malad. *Almeida*, *op. cit.*, introduced but naturalised.

Opuntia stricta* var. *dillenii (Ker.–Gawl.) L. Benson, *Cact. & Succ. J. Los Angeles* 41: 126.1969; Matthew, *Fl. Tamilnadu Carnatic* 3(1) : 661.1983; Almeida, *Fl. Mah.* 2 : 337.1998. *Cactus dillenii* Ker.–Gawl. *Bot. Reg.* 3 : t. 255.1818. *Opuntia dillenii* (Ker.–Gawl.) Haw. *Suppl. Pl. Succ.* 79.1819; Hook. f. *Fl. Brit. India* 2 : 657.1879.

Shrubs, 1–2 m tall; areoles raised, bristly–glochidate, spines 0.5–4.5 cm long, yellow. Leaves deciduous. Flowers *ca.* 5 cm across, yellow; stamens many, ovary glochidate, styles branched. Berries ovoid, many-seeded.

Fls. & Frts. : December–May.

Illus. : Wight *Illus. Ind. Bot.* t. 114.1850 (*Opuntia dillenii*).

Distrib. : Malad, *Almeida* (1998) introduced but naturalised.

CULTIVATED SPECIES :

Epiphyllum oxypetalum Haw. in *Phil. Mag.* 109.1829; Almeida, *Fl. Mah.* 2 : 336.1998.

Succulent shrubs; stems much branched, flat thin and broad. Flowers white, fragrant; outer perianth reddish, opening at night. Fruits oblong or round, red.

Distrib. : Native of Mexico, Brazil. Introduced. Borivli, *G. P. Srivastava s. n.* 12/11/51 (BLAT)

Pereskia grandiflora Haw. *Rev. Pl. Succ.* 85.1819; Bailey, *Man. Cult. Pl.* ed. 2, 702.1949; Almeida, *Fl. Mah.* 2 : 338.1998.

Shrubs, trunk woody beneath; branches fleshy, spiny; spines 1–2 per areole. Leaves oblong, up to *ca.* 5 cm long. Flowers rose-coloured or white, 5 cm across, in terminal clusters. Fruits *ca.* 5 cm long, pear-shaped. many-seeded.

Fls. & Frts. : November–May.

Distrib. : Borivli, *Almeida op. cit.*

AIZOACEAE

- | | | |
|---|-----|------------|
| 1. Flowers sessile; stamens 10-20; seeds white, papillose | ... | TRIANTHEMA |
| 1. Flowers pedicellate, stamens 30 or more; seeds smooth | ... | SESUVIUM |

SESUVIUM L.

Sesuvium portulacastrum (L.) L. Syst. Nat.(ed. 10), 1058.1759; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 659.1879; Cooke, Fl. Pres. Bombay 1: 589.1958 (Repr. ed.); Jeffrey in Hubb. & Milne Redhead Fl. Trop. E. Africa Aizoaceae 21, f. 7.1961. *Portulaca portulacastrum* L. Sp. Pl. 446.1753.

Herbs. Stems prostrate, rooting at nodes, succulent, red. Leaves 1.3-5.0 × 0.4-1.0 cm, spatulate-oblong, obtuse, fleshy, amplexicaul at base. Flowers rosy, axillary, solitary, pedicellate; pedicels filiform. Capsules 0.4-0.6 cm long, oblong, apiculate, circumscissile, 3-celled, many-seeded, enclosed in persistent calyx. Seeds minute, polished.

Fls. & Frts. : October-December.

Illus. : Jeffrey, *op. cit.* Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 312.1982.

Distrib. : Frequent along the marshy creeks at Ghodbander. 167403.

TRIANTHEMA L.

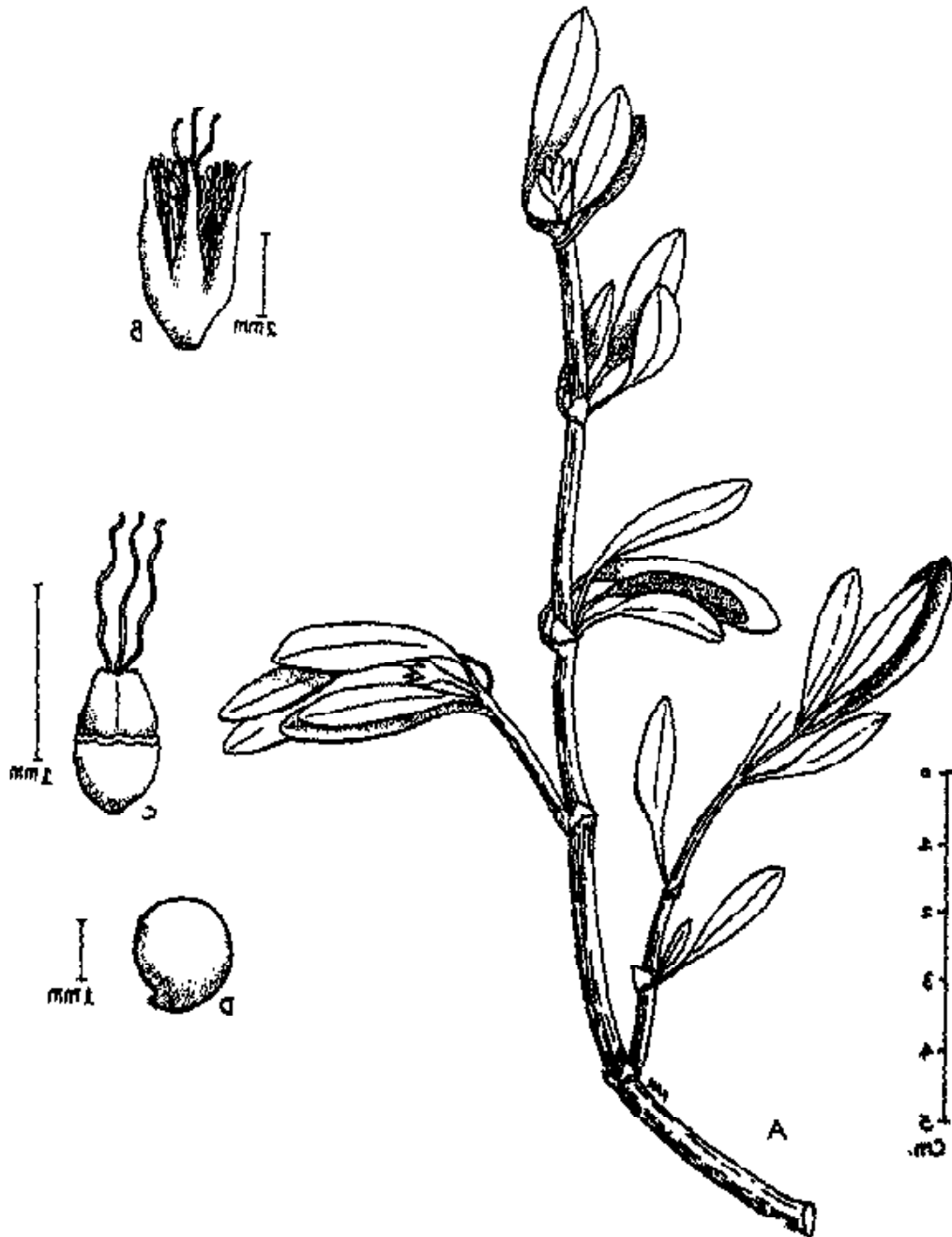
Trianthema portulacastrum L. Sp. Pl. 223.1753; Jeffrey in Kew Bull. 14 : 235.1960. *T. monogyna* L. Mant. Pl. 1: 69.1767; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 660.1879; Cooke, Fl. Pres. Bombay 1: 589.1958 (Repr. ed.). '*Bis-khapra*'

Herbs. Stems prostrate or ascending, glabrous or pubescent, much branched. Leaves 1-3 × 0.8-2.5 cm, orbicular, obovate or oblong, subsucculent, obtuse and apiculate at apex, margins purplish, entire; Flowers pinkish-white, axillary, solitary; bracteoles lanceolate. Capsules ca.0.5 cm long, circumscissile, truncate, concealed in petiolar sheath. Seeds reniform, concentrically muriculate.

Fls. & Frts. : June-September.

Illus. : Mahesh. Illus. Fl. Delhi f. 93.1966.

Distrib. : Common in fallow fields and open places. 167989.



f. 34. *Sesuvium portulacastrum* (L.) L.

A = Habit
C = Ovary with styles

B = Flower
D = Seed

MOLLUGINACEAE

- | | | |
|--|-----|---------|
| 1. Flowers in axillary clusters; seeds appendaged | ... | GLINUS |
| 1. Flowers in axillary or terminal polychasial cymes; seeds not appendaged | ... | MOLLUGO |

GLINUS L.

- | | | |
|-----------------------------------|-----|--------------------------|
| 1. Plant densely woolly-tomentose | ... | <i>G. lotoides</i> |
| 1. Plants glabrous | ... | <i>G. oppositifolius</i> |

Glinus lotoides L. Sp. Pl. 463.1753; Sant. in. Bull. Bot. Surv. India 3 : 17.1961. *Mollugo hirta* Thunb. Prodr. Pl. Cap. 24.1794; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 622.1879; Cooke, Fl. Pres. Bombay 1: 593.1958 (Repr. ed.). '*Dasara-sag*'.

Herbs. Stems 15-40 cm long, spreading, prostrate, densely stellate-tomentose. Leaves 1-3 × 0.5-1.0 cm, opposite or 3-5 at nodes, obovate, suborbicular or spatulate, subacute-cuneate at base, obtuse at apex, stellate-tomentose. Flowers pinkish-white, pedicellate, 5-10, in axillary fascicles. Capsules 0.7-1.0 cm across, globose, many-seeded. Seeds ovoid, subreniform, strophiolate, with filiform appendages.

Fls. & Frts. : February-April.

Illus. : Mahesh. Illus. Fl. Delhi f. 90.1966.

Distrib. : Frequent near moist places. 168924.

Glinus oppositifolius (L.) A. DC. Bull. Herb. Boiss. (ser. 2) 1: 559.1902. Almeida, Fl. Maharashtra 2 : 343.1998. *Mollugo oppositifolia* L. Sp. Pl. 89.1753; Cooke, Fl. Pres. Bombay 1: 593.1958 (Repr. ed.). *M. spergula* L. Syst. Nat. ed. 10, 881.1759; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 662.1879.

Herbs. Stems diffuse, prostrate or ascending glabrescent. Leaves 3-5 in a whorl, 0.5-2.0 × 0.3-0.4 cm, oblong-lanceolate or elliptic-spatulate, cuneate at base, acute at apex. Flowers white, in axillary fascicles of 2-7. Capsules 0.3-0.4 cm long, oblong, many-seeded. Seeds subreniform, tubercled, strophiolate.

Fls. & Frts. : September-November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 310.1982.

Distrib. : Frequent on moist grounds. 167730, 168491.



f. 35. *Mollugo pentaphylla* L.

MOLLUGO L.

Mollugo pentaphylla L. Sp. Pl. 89.1753; Cooke, Fl. Pres. Bombay 1: 594.1958 (Repr. ed.); Sivarajan & Usha in Taxon 32 : 125.1983. *M. stricta sensu* C. B. Cl. in Hook. f. Fl. Brit. India 2 : 663.1879. non L.1762. '*Jharasi*'.

Herbs. Stems erect or ascending to diffuse, slender. Leaves radical and cauline; radical leaves oblanceolate-spathulate; cauline ones 3-5, whorled, 1.3-5.0 × 0.5-1.5 cm, obovate or elliptic, cuneate-attenuate at base, obtuse-subacute at apex, apiculate. Flowers white, minute, in terminal paniculate cymes. Capsules ca.0.2 cm long, oblong. Seeds many, reniform, reticulate.

Fls. & Frts. : July-December.

Illus. : Raman. in Sald. & Nicols. Fl. Hassan Dt. 96, f.17 C.-Cb.1976.

Distrib. : Borivli, G. Kalianiwalla 1123, P. S. Herbert, 280. (BLAT)

APIACEAE (UMBELLIFERAE)

- | | | |
|---|-----|---------------|
| 1. Stems prostrate; leaves simple | ... | CENTELLA |
| 1. Stems erect; leaves compound : | | |
| 2. Leaves mostly radical; flowers yellow | ... | HERACLEUM |
| 2. Leaves cauline; flowers white : | | |
| 3. Mericarps scaly, pubescent, 1-vittate | ... | TRACHYSPERMUM |
| 3. Mericarps not scaly, glabrous, 2-3-vittate | ... | PIMPINELLA |

CENTELLA L.

Centella asiatica (L.) Urban in Mart. Fl. Bras. 11 (1) : 287.t. 78, f. 1.1879; Buwalda in Blumea 2 : 134.1946; P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 15.1993. *Hydrocotyle asiatica* L. Sp. Pl. 234.1753; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 668.1879; Cooke, Fl. Pres. Bombay 1: 598.1958 (Repr. ed.). '*Bramhi*'.

Herbs. Stems slender, rooting at nodes. Leaves 1.2-4.0 cm across, many from rootstock, orbicular-reniform, cordate at base, rounded at apex, margins crenate-dentate; petioles 1.0-2.5 cm long. Flowers pink, in ca. 3-flowered umbels; peduncles 0.5-0.6 cm long. Involucral bracts 2, hooded. Fruits 0.4 cm long, laterally flattened, ovoid, dorsal ribs 7-9.

Fls. & Frts. : May–November.

Illus. : Wight, Ic. t. 565.1842. (*Hydrocotyle asiatica*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 : t. 35.1982.

Distrib. : Koppikar (1974).

HERACLEUM L.

- | | | |
|--|-----|--------------------------|
| 1. Petals with a long, inflexed acumen | ... | <i>H. grande</i> |
| 1. Petals not as above | ... | <i>H. aquilegifolium</i> |

Heracleum aquilegifolium C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 715.1879; Cooke, *Fl. Pres. Bombay* 1: 607.1958 (Repr. ed.); P. K. Mukh. & Constance, *Umbelliferae (Apiaceae) of India* 241.1993; S. G. Pradhan in Singh *et al.* *Fl. Maharashtra* 2 : 97. 2001.

Herbs, glabrous, roots fusiform. Leaves : radical leaves 2-pinnate with 5–10 cm long petiole and a terminal leaflet; the lowest pair of pinnae ternate, ultimate segments 3–2 cm long, margins serrate–dentate; cauline leaves usually ternate, upper most reduced. Flowers in umbels. Fruits *ca.* 0.9 × 0.6 cm, ellipsoid, glabrous with thick, margined wings.

Fls. & Frts. : September–October.

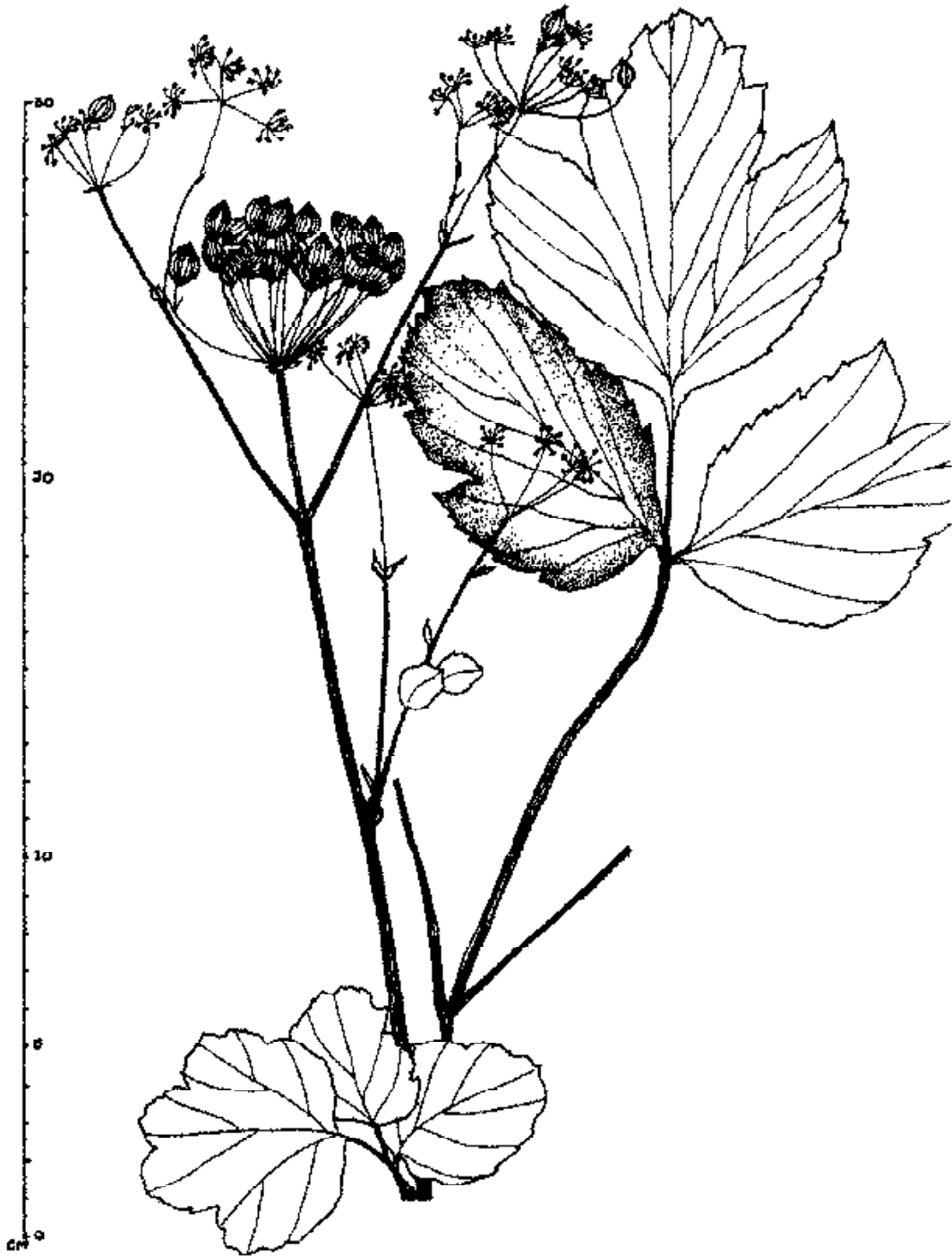
Distrib. : Borivli, Almeida (1998).

Heracleum grande (Dalz. & Gibs.) P. K. Mukh. in *Sci. & Cult.* 39: 542.1973; P. K. Mukh. & Constance, *Umbelliferae (Apiaceae) of India* 242.1993; S. G. Pradhan in Singh *et al.* *Fl. Maharashtra* 2 : 98. 2001. *Peucedanum grande* (Dalz.) C. B. Cl. in Hook. f. *Fl. Brit. India* 2 : 710.1879; Cooke, *Fl. Pres. Bombay* 1: 605.1958 (Repr. ed.). '*Baphali*'

Undershrubs, *ca.* 1 m tall. Stems with underground tuberous roots. Leaves 1–2 pinnate; pinnae 3–5-foliolate; leaflets 5–15 × 5–12 cm, ovate–oblong. Fruits 0.7–1.1 cm long, obovate–oblong, slightly winged, ridged.

Fls. & Frts. : July–August.

Distrib. : Borivli, T. A. Merchant, 148 & G. Kalianiwalla, 318 (BLAT).



f. 36. *Heracleum grande* (Dalz. & Gibs.) P. K. Mukherjee

PIMPINELLA L.

Pimpinella heyneana (Wall. ex DC.) Kurz in J. Asiat. Soc. Bengal, 46 : 115.1877; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 684.1879; Cooke, Fl. Pres. Bombay 1: 601.1958 (Repr. ed.); P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 145.1993; S. G. Pradhan in Singh *et al.* Fl. Maharashtra 2 : 101 2001. *Helosciadium heyneanum* Wall. ex DC. Prodr. 4: 106.1830.

Herbs up to 1 m tall; branches ascending. Leaves trifoliolate; lateral leaflets usually ternate, terminal ones often lobed, segments of lower cauline leaves 2-5 × 1.0-1-8 cm, ovate-lanceolate, acute, serrate, petioles up to 6 cm long. Flowers in compound umbels. Fruits 0.15-0.2 cm across, ovoid, ridges prominent.

Fls. & Frts. : August-November.

Illus : Gandhi in Sald. & Nicols. Fl. Hassan Dt. 415; f. A-AC.1976.

Distrib. : Common on hills and plains. 167752.

TRACHYSPERMUM Link (*nom. cons.*)

Trachyspermum roxburghianum (DC.) Craib. Fl. Siam. Enum. 1: 788.1931; P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 163 : 1993; S. G. Pradhan in Singh *et al.* Fl. Maharashtra 2 : 107. 2001. *Ptychotis roxburghiana* DC. Prodr. 4: 109.1830. *Carum roxburghianum* (DC.) Kurz in J. Asiat. Soc. Bengal 46(2) : 114.1877; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 682.1879. *C. stictocarpum* C. B. Cl. in Hook. f. *op. cit.* 681; Cooke, Fl. Pres. Bombay 1: 600.1958 (Repr. ed.). *Trachyspermum stictocarpum* (C. B. Cl.) Wolff in Engl. Pflanzenr. 43 : 89.1927; Rao & Hemadri in J. Bombay nat. Hist. Soc. 67 : 357.1970. 'Ran-ova'.

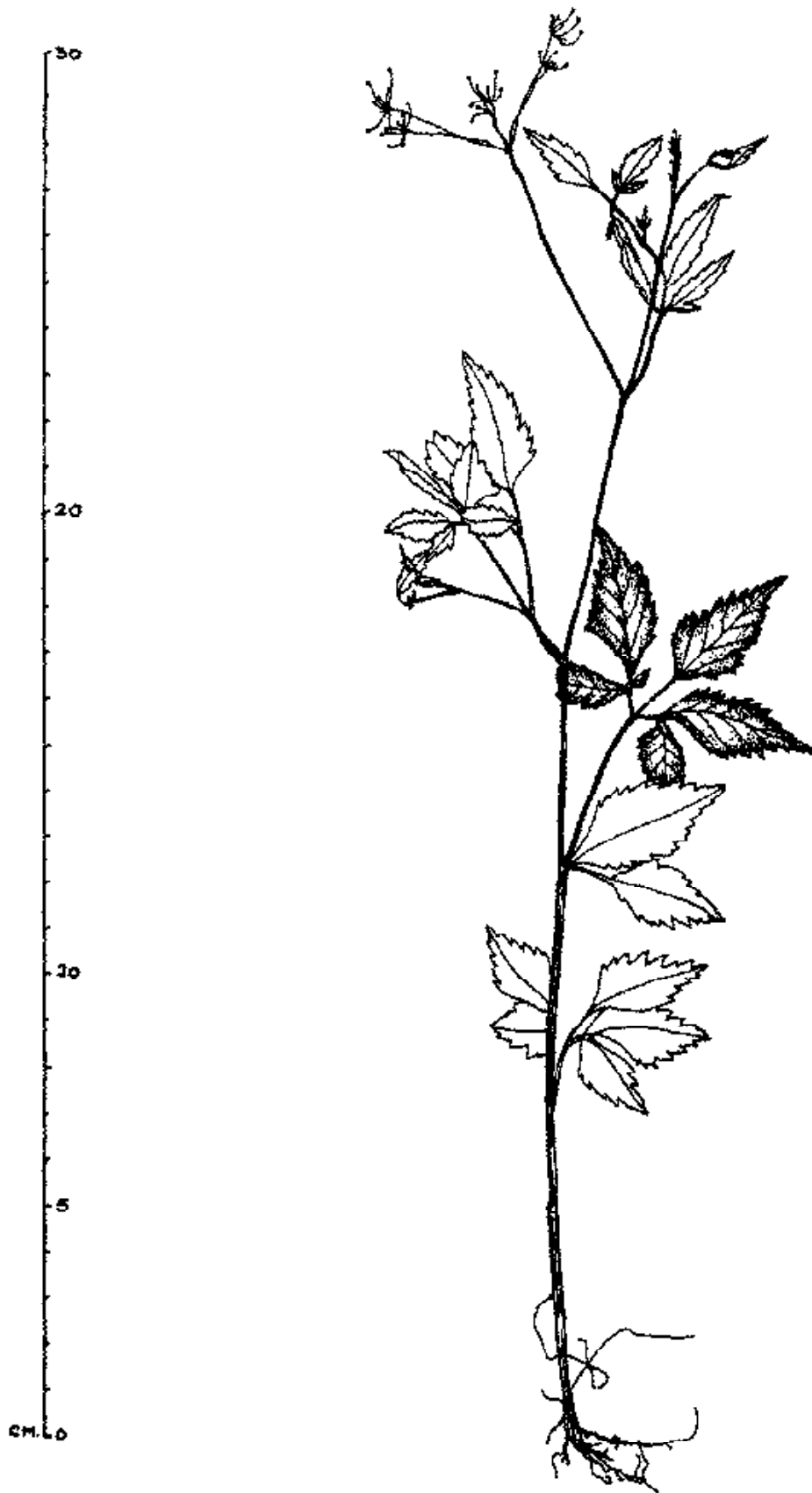
Herbs, 0.4-1.0 m tall. Stems much brached. Roots fusiform. Lower leaves bipinnate; leaflets cut into linear-lanceolate segments, upper leaves with linear segments. Flowers white, in 6-20-flowered, compound umbels. Fruits 0.1-0.15 cm long, ovoid, glabrous or puberulous, ridges slender.

Fls. & Frts. : August-October.

Distrib. : Common on hill slopes and in open areas. 168918.

CULTIVATED SPECIES :

Anethum graveolens L. Sp. Pl. 263.1753; P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 210.1993. *Peucedanum*



f. 37. *Pimpinella heyneana* (Wall. ex DC.) Kurz

graveolens (L.) Hiern, Fl. Trop. Africa 3 : 19.1877; C.B.Cl. in Hook. f. Fl. Brit.India 2 : 709.1879; *non* S. Wats.1871.

Slender, annual herbs. Leaves oblong-ovate, pinnately decomposed, segments filiform. Flowers in 10-15-flowered umbels. Fruits ovoid or elliptic-oblong.

Fls. & Frts. : June-December.

Distrib. : Versova. Almeida (1989).

Coriandrum sativum L. Sp. Pl. 256.1753; C.B.Cl. in Hook. f. Fl. Brit.India 2 : 717.1879; Cooke, Fl. Pres. Bombay 1: 609.1958 (Repr. ed.); P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 31.1993. 'Dhana', 'Kothimbir'.

Herbs, Leaves : lower ones pinnately or ternately lobed or simply pinnate with incised leaflets, upper cauline leaves decomposed with linear to filiform segments. Fruits ellipsoid.

Fls. & Frts. : July-September.

Distrib. : G. L. Shah (1969) Malad, Almeida (1998).

ALANGIACEAE

ALANGIUM Lam. (*nom. cons.*)

Alangium salvifolium (L. f.) Wangerin in Engl. Pflanzenr. 41: 9, f. 2A-E.1910; S. K. Mukh. in Bull. Bot. Surv. India 10 : 330. (1968) 1969; Londhe in Singh, *et al.* Fl. Maharashtra 2 : 114. 2001. *Grewia salvifolia* L. f. Suppl. Pl. 409.1781. *Alangium lamarchii* Thw. Enum. Pl. Zeyl. 133.1859; C. B. Cl. in Hook. f. Fl. Brit. India 2 : 741.1879; Cooke, Pres. Bombay 2 : 1.1958 (Repr. ed.). 'Ankul'.

Small trees, 3-5 m tall; branchlets pubescent, sometimes spine-tipped. Leaves 6-12 × 2.5-5.5 cm, oblong-lanceolate or ovate-lanceolate, elliptic, obliquely obtuse, subacute at base, subacute or slightly retuse at apex. Flowers white, few, in axillary clusters. Berries 1.5-2.0 × 1 cm ovoid, ellipsoid, with persistent calyx lobes, 1-seeded.

Fls. & Frts. : February-April.

Illus. : Wight, Ic. t.194.1839 (*Alangium decapetalum* Lam. Encycl. 1: 174.1783).

Distrib. : Borivli, T. S. N. Rao M. 253 a-b (BLAT)

RUBIACEAE

1. Herbs :

- 2. Stipules entire; corolla lobes dentate ... DENTELLA
- 2. Stipules lobed or pectinate; corolla lobes entire :
 - 3. Ovule 1 per locule ... SPERMACOCE
 - 3. Ovules 2 per locule :
 - 4. Seeds 2--few per locule, not angular ... NEANOTIS
 - 4. Seeds many per locule, angular ... HEDYOTIS

1. Shrubs or trees :

5. Plants armed :

- 6. Leaves glabrous on both surfaces; flowers in many-flowered, peduncled cymes :
 - 7. Leaf apex acuminate ... MEYNA
 - 7. Leaf apex obtuse ... CANTHIUM
- 6. Leaves pubescent beneath; flowers solitary or paired, axillary or terminal :
 - 8. Flowers more than 3.5 cm long, corolla glabrous outside ... TAMILNADIA
 - 8. Flowers less than 2.5 cm long, corolla hairy outside ... CATUNAREGAM

5. Plants unarmed :

- 9. Flowers in compact, globose heads :
 - 10. Stipules bifid, lobes acute ... MORINDA
 - 10. Stipules obtuse :
 - 11. Lower surface of leaf and corolla tube glabrous ... MITRAGYNA
 - 11. Lower surface of leaf and corolla tube pubescent ... HALDINA
- 9. Flowers not in compact, globose heads :
 - 12. Stamens and corolla lobes 4 :
 - 13. Styles unbranched or shortly 2-dentate ... PAVETTA
 - 13. Styles 2-branched ... IXORA
 - 12. Stamens and corolla lobes 5 or more :
 - 14. Flowers large, 2-5 cm long ... GARDENIA
 - 14. Flowers small, below 2 cm long :

15. Flowers in cylindric spike-like panicles; bracts foliaceous ... HYMENODICTYON
 15. Flowers in trichotomously branched panicles;
 bracts not foliaceous ... SPERMADICTYON

CANTHIUM Lam.

Canthium coromandelianum (N. Burm.) Alston in Trimen Handb. Fl. Ceylon 6: 152. 1931; Nicols. *et al.* in van Rheede, Hort. Malab. 218. 1988. *Gmelina coromandelica* N. Burm. Fl. Ind. 132. 1768. *Canthium parviflorum* Lam. Encycl. 1: 602. 1785; Hook. f. Fl. Brit. India 3: 136. 1880. *Plectronia parviflora* (Lam.) Bedd. Fl. Sylv. S. India t. 124. 1872; Cooke, Fl. Pres. Bombay 2: 35. 1958 (Repr. ed.). 'Kirni'.

Spiny shrubs, erect or subscandent. Leaves 1.8–4.0 × 1.0–2.5 cm, often clustered on the young shoots, ovate, suborbicular or obovate, cuneate at base, obtuse at apex. Flowers 4-merous, yellowish, in peduncled cymes. Drupes 1.0–1.5 × 0.8–0.9 cm, oblong-ellipsoid, didymous.

Fls. & Frts. : April–May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 109, f. 347. 1911 (*Plectronia parviflora*).

Distrib. : Salsette. Almeida. (2001).

CATUNAREGAM ADANS. ex V. Wolf

Catunaregam spinosa (Thunb.) Tirveng. in Bull. Mus. Hist. Nat. Paris 3: 35: 13. 1978 & Taxon 27: 515. 1978; Verdc. in Kew Bull. 41. 44. 1986. *Gardenia spinosa* Thunb. Diss. Gard. n. 7, t.2, f. 4. 1780. *Randia dumetorum* (Retz.) Poir. in Lam. Encycl. (Suppl. 2) : 829. 1811; Hook. f. Fl. Brit. India 3: 110. 1880; Cooke, Fl. Pres. Bombay 2: 27. 1958 (Repr. ed.). (Thunb.) Keay in Bull. Jard. Bot. Brux. 28. 37. 1958. 'Gel'.

Shrubs up to 5 m tall; stems armed with spines 1–3 cm long. Leaves 2.0–3.5 × 1.5–2.5 cm, obovate-spathulate, cuneate to attenuate at base, obtusely apiculate at apex, shining above, pubescent beneath. Flowers white, turning yellow, axillary, solitary or 2–3 together. Berries ca. 2 cm across, globose, glabrous, crowned with enlarged calyx lobes.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t. 580. 1842. (*Randia dumetorum*).

DENTELLA J. R. & G. Forst.

Dentella repens (L.) J. R. & J. G. A. Forst. Char. Gen. Pl. Inst. 26, t. 13. 1776; Hook. f. Fl. Brit. India 3: 42. 1880; Cooke, Fl. Pres. Bombay 2: 12. 1958 (Repr. ed.); Subram. & Sharma in Bull. Bot. Surv. India 10 : 386, f. 1-6 (1968) 1969. *Oldenlandia repens* L. Mant. 1: 40. 1767.

Herbs; stems prostrate, slender, strigose. Leaves 0.3-0.8 × 0.1-0.3 cm, opposite, ovate-elliptic or rhomboid, cuneate at base, acute at apex; stipules scarious. Flowers white, subsessile, axillary, solitary or in the forks of branchlets. Capsules ca. 0.2-0.3 cm across, globose, indehiscent. Seeds angular, punctate.

Fls. & Frts. : July-December.

Illus. : Subram. & Sharma, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 330. 1982.

Distrib. : Frequent in open areas. 168476.

GARDENIA J. Ellis (*nom. cons.*)

- | | | |
|---|-----|----------------------|
| 1. Leaves sessile; calyx segments recurved | ... | <i>G. latifolia</i> |
| 1. Leaves petiolate; calyx segments erect, straight | ... | <i>G. resinifera</i> |

Gardenia latifolia Soland. in Ait. Hort. Kew (ed.1) : 294. 1789; Hoof. f. Fl. Brit. India 3: 116. 1880; Cooke, Fl. Pres. Bombay 2: 30. 1958 (Repr. ed.); Mudliar & Prasad in Singh *et al.* Fl. Maharashtra 2: 126. 2001.

Trees up to 10 m tall. Leaves 10-20 × 5-15 cm, broadly elliptic or obovate, rounded to attenuate at base, obtuse to acute at apex. Flowers white, solitary. Berries ca. 4.5 cm across, globose, with persistent calyx crown. Seeds rugose.

Fls. & Frts. : March-May.

Illus. : Wight, Ic. t. 754. (*Gardenia enncandra* Koen. ex Wight & Arn. Prodr. 394. (1834 & t. 759. 1844); Talbot, For. Fl. Bombay Pres. & Sind. 2: 102, f. 343 & 344. 1911.

Distrib. : Frequent, 167366.

Gardenia resinifera Roth, Nov. Pl. Sp. 150. 1821; Almeida, Fl. Mah. 3: 16. 2001. *G. lucida* Roxb. Fl. Ind. 553. 1824; Hook. f. Fl. Brit. India 3: 115. 1880; Cooke, Fl. Pres. Bombay 2: 30. 1958 (Repr. ed.). 'Dekamali'.

Trees, 6–10 m tall. Leaves 8–15 × 5–7 cm, elliptic, rounded–attenuate, acute at base, abruptly acuminate at apex. Flowers white, turning yellow, solitary, axillary. Berries ca. 2.0 × 1.5 cm, ellipsoid, woody, with crown of calyx. Seeds rectangular or subreniform, compressed.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t. 575. 1842 (*G. lucida*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 332. 1982.

Distrib. : Frequent. 167436.

HALDINA Ridsd.

Haldina cordifolia (Roxb.) Ridsd. in *Blumea* 24: 361. 1978. *Nauclea cordifolia* Roxb. *Pl. Cor.* 1: 40, t. 53. 1796 & *Fl. Ind.* 1: 514. 1832. *Adina cordifolia* (Roxb.) Hook. f. ex Brandis, *Forest Fl. N.W.India* 263, t. 33. 1874; Hook. f. *Fl. Brit. India* 3: 24. 1880; Cooke, *Fl. Pres. Bombay* 2: 7. 1958 (Repr. ed.). 'Hed'.

Trees, 10–15 m tall. Leaves 10–25 × 10–27 cm, cordate to suborbicular, abruptly acuminate at apex, pubescent below; petioles 10 cm long. Flowers numerous, creamy–white, subsessile, in axillary, globose heads. Capsules 0.4–0.5 cm long, obconical, pubescent, breaking into two follicular cocci. Seeds oblong, hairy.

Fls. & Frts. : June–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 333. 1982.

Distrib. : Frequent.

HEDYOTIS L.

- | | | |
|---------------------------------|-----|---------------------|
| 1. Flowers sessile or nearly so | ... | <i>H. diffusa</i> |
| 1. Flowers pedicelled : | | |
| 2. Capsules truncate at apex | ... | <i>H. corymbosa</i> |
| 2. Capsules rounded at apex | ... | <i>H. herbacea</i> |

Hedyotis corymbosa (L.) Lam. *Encyl.* 1: 272. 1792; Rao and Hemadri in *Indian Forester* 99: 375. 1973; Sivar. & Biju in *Taxon* 39. 671, t. 10. 1990. *Oldenlandia corymbosa* L. *Sp. Pl.* 119. 1753; Hook. f. *Fl. Brit. India* 3: 64. 1880 *p.p.*; Cooke, *Fl. Pres. Bombay* 2: 15. 1958 (Repr. ed.). 'Pitpapda'

Annual Herbs; stems spreading or erect ca. 30 cm long with ascending branches. Leaves 2.0–3.5 × 3–4 cm, decussate, linearly obovate or lanceolate, decurrent at base, acute and apiculate at apex, subsessile. Flowers white to pinkish, 1–3 or in stalked pairs. Capsules 0.3–0.35 cm, loculicidal. Seed 3-gonous.

Fls. & Frts. : August–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 96. 1966; Sivar. & Biju, *op. cit.*

Distrib. : Common. 167282, 168473.

Hedyotis diffusa Willd. *Sp. Pl.* 1(2): 566. 1797–98; Sivar. & Biju in *Taxon* 39: 672. 1990. *Oldenlandia diffusa* (Willd.) Roxb. [*Hort. Beng.* 11. 1814] & *Fl. Ind.* 1: 424. 1820; Hook. f. *Fl. Brit. India* 3: 65. 1880; Cooke, *Fl. Pres. Bombay* 2: 16. 1958 (Repr. ed.).

Herbs; stems diffuse, prostrate, up to 30 cm long. Leaves 2–4 × 0.2–0.3 cm, linear, decurrent at base, acute at apex, margins revolute. Flowers white or purplish, solitary or in axillary pairs, shortly pedicellate. Capsules 0.3–0.3 cm, loculicidal, with persistent calyx lobes. Seeds reticulate.

Fls. & Frts. : August–December.

Distrib. : Koppikar (1974).

Hedyotis herbacea L. *Sp. Pl.* 102. 1753; Rao & Hemadri in *Indian Forester* 99: 376. 1973. *Oldenlandia herbacea* (L.) Roxb. *Fl. Ind.* 1: 424. 1820; Cooke, *Fl. Pres. Bombay* 2: 16. 1958 (Repr. ed.). '*Paripath*'.

Herbs up to 30 cm tall; stems erect, branches 4-gonous. Leaves 1–3 × 0.1–0.3 cm, linear–lanceolate to linear, acute at apex, margins revolute. Flowers white, solitary or 2–4 per node; pedicels up to 1 cm long. Capsules ca. 0.25 cm across, subglobose. Seeds ellipsoid, reticulate.

Fls. & Frts. : Almost throughout the year except. February to April.

Distrib. : Borivli, *P. S. Herbert*. 2675 & *Y. A. Merchant* 753–4 (BLAT).

HYMENODICTYON Wall. (*nom. cons.*)

- | | | |
|--|-----|--------------------|
| 1. Flowers sessile; corolla ca. 0.25 cm long | ... | <i>H. orixense</i> |
| 1. Flowers pedicelled; corolla ca. 0.5 cm long | ... | <i>H. obovatum</i> |

Hymenodictyon obovatum Wall. in Roxb. Fl. Ind. 2: 153. 1824; Hook. f. Fl. Brit. India 3: 36. 1880; Cooke, Fl. Pres. Bombay 2: 10. 1958 (Repr. ed.); Deb in J. Econ. & Tax. Bot. 13: 677, f. 2. 1989. 'Kadwa-sirid'

Trees up to 15 m tall. Leaves 8-13 × 4-7 cm, elliptic or obovate, narrowed at base, abruptly acuminate at apex, glabrous above, pubescent below. Flowers greenish, in clusters along rachis of spiciform racemose-panicles. Capsules ca. 1.5 × 0.5 cm ellipsoid.

Fls. & Frts. : July-December.

Illus. : Wight, Ic. t. 1159. 1846; Bedd. Fl. Sylvat, Pl. 219. 1872; Deb. *op. cit.*

Distrib. : Frequent. 167979.

Hymenodictyon orixense (Roxb.) Mabb. in Taxon 31: 66. 1982; Deb in J. Econ. Tax. Bot. 13: 679, f. 3. 1889. *Cinchona orixensis* Roxb. Bot. Descr. Swietenia 21. 1793 & Med. Facts Obs. 6: 152. 1795; Hook. f. Fl. Brit. India 3: 35. 1880; Cooke, Fl. Pres. Bombay 2: 9. 1958 (Repr. ed.). 'Kala-kaddu'

Trees up to 12 m tall, deciduous. Leaves 10-25 × 8-13 cm, ovate-elliptic to oblanceolate, attenuate at base, acute to shortly acuminate at apex, pubescent below. Flowers greenish, in terminal and axillary ca. 15 cm long, spiciform paniculate racemes. Capsules ca. 2 × 1 cm, ellipsoid or obovoid, stalked. Seeds winged.

Fls. & Frts. : June-September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 336. 1982; Deb. *op. cit.*

Distrib. : Borivli, H. Santapau, 13055, 1370 (BLAT).

IXORA L.

- | | | |
|---|-----|---------------------|
| 1. Corolla tube 0.5 cm long; calyx urceolate | ... | <i>I. brachiata</i> |
| 1. Corolla tube more than 0.8 cm long; calyx not as above : | | |
| 2. Flowers white | ... | <i>I. pavetta</i> |
| 2. Flowers scarlet-red | ... | <i>I. coccinea</i> |

Ixora brachiata Roxb. [Hort. Beng. 10. 1814] & Fl. Ind. 1: 391. 1820; Hook. f. Fl. Brit. India 3: 142. 1880; Cooke, Fl. Pres. Bombay 2: 39. 1958 (Repr. ed.). 'Lokhandi'.

Trees, 5–8 m tall. Leaves 6–12 × 3.5–5.5 cm, elliptic-oblong or lanceolate, attenuate at base, obtuse at apex. Flowers white, fragrant, in sessile or shortly peduncled cymes. Fruits ca. 0.6 cm across, globose or didymous. Seeds hemispheric, rugose.

Fls. & Frts. : November–February.

Illus. : Wight, Ic. t. 2(4) : t. 6. 710. 1843.

Distrib. : Frequent on hill slopes. 167449, 168961.

Ixora coccinea L. Sp. Pl. 110. 1753; Hook. f. Fl. Brit. India 3: 145. 1880; Cooke, Fl. Pres. Bombay 2: 40. 1958 (Repr. ed.). 'Bakara'.

Shrubs, 0.6–1.5 m tall. Leaves 5–10 × 3–5 cm, elliptic-ovate to oblong, rounded or cordate at base, acute at apex, coriaceous, sessile or subsessile. Flowers in corymbose-cymes. Drupes 0.6–0.8 cm across, globose, orange or purplish when ripe.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 153. 1839.

Distrib. : Occasional bushes. 167938.

Ixora pavetta Andr. Bot. Rep. t. 78. 1799; Swaminathan in A.N. Henry *et al.* Fl. Tamilnadu Anal. 2. 11. 1987. *Ixora arborea* Roxb. ex J.E. Sm. in Rees, Cycl. 19: 5. 1811. *I. parviflora* Vahl, Symb. 3: 11, t. 52. 1794 non Lam. 1791; Hook. f. Fl. Brit. India 3: 142. 1880; Cooke, Fl. Pres. Bombay 2: 39. 1958 (Repr. ed.). 'Rai-kuda'.

Small evergreen trees. Leaves 7–12 × 8–5 cm, coriaceous, oblong or elliptic, rounded or cordate at base, obtuse at apex, glabrous and shining above. Flowers white, odorous; small and numerous, in subglobose clusters in sessile cymes; corolla 0.8–1.2 cm long. Fruits ca. 0.6 across, didymous.

Fls. & Frts. : January–April.

Illus. : Wight, Ic. t. 711. 1843; Talbot, For. Fl. Bombay Pres. & Sind 2: 114, f. 350. 1911. (*I. parviflora*).

Distrib. : Borivli, Malad, Almeida (2001).

MEYNA Roxb. ex Link

Meyna laxiflora Robyns in Bull. Jard. Bot. Brux. 11. 228. 1928; Sant. in Bull. Bot. Surv. India 3: 20 (1961) 1962. *Vangueria spinosa*

Roxb. [Hort. Beng. 15. 1814] & Fl. India 2: 172. 1824, *pro parte*; excl. type; Hook. f. Fl. Brit. Ind. 3: 136. 1880; Cooke, Fl. Pres. Bombay 2: 36. 1958 (Repr. ed.). 'Aliv'. 'Alu'.

Large armed shrubs or small trees, 3–8 m tall. Leaves 5.5–13.0 × 3.5–7.0 cm, elliptic-oblong, shortly cuneate at base, acuminate at apex, membranous. Flowers greenish–yellow, in axillary cymes or fascicled on leafless woody branches. Drupes 2.5–3.0 cm across, nearly globose, smooth, yellow when ripe.

Fls. & Frts. : January–June.

Illus : Talbot, For. Fl. Bombay Pres. & Sind 2: 110, f. 348. 1911 (*Vangueria spinosa*).

Distrib. : Scattered. 167438.

MITRAGYNA Korth. (*nom. cons.*)

Mitragyna parvifolia (Roxb.) Korth. Obs. Naocl. Ind. 19. 1839; Cooke, Fl. Pres. Bombay 2: 8. 1958 (Repr. ed.); Ridsdale in Blumea 24: 63. 1978. *Nauclea parvifolia* Roxb. Pl. Cor. 1: 40, t. 52. 1795 & Fl. Ind. 1: 513. 1832. *Stephegyne parvifolia* Korth. in Verh. Nat. Ges. Bot. 161. 1840; Hook. f. Fl. Brit. India 3: 25. 1880. 'Kadamb'. 'Kalam'.

Trees 10–15 m tall, deciduous. Leaves 5–15 × 4–10 cm, oblong or suborbicular, truncate–acute at base, obtuse at apex, subcoriaceous. Flowers creamy–white, in terminal or axillary, globose heads. Capsules aggregated into globose heads ca. 1 cm across. Seeds many, flat, winged.

Fls. & Frts. : May–August.

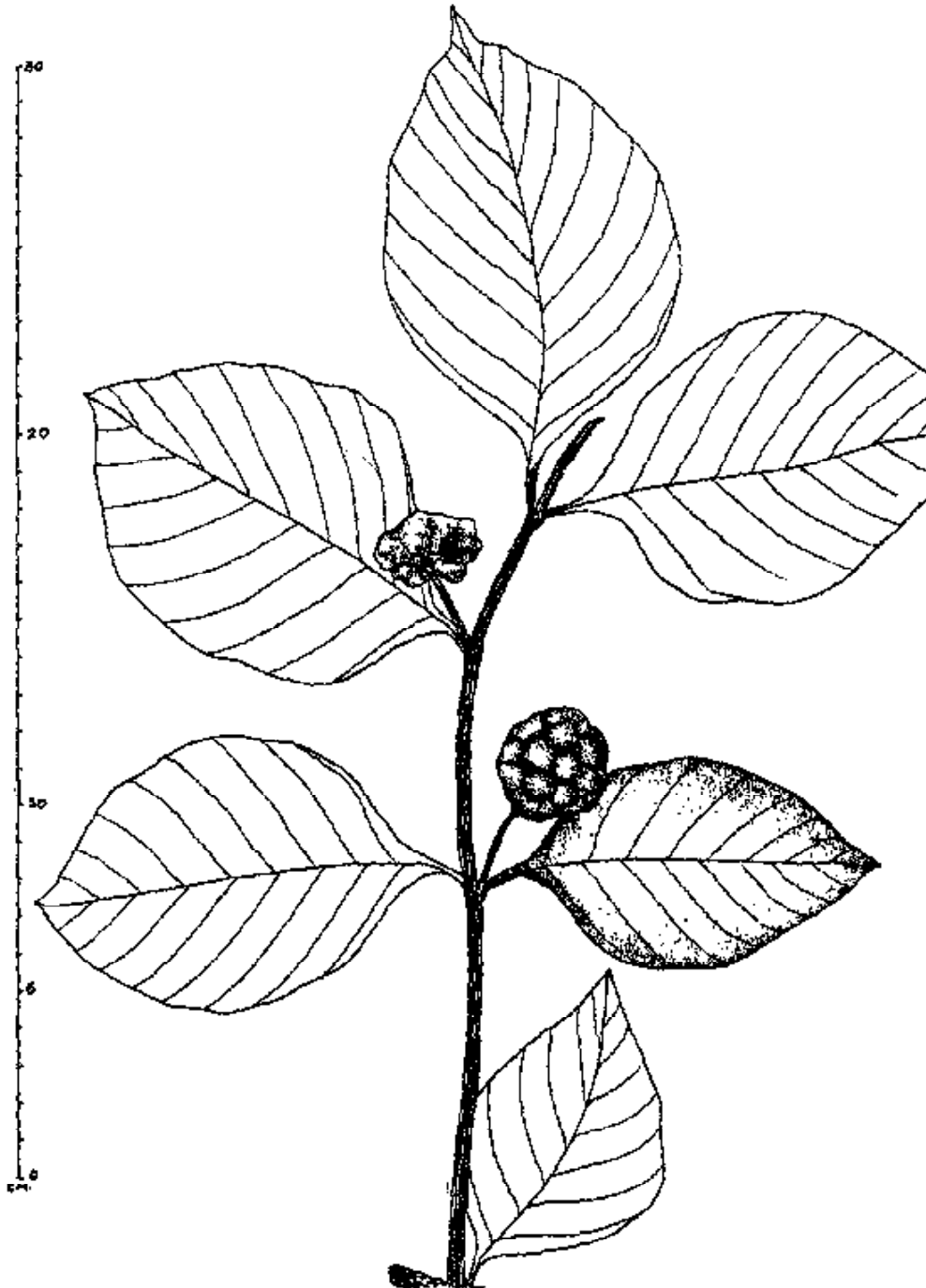
Illus. : Mahesh. Illus. Fl. Delhi f. 97. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 340. 1982.

Distrib. : Frequent. 167333.

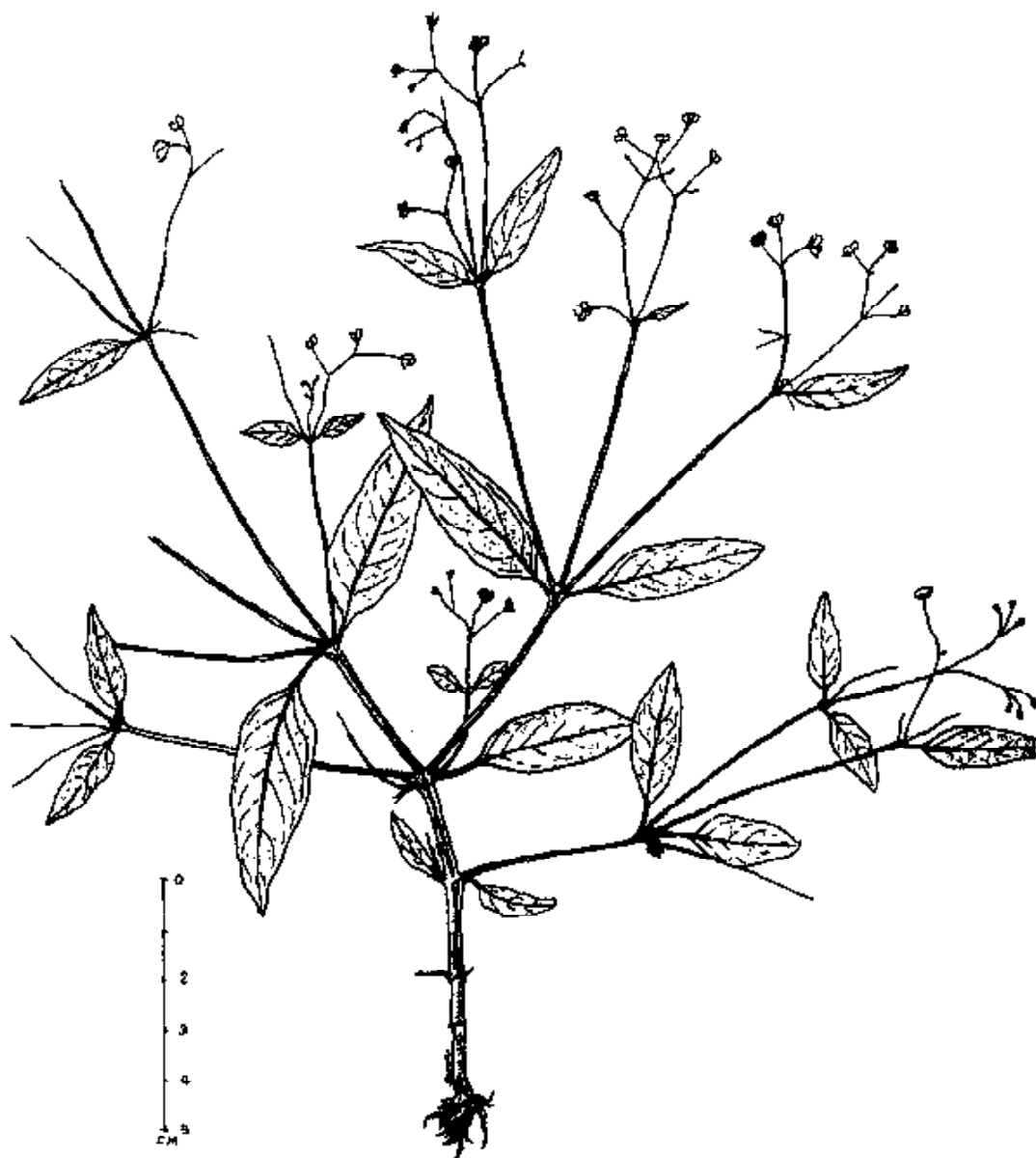
MORINDA L.

Morinda pubescens J. E. Sm. in Rees, Cyclop. 24. n. 3. 1813; Verdc. in Kew Bull. 37: 543. 1983. *M. tinctoria* Roxb. var. *tomentosa* (Heyne ex Roth) Hook. f. Fl. Brit. India 3: 156. 1880; Cooke, Fl. Pres. Bombay 2: 43. 1958 (Repr. ed.). 'Bartondi'.

Trees 3–6 m tall Leaves 10–16 × 3–12 cm, decussate, elliptic or oblong–lanceolate, acuminate at apex, tomentose on both surfaces. Flowers white, in globose, solitary or leaf–opposed heads. Fruits 2–3 cm



f. 38. *Morinda pubescens* J. E. Sm.



f. 39. *Neanotis latifolia* (Dalz.) Deb & Dutta

across, globose or ellipsoid, of coalescent drupes, fleshy. Seeds oblong or obovoid.

Fls. & Frts. : March–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 122, f. 356. 1911. (*M. tinctoria*).

Distrib. : Common. 167312, 167780.

NEANOTIS W. H. Lewis (*ANOTIS auct. non DC.*)

- | | | |
|-----------------------------|-----|---------------------|
| 1. Leaves linear-lanceolate | ... | <i>N. foetida</i> |
| 1. Leaves ovate | ... | <i>N. latifolia</i> |

Neanotis foetida (Hook. f.) W.H. Lewis in Ann. Miss. Bot. Gard. 53: 38. 1966. *Anotis foetida* Hook. f. in Bth. & Hook. f. Gen. Pl. 2: 59. 1873 & Fl. Brit. India 3: 74. 1880. *Neanotis hohenackerii* Daniel & Vajr. in J. Econ. Tax. Bot. 3: 675. 1982.

Herbs, 10–15 cm tall; stems slender, erect or procumbent, simple or branched. Leaves 1.0–2.5 x 0.13–0.4 cm, linear to linear-lanceolate, subacute. Flowers purple, in 2–3-flowered, capitate cymes. Capsules 0.25–0.3 cm long, didymous, 1–6-seeded. Seeds ellipsoid or orbicular, pitted.

Fls. & Frts. : July–October.

Illus. : Lakshminaras. & Sharma, Fl. Nasik Dt. 248, f. 15. 1991.

Distrib. : Frequent on moist, forest floor. 167876.

Neanotis latifolia (Dalz.) Deb & Dutta in J. Bombay nat. Hist. Soc. 87: 333. 1990. *Hedyotis latifolia* Dalz. in J. Bot. 2: 133. 1850 et in Dalz. & Gibs. Bombay Fl. 116. 1861; Hook. f. Fl. Brit. India 3: 73. 1880 in syn. non. *Anotis rheedei* Wall. ex Wight & Arn. 1834. *A. rheedei sensu* Cooke, Fl. Pres. Bombay 2: 21. 1903 [2: 21. 1953 (Repr. ed.)].

Herbs, 10–25 cm tall; stems slender, erect, 4-gonous to slightly 4-winged. Leaves 2–5 x 1.5–2.5 cm, tapering at base, acute or acuminate at apex. Flowers light pink, in axillary and terminal, lax cymes. Capsules ca. 0.25 cm across, globose, didymous, puberulous. Seeds 4–12, semi-ellipsoid, minutely reticulate.

Fls. & Frts. : July–October.

Distrib. : Frequent on moist, forest floor. 167828.

PAVETTA L.

- | | | |
|-------------------------------|-----|------------------------|
| 1. Leaves glabrescent beneath | ... | <i>P. crassicaulis</i> |
| 1. Leaves tomentose beneath | ... | <i>P. tomentosa</i> |

Pavetta crassicaulis Bremek. in Feddes Repert., 37: 112. 1934 & 47: 25. 1939; Sant. & Merch. in Bull. Bot. Surv. India 3: 109 (1961) 1962. *P. indica* auct. non L. 1753; Hook. f. Fl. Brit. India 3: 150. 1880. Cooke, Fl. Pres. Bombay 2: 41. 1958 (Repr. ed.). 'Papat'.

Shrubs, 0.6–1.3 m tall, deciduous; stems and branches stout and bushy. Leaves 5–10 × 2.5–4.0 cm, elliptic-oblong to elliptic-lanceolate or obovate-oblong, tapering at base, obtuse, acute or acuminate at apex. Flowers white, in terminal, sessile corymbose cymes. Fruits 0.6–1.1 cm across, globose, black.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 148. 1839; Talbot, For. Fl. Bombay Pres. & Sind. 2: 117. ff. 353 & 354. 1911 (*Pavetta indica*).

Distrib. : Frequent bushes. 167354, 167745, 168495.

Pavetta tomentosa Roxb. ex J.E. Sm. in Rees, Cyclop. 26: 52. 1813. *P. indica* var. *tomentosa* (Roxb. ex J.E. Sm.) Hook. f. Fl. Brit. India 3: 150. 1880; Cooke, Fl. Pres. Bombay 2: 41. 1958 (Repr. ed.).

Shrubs or trees, 1.5–2.0 m tall; tender parts tomentose. Leaves 8–15 × 3–8 cm, broadly elliptic to oblanceolate, acute or rounded at base, acute at apex, petiolate, puberulous above and tomentose beneath. Flowers white, in much branched, pubescent cymes. Berries 0.6–0.8 cm across, globose, black.

Fls. & Frts. : June–November.

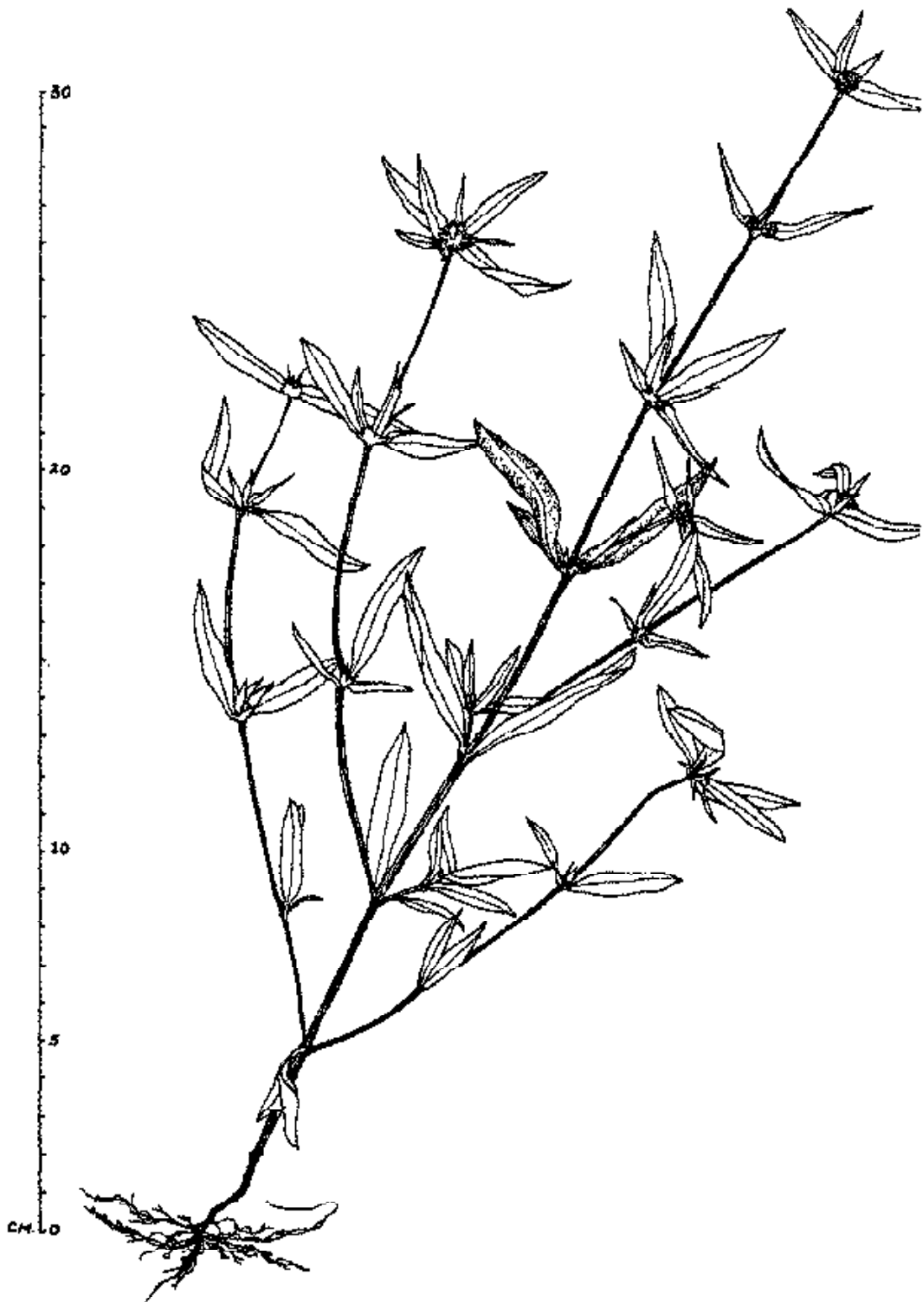
Illus. : Wight, Ic. t. 1065. 1846 (*P. brunonis*); Matthew, Illus. Fl. Tamilnadu Carnatic t. 343. 1982.

Distrib. : Borivli, H. Santapau. 15640, 15650 (BLAT).

SPERMACOCE L.

- | | | |
|---------------------|-----|-----------------------|
| 1. Stems procumbent | ... | <i>S. articularis</i> |
| 1. Stems erect | ... | <i>S. pusilla</i> |

Spermacoce articularis L. f. Suppl. 119. 1781; Sivar. et al. in Proc. Indian Acad. Sci. (Pl. Sci.) 97: 349. 1987; Mudliar & Prasad in Singh et al. Fl. Maharashtra 2: 164. 2001. *Borreria articularis* L.f. Suppl. 119. 1781; F. N. Williams in Bull. Bot. Herb. Boiss. 2, 5.956.



f. 40. *Spermacoce pusilla* Wall.

1905. *Spermacoce hispida auct. mult. non* L. 1753; Hook. f. *Fl. Brit. India* 3: 200. 1881; Cooke, *Fl. Pres. Bombay* 2: 53. 1958 (Repr. ed.); Deb & Dutta in *J. Econ. Tax. Bot.* 5: 1046. 1984 p. p. 'Madanghanti'.

Herbs, 60–75 cm long; branches hispid, diffuse. Leaves 1–4 × 0.6–2.0 cm, elliptic–ovate, truncate to attenuate at base, acute and apiculate at apex. Flowers pinkish–white, tinged with purple, in axillary fascicles. Capsules 0.5–0.6 × 0.4–0.5 cm, globose. Seeds oblong.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 327. 1982. (*Borreria articularis*).

Distrib. : Common in open areas of the forests. 17821.

Spermacoce pusilla Wall. in Roxb. *Fl. Ind.* 1. 370. 1820; Verdc. in *Fl. Trop. E. Africa, Rubiaceae* (1) : 356. 1976; Deb & Dutta in *J. Econ. Tax. Bot.* 5: 1057. 1984. *S. stricta* L. f. *Suppl. Pl.* 120. 1781 (*non Borreria stricta* G.F.W. Mey 1818); Hook. f. *Fl. Brit. India* 3: 200. 1881; Cooke, *Fl. Pres. Bombay* 2: 52. 1958 (Repr. ed.). *Borreria pusilla* (Wall.) DC. *Prodr.* 4: 543. 1830; Gandhi in *Sald. & Nicols. Fl. Hassan Dt.* 574. 1976.

Herbs, 20–40 cm tall. Leaves 3–6 × 0.5 × 1.0 cm, linear–lanceolate, attenuate at base, acute at apex, whorled. Flowers white, in axillary whorls or in terminal, sessile heads. Capsules 0.2–0.3 cm long, oblong or ovoid; apiculate, pubescent in upper half. Seeds oblong, ventrally grooved.

Fls. & Frts. : October–December.

Illus. : Deb & Dutta, *op. cit.* f. 8, A–H,

Distrib. : Common in open areas of the forests. 17813.

SPERMADICTYON Roxb.

Spermadictyon suaveolens Roxb. *Pl. Cor.* 3: 32, t.236. 1815; Sant. & Merch. in *Bull. Bot. Surv. India* 3: 110(1961) 1962. *Hamiltonia suaveolens* Roxb. *Fl. Ind.* 1: 554. 1832; Hook. f. *Fl. Brit. India* 3: 197. 1880; Cooke, *Fl. Pres. Bombay* 2: 51. 1958 (Repr. ed.).

Shrubs, 1.5–2.0 m tall, branches trichotomous. Leaves 12–40 × 4–8 cm, elliptic–lanceolate, acute at base and apex; stipules hairy. Flowers numerous, white, in trichotomously branched panicles. Capsules 0.3–0.4 cm long, ellipsoid. Seeds triquetrous, arillate.

Fls. & Frts. : October–February.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 135, f. 364. 1911
(*Hamiltonia suaveolens*).

Distrib. : Kanheri hills, *Blatter & McCann 794 (BLAT)*.

TAMILNADIA Tirveng. & Sastre

Tamilnadia uliginosa (Retz.) Tirveng. & Sastre in Mauritius Inst. Bull. 8 (4) : 85. 1979; Henry *et al.* Fl. Tamilnadu 2: 25. 1987. *Gardenia uliginosa* Retz. Obs. Bot. 2: 14. 1781. *Randia uliginosa* (Retz.) DC. Prodr. 4: 386. 1830; Hook. f. Fl. Brit. India 3: 110. 1880; Cooke, Fl. Pres. Bombay 2: 27. 1958 (Repr. ed.). *Xeromphis uliginosa* (Retz.) Mahesh. in Bull. Bot. Surv. India 3: 92 (1961) 1962. *Catunaregam uliginosa* (Retz.) Sivar. in Manilal & Sivar. Fl. Calicut 132. 1982; Almeida, Fl. Mah. 3: 2001.

Trees, 6–8 m tall; bark scaly, reddish–brown, branches thorny. Leaves 6–13 × 4–5 cm, obovate or obovate–oblong, tapering to the base, obtuse at apex. Flowers white, 3.5–5.0 cm across; calyx fleshy, corolla with a ring of white hairs at mouth; stamens 5–7; ovary 2–celled; stigma large, laciniate, spiral. Berries 5–6 cm long, ovoid; seeds, compressed, embedded in pulp.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t. 397. 1840 (*Randia uliginosa*)

Distrib. : Borivli, *Almeida op. cit.*

CULTIVATED SPECIES :

Gardenia jasminoides Ellis in Phil. Trans. Lond. 51 (2) : 935. 1761; Cooke, Fl. Pres. Bombay 2: 31. 1958 (Repr. ed.); Almeida, Fl. Mah. 3: 14. 2001. '*Gandaraja*'.

Shrubs, 0.6–1.8 m tall, evergreen, stems occasionally rooting. Leaves 10–13 cm long, lanceolate to obovate, shortly acuminate at apex, coriaceous, sometimes variegated. Flowers white, showy ca. 7.5 cm across, fragrant, waxy, succulent.

Fls. & Frts. : July–August.

Distrib. : Borivli, Y. A. Merchant, 45, 538 (BLAT) (ornamental)
Native of China & Japan.

Guettardia speciosa L. Sp. Pl. 991. 1753; Hook. f. Fl. Brit. India 3: 126. 1880; Almeida, Fl. Mah. 3: 17. 2001.

Shrubs, evergreen. Leaves obovate, pubescent beneath, rounded or cordate at base. Flowers polygamous, in dichotomously branched cymes. Drupes globose, woody, slightly lobed.

Flowers. : March–June.

Illus. : Wight, Ic. t. 40. 1842.

Distrib. : Goregaon, Almeida, *op. cit.* Native of Caledonia and Tropical America.

Morinda citrifolia L. Sp. Pl. 176. 1753; Hook. f. Fl. Brit. India 3: 45. 1880; Cooke, Fl. Pres. Bombay 2: 42. 1958 (Repr.ed).

Small trees. Leaves broadly elliptic, bright green, glabrous, shining. Flowers white, in dense, ovoid, peduncled heads. Fruits white when ripe, glossy, about the size of a small egg.

Fls. & Frts. : May–June.

Distrib. : Versova, Almeida (2001). Native of Chochinchina, Moluccas & Pegu.

Mussaenda aegyptiaca Poir. in Lam. Encyl. 4: 394. 1797; Almeida, Fl. Mah. 3: 32. 2001.

Twiggy shrubs, 1.5–2.0 cm tall, hoary–pubescent. Leaves elliptic–lanceolate or oblong–lanceolate. Flowers yellow, in corymbs; one of the calyx lobes petaloid.

Fls. & Frts. : August–April.

Distrib. : Goregaon, Almeida (2001). Native of Tropical Africa.

Mussaenda erythrophylla Schum. & Thonn. Beskr. Guinn. Pl. 116. 1827. Almeida Fl. Mah. 3: 32. 2001. *M. tomentosa* C.B.Cl. in Hook. f. Fl. Brit. India 3: 88. 1880 (non Wight & Arn. 1834).

Scandent shrubs up to 3m high, velvety–tomentose. Leaves ovate–elliptic to ovate–lanceolate, white beneath. Flowers yellowish–white, with red throat. Berries with persistent calyx crown.

Fls. & Frts. : August–November.

Distrib. : Goregaon, Almeida, *op. cit.*

Mussaenda laxa (Hook.f.) Hutchinson ex Gamble Fl. Madras 610. 1921; Kulkarni Fl. Sindhudurg Dist. 203. 1988; Almeida, Fl. Mah. 3: 34. 2001. *M. frondosa* L. var. *laxa* Hook. f. Fl. Brit. India 3: 89. 1880.

Rambling shrubs. Leaves broadly ovate, acuminate. Flowers orange-red, in lax, terminal cymes. Berries ovoid or obovoid, hairy.

Fls. & Frts. : April–November.

Distrib. : Malad, Almeida, *op. cit.*

Mussaenda villosa Schlect. ex Hook. f. Fl. Brit. India 3: 90. 1880; (non Wall. Cat. 1828); Almeida, Fl. Mah. 3: 35. 2001 *M. hirsutissima* (Hook. f.) Hutch. ex Gamble, Fl. Pres. Madras 2: 610. 1921. *M. frondosa* var. *hirsutissima* Hook. f. Fl. Brit. India 3: 90. 1880.

Shrubs up to 3 m high, hairy. Leaves broadly elliptic-ovate, acuminate. Flowers yellowish-orange, bracteolate and bracteolate, in terminal cymes. Berries globose.

Fls. & Frts. : April–September.

Distrib. : Goregaon, Almeida (2001). *op. cit.*

ASTERACEAE

1. Stems winged :
 2. Flowers in compound globose heads; involucre bracts acute ... SPHAERANTHUS
 2. Floral heads not as above; involucre bracts sharply acuminate ... EPALTES
1. Stems not winged :
 3. Achenes enclosed in spiny involucre ... XANTHIUM
 3. Achenes not enclosed in spiny involucre :
 4. Leaves alternate or radical and upper cauline ones alternate :
 5. Leaves alternate :
 6. Florets tubular :
 7. Heads compound ... ELEPHANTOPUS
 7. Heads simple :
 8. Florets purple, pale blue or white :
 9. Heads sessile, axillary; florets pale blue or white ... CAESULIA

9. Heads peduncled, axillary; or terminal, solitary or corymbosely paniced; florets purple or pink :
10. Leaves white, woolly-tomentose beneath ... PHYLOCEPHALUM
10. Leaves not as above :
11. Leaves pinnatifid; pappus absent ... CYATHOCLINE
11. Leaves not pinnatifid; pappus present :
12. Pappus 2-seriate ... VERNONIA
12. Pappus copious or 1-seriate :
13. Pappus copious :
14. Receptacle densely bristly; style with a ring or hairs near the base ... TRICHOLEPIS
14. Receptacle naked; style without such ring of hairs ... EMILIA
13. Pappus 1-seriate ... BLUMEA
8. Florets yellow :
15. Plants white-woolly ... GNAPHALIUM
15. Plants not as above ... BLUMEA
6. Florets tubular and ligulate :
16. Leaves pinnatifid or bipinnatifid :
17. Florets yellow, in globose heads about 0.8 cm across ... GRANGEA
17. Florets white, in dichotomously branched, lax paniculate, obconical heads ca. 0.4 cm across ... PARTHENIUM
16. Leaves entire or variously lobed :
18. Florets bluish purple or white or pink :
19. Involucral bracts bristle-tipped ... ERIGERON
19. Involucral bracts acute ... LAGGERA
18. Florets yellow or bright yellow :
20. Heads ca. 10 cm across, solitary ... TITHONIA
20. Heads less than 2.5 cm in diameter, corymbosely-paniced :
21. Leaves white with green nerves beneath; achenes glabrous ... SENECIO
21. Leaves not as above; achenes hairy ... PENTANEMA
5. Leaves radical and upper cauline leaves alternate ... LAUNAEA

4. Leaves opposite :
22. Heads with tubular florets only :
23. Heads compound ... LAGASCEA
23. Heads simple :
24. Anthers truncate; glandular, apiculate at apex; pappus scales clavate ... ADENOSTEMMA
24. Anthers appendiculate at apex; pappus scales aristate, dilated at base ... AGERATUM
22. Heads with tubular and / or ligulate florets :
25. Heads sessile, axillary :
26. Outer involucre bracts spinous ... ACANTHOSPERMUM
26. Outer involucre bracts not spinous ... SYNEDRELLA
25. Heads distinctly peduncled, axillary or terminal :
27. Leaf margins variously deeply divided or pinnatisect :
28. Pappus bristles plumose ... TRIDAX
28. Pappus bristles retrorsely scabrid ... BIDENS
27. Leaf margins subentire, crenate-serrate or serrate :
29. Florets white; pappus absent or seldom minute teeth like ... ECLIPTA
29. Florets yellow or whitish, pappus present, scaly or bristly :
30. Heads 0.8–1.2 cm across; achenes pubescent; ... BLAINVILLEA
30. Heads 2.5 cm across; achenes glabrous ... WEDELIA

ACANTHOSPERMUM Schrank

Acanthospermum hispidum DC. Prodr. 5: 522. 1836; Gamble, Fl. Madras 2: 704 (495). 1921; Stuessy in Rhodora 72: 106. 1970; Rao et al. Fl. Ind. Enum. Aster. 1: 1988.

Herbs up to 70 cm, hispid. Leaves 2–7 × 2–4 cm, opposite, obovate to oblanceolate, cuneate at base, acute at apex, margins coarsely serrate, petiolate. Flowers yellowish, in solitary, axillary heads. Involucre bracts 2-seriate. Achenes of ray florets compressed, smooth, enclosed within echinate phyllaries; achenes of disc florets sterile.

Fls. & Frts. : August–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 350. 1982.

Distrib. : Gregarious weed of waste land and fallow fields. 168406.

ADENOSTEMMA J. R. & J. G. A. Forst.

Adenostemma lavenia (L.) O. Ktze. Rev. Gen. Pl. 1: 304. 1891; Panigr. in Kew Bull. 30 : 648. 1975; Rao *et al.* Fl. Ind. Enum. Aster. 1: 1998. *Verbesina lavenia* L. Sp. Pl. 902. 1753. *Adenostemma viscosum* J. R. & J. G. A. Forst. Char. Gen. Pl. 90 t. 45. 1776; Hook. f. Fl. Brit. India 3: 232. 1881; Cooke, Fl. Pres. Bombay 2: 69. 1958 (Repr. ed.).

Herbs, 30–90 cm tall, glandular-hairy in young parts. Leaves 7–15 cm long, the lower opposite, the upper alternate, oblong to oblong-lanceolate or ovate, truncate to acute at base, acute at apex, margins irregularly serrate, petiolate. Flowers white, in lax, corymbose-paniculate heads. Achenes 0.3–0.4 cm long, obconical, glandular-pubescent or scabrid, curved.

Fls. & Frts. : September–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 351. 1982.

Distrib. : Tulsi lake, H. Santapau. 21629–30 (BLAT).

AGERATUM L.

Ageratum conyzoides L. Sp. Pl. 839. 1753; Hook. f. Fl. Brit. India 3: 243. 1881; Cooke, Fl. Pres. Bombay 2: 70. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 2: 1988. 'Osadi' 'Sahadevi'.

Herbs up to 70 cm tall. Leaves opposite or the upper alternate, puberulous, broadly ovate, cuneate at base, acute at apex, margins crenate; petiolate. Flowers pale blue or white, in dense, terminal corymbose heads. Achenes oblong, slightly curved, angled, narrowed at base; pappus of 5 scales.

Fls. & Frts. : July–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 352. 1982.

Distrib. : Frequent on the out skirts of forests, near nallas and fallow fields. 167233, 168902.

BIDENS L.

Bidens biternata (Lour.) Merr. & Sherff. in Bot. Gaz. 88: 293. 1929; Sant. in Bull. Bot. Surv. India 3: 12(1961), 1962; Rao *et al.* Fl.

Ind. Enum. Aster. 13. 1988. *Coreopsis biternata* Lour. Fl. Cochinch. 508. 1790. *Bidens pilosa* auct. non L. 1753; Hook. f. Fl. Brit. India 3: 309. 1881 p. p; Cooke, Fl. Pres. Bombay 2: 101. 1958 (Repr. ed.).

Herbs up to 1 m high; stems quadrangular, grooved, erect. Leaves 3-foliolate; terminal leaflets 3-lobed, 4-8 × 16 cm, long, obovate to lanceolate, acuminate at apex, margins crenate-serrate; lateral ones smaller, ovate to obovate, acute at apex. Flowers yellow, solitary or paired, in axillary or terminal heads; peduncles up to 10 cm long. Achenes linear, 0.7-0.8 cm long, narrowly oblong; pappus of two stiff awns, retrorsely bristly.

Fls. & Frts. : August-April.

Illus. : Tad. & G. V. Narayana, Handb. S. Indian Weeds 240, t.95. 1955 (*Bidens pilosa*).

Distrib. : Frequent in fallow fields. 167393, 168908, 168934.

BLAINVILLEA Cass.

Blainvillea acmella (L.) Philip. in Blumea 6: 350, f.l. 1950; Rao *et al.* Fl. Ind. Enum. Aster. 14. 1988. *Verbesina acmella* L. Sp. Pl. 901. 1953. *Blainvillea latifolia* (L.f.) DC. ex Wight, Contrib. Bot. Ind. 17. 1834; Hook. f. Fl. Brit. India 3: 305. 1881; *B. rhomboidea* Cass. Dict. Sci. Nat. 29: 493. 1823; Cooke, Fl. Pres. Bombay 2: 97. 1958 (Repr. ed.).

Herbs, 30-60 cm tall; stems erect, hispid. Leaves 3-8 × 2-5 cm, ovate to ovate-lanceolate, hispid-hairy on both surfaces. Flower heads whitish, in terminal cymes. Achenes of two types, those of ray florets 0.3 cm long, cuneiform, triquetrous and slightly curved, those of disk florets 0.4 cm long, nearly straight, triquetrous or compressed.

Fls. & Frts. : August-October.

Illus. : Tad. & G.V. Narayana, Handb. S. Indian Weeds 236, t.93. 1955 (*Blainvillea rhomboidea*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 336. 1982.

Distrib. : Common. 107983.

BLUMEA DC. (*nom. cons.*)

- | | | |
|---|-----|---------------------|
| 1. Plants prostrate with radiating and ascending branches | ... | <i>B. oxyodonta</i> |
| 1. Plants erect : | | |
| 2. Receptacles pilose | ... | <i>B. laciniata</i> |

2. Receptacles glabrous :
3. Florets purple to lilac ... *B. mollis*
3. Florets yellow :
4. Stems reddish-brown to purple ... *B. belangeriana*
4. Stems not reddish-brown as above :
5. Corollas of female florets hairy ... *B. oriantha*
5. Corollas of female florets glabrous ...
6. Heads solitary or a few, axillary or terminal ... *B. obliqua*
6. Heads many, in axillary or terminal panicles :
7. Achenes ribbed : ... *B. membranacea*
7. Achenes not ribbed : ... *B. lacera*

Blumea belangeriana DC. Prodr. 5: 444. 1836; Hook. f. Fl. Brit. India 3: 266. 1881; Cooke, Fl. Pres. Bombay 2: 78. 1958 (Repr. ed.); Randeria in Blumea 10 : 277. 1960; Rao *et al.* Fl. Ind. Enum. Aster. 15. 1988.

Herbs up to 40 cm high; stems often purple in colour, terete, much branched, erect, hispid at base, villous at apex. Leaves (lower) 5-8 × 2.5-4.0 cm, obovate, attenuated into a petiole; upper leaves sessile, elliptic-oblong, villous beneath. Flowers in axillary, sessile, solitary or fascicled heads. Achenes terete, oblong, pubescent.

Fls. & Frts. : December-March.

Distrib. : Frequent along the streams. 167708, 167726, 168914.

Blumea eriantha DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook. f. Fl. Brit. India 3: 266. 1881; Cooke, Fl. Pres. Bombay 2: 78. 1958 (Repr. ed.); Randeria in Blumea 10 : 279. 1960; Rao *et al.* Fl. Ind. Enum. Aster. 15. 1988. 'Nimurdi'.

Herbs up to 40 cm high. Stems erect, slender, dichotomously branched. Leaves 2-8 × 2.5-2.3 cm, irregularly toothed; lower leaves petioled, obovate, subobtuse; upper ones sessile to sessile, elliptic-oblong, acute, silky-villous. Flowers in heads, in dichotomously branched, pedunculate cymes. Achenes minute, angled, hairy on angles.

Fls. & Frts. : December-February.

Illus : Lakshminaras. & Sharma, Fl. Nasik Dt. 261, f. 17. 1991.

Distrib. : In stream beds. 168438.

Blumea lacera (Burm. f.) DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3: 263. 1881; Cooke, Fl. Pres. Bombay 2: 76. 1958 (Repr. ed.); Randeria in Blumea 10 : 264. 1960; Rao et al. Fl. Ind. Enum. Aster. 15. 1988. *Conyza lacera* Burm. f. Fl. Ind. 180, t.59. f.1. 1768. 'Burandi'.

Herbs up to 75 cm tall, glandular-pubescent. Leaves 2-4 × 1-4 cm, elliptic-oblong or oblanceolate, lower leaves lyrate lobed, subacute, margins irregularly crenate-dentate. Flowers yellow, in densely corymbose, spiciform, paniculate heads. Achenes oblong, obtusely 4-gonous; pappus white.

Fls. & Frts. : December-April.

Illus. : Mahesh. Illus. Fl. Delhi f. 106. 1966.

Distrib. : Koppikar (1974).

Blumea laciniata (Roxb.) DC. Prodr. 5: 436. 1836; Hook. f. Fl. Brit. India 3: 264. 1881; Cooke, Fl. Pres. Bombay 2: 80. 1958 (Repr. ed.); Randeria in Blumea 10 : 258. 1960; Rao et al. Fl. Ind. Enum. Aster. 16. 1988. *Conyza laciniata* Roxb. Fl. Ind. 3: 427. 1832.

Herbs, 20-40 cm tall; stems erect, viciidly hairy. Leaves 5-8 × 2.5-4.0 cm, sessile, obovate-oblong, pinnatifid, appressedly hairy. Flowers in terminal and axillary heads. Achenes 8-10-ribbed.

Fls. & Frts. : November-March.

Illus. : S. Kumar in Hajra et al. Fl. India 13: 129, f. 39. 1995.

Distrib. : In moist stream beds. 167727, 167768.

Blumea membranacea Wall. ex DC. Prodr. 5: 440. 1836; Hook. f. Fl. Brit. India 3: 265. 1881; Cooke, Fl. Pres. Bombay 2: 77. 1958 (Repr. ed.); Randeria in Blumea 10 : 269. 1960; Rao et al. Fl. Ind. Enum. Aster. 17. 1988. *Blumea membranacea* var. *muralis* Hook. f. op. cit. 1881; Cooke, op. cit.

Herbs; stems 0.6-1.2 cm tall, stout, glandular-hairy. Leaves 8-12 × 2-3 cm, elliptic, ovate or lanceolate, the lower often lyrate or pinnatifid, margins serrulate or toothed, membranous. Florets in numerous heads, on glandular-pubescent peduncles; branches forming panicles. Pappus white.

Fls. & Frts. : November-April.

Illus. : Shirodkar & Laxminaras. in Singh et al. Fl. Maharashtra. 2: 190. 2001.

Distrib. : Common along streams. 167416, 168928.

Blumea mollis (D. Don) Merr. Philipp. J. Sci. (Bot.) 5: 395. 1910; *Randeria* in *Blumea* 10 : 261. 1960; Rao *et al.* Fl. Ind. Enum. Aster. 17. 1988. *Erigeron molle* D. Don, Prodr. Fl. Nepal 172. 1825. *Blumea wightiana* DC. in Wight, Contrib. Bot. India 14. 1834; Hook. f. Fl. Brit. Ind. 3: 261. 1881; Cooke, Fl. Pres. Bombay 2: 75. 1958 (Repr. ed.).

Herbs, 20–75 cm tall and erect; branches glandular-pubescent. Leaves 2–10 × 1–6 cm, obovate-oblong, acute at base, subacute at apex, margins irregularly serrate, thinly pubescent. Flowers in axillary and terminal paniculate heads. Achenes 4–5-angled, oblong, glabrescent.

Fls. & Frts. : December–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 357. 1982.

Distrib. : Borivli, A. *Randeria*, 591 (BLAT).

Blumea obliqua (L.) Druce, Rep. Bot. Exch. Club. Brit. Isles 4: 609. 1917; *Randeria* in *Blumea* 10 : 286. 1960; Rao *et al.* Fl. Ind. Enum. Aster. 18. 1988. *Erigeron obliquum* L. Mant. Pl. 573. 1771. *Blumea amplexans* DC. in Wight, Contrib. Bot. India 13. 1834; Hook. f. Fl. Brit. India 3: 260. 1881; Cooke, Fl. Pres. Bombay 2: 75. 1958 (Repr. ed.). 'Burambi'.

Herbs, 20–35 cm tall; stems terete, divaricately branched, hairy. Leaves 2–5 × 0.6–1.2 cm, elliptic-oblong, acute, margins toothed, sessile, auricled at base. Flowers pink, in solitary, terminal heads. Achenes minute, oblong; pappus pink.

Fls. & Frts. : December–March.

Illus. : Matthew, Illus. Fl. Delhi f. 105. 1966.

Distrib. : Frequent in open areas of the forests. 167715.

Blumea oxyodonta DC. in Wight, Contrib. Bot. India 15. 1834; Hook. f. Fl. Brit. India 3: 266. 1881; Cooke, Fl. Pres. Bombay 2: 77. 1958 (Repr. ed.); *Randeria* in *Blumea* 10 : 280. 1960; Rao *et al.* Fl. Ind. Enum. Aster. 18. 1988.

Herbs up to 20 cm long; stems prostrate or decumbent, branched. Leaves : upper ones 0.5–0.7 × 0.3–5.0 cm, elliptic-oblong, obovate-oblong or obovate-spathulate, margins spinous-dentate, woolly-pubescent, lower leaves much larger 10–13 × 3–5–6 cm, obovate-oblong, elliptic-oblong. Heads ca. 0.6 cm across, involucrial bracts villous-glandular. Achenes oblong, pubescent.

Fls. & Frts. : November–May.

Distrib. : Borivli, A. J. Randeria, 173, 148, 233. (BLAT).

CAESULIA Roxb.

Caesulia axillaris Roxb. Pl. Cor. 1: 64, t. 93. 1795; Hook. f. Fl. Brit. India 3: 291. 1881; Cooke, Fl. Pres. Bombay 2: 92. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 20. 1988. 'Maka'.

Herbs, 15–45 cm tall; stems succulent, prostrate or suberect. Leaves 3.5–15.0 × 0.6–2.5 cm, lanceolate, narrowed at base, acute at apex, margins serrulate. Flowers pale blue or white, in sessile, axillary heads. Achenes obovoid, flat, lacerately winged on margins, notched at apex, hairy; pappus of 2 ovate scales.

Fls. & Frts. : September–January.

Illus. : Wight, Ic. t. 1102. 1846.

Distrib. : In fallow fields near the moist areas. 168461.

CYATHOCLINE Cass.

Cyathocline purpurea (Buch.–Ham. ex D. Don) O. Ktze. Rev. Gen. Pl. 333. 1891; Rao *et al.* Fl. Ind. Enum. Aster. 20. 1988. *Tenacetum purpureum* Buch.–Ham. ex D. Don, Prodr. Fl. Nepal 181. 1825. *Cyathocline lyrata* Cass. in Ann. Sci. Nat. 17: 420. 1829; Hook. f. Fl. Brit. India 3: 246. 1881; Cooke, Fl. Pres. Bombay 2: 71. 1958 (Repr. ed.).

Herbs 20–50 cm high; stems pubescent. Leaves 2–5 × 12.0 cm long, pinnatifid; the segments toothed. Flowers purple, in corymbose–paniculate heads. Achenes minute, oblong, faintly ribbed, pappus absent.

Fls. & Frts. : October–March.

Illus. : Wight, Ic. t. 1098. 1846. (*Cyathocline lyrata*).

Distrib. : Frequent along the stream banks and moist stream beds. 168479.

ECLIPTA L. (nom. cons.)

Eclipta prostrata (L.) Mant. Pl. 286. 1771; Sant. in J. Bombay nat. Hist. Soc. 54: 476. 1957; Rao *et al.* Fl. Ind. Enum. Aster. 34. 1988.

Verbesina prostrata L. Sp. Pl. 902. 1753. *Eclipta alba* (L.) Hassk. Fl. Jav. Rar. 528, 1848; Hook. f. Fl. Brit. India 3: 304. 1881. *E. erecta* L. Mant. Pl. 2: 286. 1771; Cooke, Fl. Pres. Bombay 2: 95. 1958 (Repr. ed.). 'Maka'.

Herbs, stems erect or prostrate, branched, hairy. Leaves 2-7 × 1.0-1.5 cm, opposite, lanceolate, cuneate at base, acute at apex, appressedly hairy on both surfaces, subsessile or shortly petioled. Flowers in solitary or paired pedunculate heads. Achenes oblong, cuneate, triquetrous, warty.

Fls. & Frts. : July-February.

Illus. : Wight, Ic. t. 1098. 1846. (*C. lyrata*); Tad. & G.V. Narayana, Handb. S. Indian Weeds 234. f. 92. 1955 [*Eclipta alba*].

Distrib. : Frequent in damp places and along stream banks. 168949.

ELEPHANTOPUS L.

Elephantopus scaber L. Sp. Pl. 814. 1753; Hook. f. Fl. Brit. India 3: 242. 1881; Cooke, Fl. Pres. Bombay 2: 68. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 34. 1988. 'Hastipata'.

Herbs, 30-45 cm high. Leaves 10-20 × 4-5 cm, mostly radical, ovate-oblong, rounded or subacute, margins coarsely serrate-dentate, hairy, scabrid and a few cauline ones small. Flowers violet, in compact groups of terminal heads, subtended by three ovate-cordate, foliaceous bracts. Achenes 0.3 cm long, 10-ribbed, slightly pubescent, truncate.

Fls. & Frts. : August-November.

Illus. : Wight, Ic. t. 1086. 1846; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 366. 1982.

Distrib. : Abundant on moist & shady forest floor. 167363.

EMILIA Cass.

Emilia sonchifolia (L.) DC. in Wight, Contrib. Bot. India 24. 1834; Hook. f. Fl. Brit. India 3: 336. 1881; Cooke, Fl. Pres. Bombay 2: 107. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 35. 1988. *Cacalia sonchifolia* L. Sp. Pl. 836. 1753. 'Sadamandi'.

Herbs, 15-45 cm tall; slender, erect or diffuse. Leaves variable, radical and or cauline; upper leaves lanceolate to oblong, acute,

margins coarsely crenate; lower ones petioled, ovate or obovate, lyrate, attenuate at base. Flowers pink to purple, in corymbose heads. Achenes ribbed, oblong, narrow, pubescent along angles.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 367. 1982.

Distrib. : Common. 169117.

EPALTES Cass.

Epaltes divaricata (L.) Cass. *Bull. Sci. Soc. Philom. Paris* 139. 1818; Hook. f. *Fl. Brit. India* 3: 274. 1881; Cooke, *Fl. Pres. Bombay* 2: 83. 1958 (Repr. ed.); Rao *et al.* *Fl. Ind. Enum. Aster.* 35. 1988; S. Kumar in Hajra *et al.* *Fl. India* 13: 147. 1995. *Ethulia divaricata* L. *Mant. Pl.* 110. 1767.

Herbs, 10–20 cm tall; stems short, erect with many divaricate, branches. Leaves 2.5–6.0 × 0.6–1.0 cm, alternate, lanceolate to oblong, cuneate at base, acute at apex, margins dentate. Flower heads pink to purple, solitary, stalked and terminal. Achenes oblong, ribbed.

Fls. & Frts. : September–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 368. 1982.

Distrib. : Borivli, A. J. *Randeria*. 578 (BLAT).

ERIGERON L.

Erigeron sublyratus DC. in Wight, *Contrib. Bot. India* 9. 1834; Rao *et al.* *Fl. Ind. Enum. Aster.* 37. 1988. *Erigeron asteroides* Roxb. *Fl. Ind.* 2, 3: 432. 1832. *non.* Andr. ex Besaer *nec.* Link, 1822; Hook. f. *Fl. Brit. India* 3: 254. 1881; Cooke, *Fl. Pres. Bombay* 2: 73. 1958 (Repr. ed.). 'Sonsali'.

Herbs, 20–45 cm tall; stems erect, much branched, hairy. Leaves 2.5–5.0 cm long, obovate–oblong, radical leaves shortly petiolate; cauline leaves amplexicaule, margins toothed or lobed. Flowers in long–peduncled heads. Achenes ellipsoid, compressed; pappus pinkish–white.

Fls. & Frts. : July–January.

Illus. : Tad. & G.V. Narayana, *Handb. S. Indian Weeds* 216, t. 85. 1955 (Rev. ed.).

Distrib. : Rare, along the banks of Ghodbundar creek. 167392.

GNAPHALIUM L.

Gnaphalium polycaulon Pers. Syn. Pl. 2: 421. 1807; Grierson in Notes R.B.G. Edinb. 31: 137. 1972; R.R. Rao & Jain in Indian Forester 105: 567. 1979; Rao *et al.* Fl. Ind. Enum. Aster. 41. 1988. *G. indicum auct. non* L. 1753; Hook. f. Fl. Brit. India 3: 289. 1881; Cooke, Fl. Pres. Bombay 2: 87. 1958 (Repr. ed.).

Herbs, 10–25 cm tall; stems much branched, hairy. Leaves 1–3 × 0.3–1.0 cm, linear-obovate, obtuse, apiculate. Flowers in numerous, sessile, terminal or subterminal, spiciform, clustered heads. Achenes oblong, shortly beaked.

Fls. & Frts. : September–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 373. 1982.

Distrib. : Frequent in open areas and wet places. 167412.

GRANGEA Adans.

Grangea maderaspatana (L.) Poir. in Lam. Encycl. (Suppl. 2) : 825. 1812; Hook. f. Fl. Brit. India 3: 247. 1881; Cooke, Fl. Pres. Bombay 2: 72. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 42: 1988. *Artemisia maderaspatana* L. Sp. Pl. 849. 1753.

Herbs, 30 cm, long; branches, prostrate, spreading, pubescent. Leaves 0.5–1.0 × 0.2–0.5 cm, decurrent at base, apiculate, chartaceous, margins entire, subsessile. Flowers yellowish, in solitary, axillary and terminal, globose heads. Achenes 3–5-gonous, oblong, truncate; pappus tubular.

Fls. & Frts. : December–April.

Illus. : Wight, Ic. t. 1097. 1846; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 374. 1982.

Distrib. : Frequent near moist open areas. 167775.

LAGASCEA Cav. (*nom. cons.*)

Lagascea mollis Cav. in Anal. Sci. Nat. 6: 332, t. 44. 1803; Hook. f. Fl. Brit. India 3: 302. 1881; Cooke, Fl. Pres. Bombay 2: 93. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 49: 1988. 'Jharvad'.

Herbs up to 90 cm tall; stems and branches slender, pubescent. Leaves 2.5–5.0 × 0.8–3.0 cm, opposite or alternate, ovate to ovate-lanceolate, acute at base, acuminate at apex. Flower heads whitish, densely pubescent, peduncled. Achenes compressed or 3-angled, obconical, pubescent.

Fls. & Frts. : Mostly, throught the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 378. 1982.

Distrib. : Borivli, *A. J. Randeria*, 391, 403 (BLAT).

LAGGERA Sch.-Bip. ex Koch

Laggera aurita (L. f.) Bth. ex C. B. Cl. Comp. India 42. 1876; Hook. f. *Fl. Brit. India* 3: 271. 1881; Cooke, *Fl. Pres. Bombay* 2: 80. 1958 (Repr. ed.); Rao *et al.* *Fl. Ind. Enum. Aster.* 50 : 1988; S. Kumar in Hajra *et al.* *Fl. India* 13: 150. 1995. *Conyza aurita* L.f. *Suppl.* 367. 1781.

Perennial herbs, 30–90 cm tall, viscous hairy. Leaves many, sessile or petiolate, obovate or oblanceolate, margins toothed, lobed or 1/2 pinnatifid, lower leaves 5–10 cm long, diminishing in size upwards. Florets pink, in peduncled heads, 0.8–1.2 cm across, in corymbose panicles. Involural bracts silky hairy.

Fls. & Frts. : December–February.

Distrib. : Salsette, *Shah* (1962).

LAUNAEA Cass.

- | | | |
|--|-----|----------------------|
| 1. Stems and branches not rooting at nodes | ... | <i>L. procumbens</i> |
| 1. Stems and branches rooting at nodes | ... | <i>L. sarmentosa</i> |

Launaea procumbens (Roxb.) Ramayya & Rajagopal in *Kew Bull.* 23: 465. 1969; Rao *et al.* *Fl. Ind. Enum. Aster.* 51: 1998. *Prenanthes procumbens* Roxb. *Fl. Ind.* 3: 404. 1832. *Launaea nudicaulis sensu auct. plur.* (India) non L. 1753. *L. nudicaulis* (L.) *sensu stricto* Hook. f. *Fl. Brit. India* 3: 416. 1881; Cooke, *Fl. Pres. Bombay* 2: 122. 1958 (Repr. ed.). 'Pathri'.

Annual herbs, 15–30 cm high. Leaves mostly radical, 5–20 × 3–0–5.5 cm, obovate-oblong, runcinate or pinnatifid; segments obtuse, margins spinulose, cauline leaves few, distant. Flower heads yellow, 1–2 cm long, cylindric, sessile, solitary or few, fascicled on long, erect axis. Achenes 0.2–0.3 cm long, polymorphic; pappus copious, white.

Fls. & Frts. : November–January.

Illus. : Wight, Ic. t. 1146. 1846.

Distrib. : Salsette, *Shah* (1969).

Launaea sarmentosa (Willd.) Schult.–Bip. ex O. Ktze. Rev. Gen. Pl. 1: 350. 1891; Grierson in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 276. 1980; Rao *et al.* Fl. Ind. Enum. Aster. 51. 1988. *Prenanthes sarmentosa* Willd. Phytographia 10. t. 6, f.2, 1794 & Sp. Pl. 3: 1540. 1803. *Launaea pinnatifida* Cass. Ann. Sci. Nat. (Paris) 1.23: 85. 1831; Hook. f. Fl. Brit. India 3: 416. 1881; Cooke, Fl. Pres. Bombay 2: 122. 1958 (Repr. ed.). 'Pathri'.

Herbs; stems procumbent, glabrescent, rooting at nodes. Radical leaves 2.5–6.0 cm long, oblong, pinnatifid, margins toothed, and sinuate or lobed. Flowers yellowish, ligulate, in 1–3, axillary, homogamous heads 0.9–1.2 cm across. Achenes 3–5-ribbed, shortly beaked.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 133. 1846; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 380. 1982.

Distrib. : Salsette, *G. L. Shah* (1962).

PARTHENIUM L.

Parthenium hysterophorus L. Sp. Pl. 988. 1753; R. S. Rao in J. Bombay nat. Hist. Soc. 54: 218. t.1. 1956; Rao *et al.* Fl. Ind. Enum. Aster. 56. 1988; S. Kumar in Hajra *et al.* Fl. India 12: 403., f.113. 1995. 'Gajar-gavat'.

Herbs up to 1.5 m tall, erect, puberulous. Leaves alternate, pinnules 5–15 × 0.5–0.7 cm, acute at apex, petioles up to 4 cm long. Flowers white, in terminal, dichotomously branched, lax, paniculate heads. Achenes compressed, triquetrous, puberulous along sides.

Fls. & Frts. : August–March.

Illus. : R. S. Rao, *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 382. 1982.

Distrib. : Rare in the park, restricted only to the park lake. 169115.

PENTANEMA Cass.

Pentanema indicum (L.) Ling in Acta Phyt. Sin. 10 : 179. 1965; Rao *et al.* Fl. Ind. Enum. Aster. 56. 1988; S. Kumar in Hajra *et al.* Fl. India 13: 28., f.9. 1995. *Inula indica* L. Sp. Pl. ed. 2, 1236. 1763. *Vicoa indica* (L.) DC. in Wight, Contrib. Bot. Ind. 10. 1834. *Vicoa auriculata* Cass. Ann. Sci. Nat. (Paris) 17: 418. 1829; Hook. f. Fl. Brit. India 3: 287. 1881; Cooke, Fl. Pres. Bombay 2: 88. 1958 (Repr. ed.). 'Sonkadi'.

Herbs, 30–90 cm tall; stems erect, rigid, terete, branched in upper parts. Leaves 2.5–7.0 × 0.5 cm, sessile, linear or linear-lanceolate, auricled at base, acute at apex, margins entire or serrulate. Flower heads yellow, solitary, axillary and terminal, long-stalked. Achenes obovate, narrowed below, with obtuse apex, sparsely hairy.

Fls. & Frts. : October–February.

Illus. : Wight, Ic. t. 1148. 1846; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 395. 1982. (*Vicoa indica*); S. Kumar in Hajra *et al.* *op. cit.*

Distrib. : Vihar lake, H. Santapau. 22932 [BLAT].

PHYLLOCEPHALUM Bl.

Phyllocephalum phyllolaenum (DC.) Narayana in Curr. Sci. 51: 438. 1982. *Decaneurum phyllolaenum* DC. Prodr. 7: 264. 1838. *Centratherum phyllolaenum* (DC.) Bth. ex Hook. f. Fl. Brit. India 3: 228. 1881; Cooke, Fl. Pres. Bombay 2: 62. 1958 (Repr. ed.).

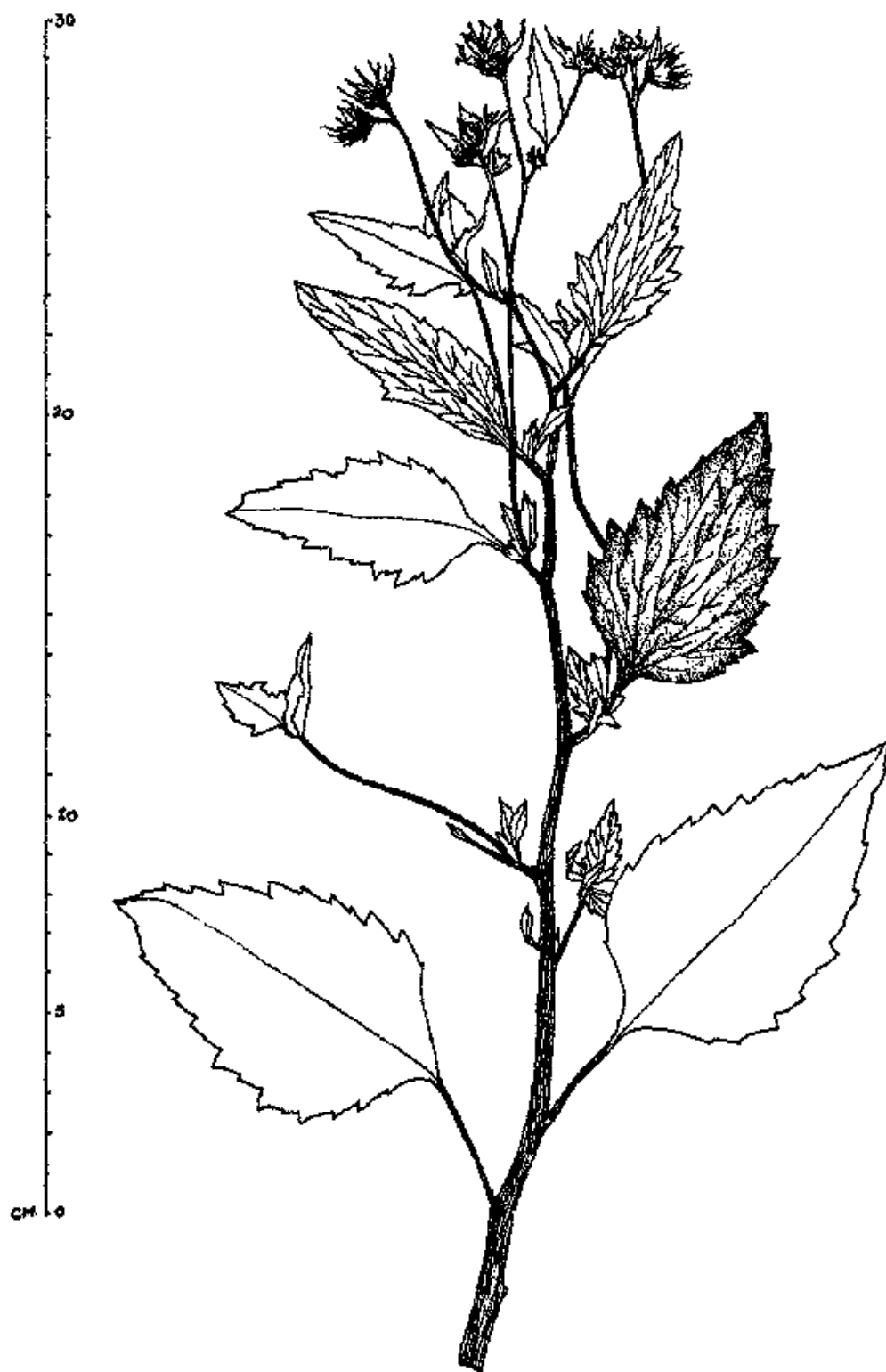
Herbs, 20–30 cm tall; stems erect, branched apically, tomentose, tinged with purple. Leaves 4–10 × 2–6 cm, elliptic, tapering at base, acute to acuminate at apex, margins sinuate-dentate. Flower heads solitary, axillary and terminal. Achenes oblong, 10-ribbed, pappus red.

Fls. & Frts. : September–October.

Distrib. : Frequent as undershrubs. 167265, 167879.

SENECIO L.

Senecio bombayensis Balakr. in J. Bombay nat. Hist. Soc. 57: 61. 1970; Rao *et al.* Fl. Ind. Enum. Aster. 68. 1988; R. Mathur in Hajra *et al.* Fl. India 13: 244, f. 72. 1995. *S. grahamii* Hook. f. Fl. Brit. India 3: 347. 1881. *non* Bth. 1857; Cooke, Fl. Pres. Bombay 2: 110. 1958 (Repr. ed.). 'Sonki'.



f. 41. *Senecio bombayensis* Balakr.

Herbs, 30–60 cm tall; stems stout, much branched, grooved. Leaves 3–10 × 1.5–6 cm, rhomboid-ovate, abruptly tapering into petiole, acute at apex, margins scabrid, ribbed; pappus of ray flowers 0; that of disc flowers coarsely toothed. Flowers yellow, in lax, corymbose heads. Achenes paleaceous and dialated at base, setaceous above.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 1551. 1850 (*S. grahami*).

Distrib. : Frequent on hill slopes and plains. 167244.

SPHAERANTHUS L.

- | | | |
|---|-----|---------------------|
| 1. Plants erect; wings of stem entire | ... | <i>S. africanus</i> |
| 1. Plants procumbent; wings of stem toothed | ... | <i>S. indicus</i> |

Sphaeranthus africanus L. Sp. Pl. (ed. 2), 2: 1314. 1762; Hook. f. Fl. Brit. India 3: 275. 1881; Cooke, Fl. Pres. Bombay 2: 84. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 72. 1988; S. Kumar in Hajra *et al.* Fl. India 13: 159. 1995.

Herbs, 20–50 cm tall; stems winged. Leaves 3–6 × 1.0–2.5 cm, obovate, narrowed at base, obtuse, sessile, glandular-pubescent, margins toothed. Flowers purple, in compact, numerous heads, on a common globose receptacle forming a globose, terminal, compound head. Achenes oblong, compressed.

Fls. & Frts. : October–February.

Distrib. : In drying moist grounds and fallow fields. 167383, 168441.

Sphaeranthus indicus L. Sp. Pl. 927. 1753; Hook. f. Fl. Brit. India 3: 275. 1881 *p. p.*; Cooke, Fl. Pres. Bombay 2: 84. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 73. 1988; S. Kumar in Hajra *et al.* Fl. India 13: 160. 1995. '*Gorakh-mundi*'

Herbs, 30–45 cm long. Stems prostrate and winged. Leaves 1.5–5.0 × 0.2 cm, elliptic-oblong to obovate-oblong, narrowed at base, rounded or subacute at apex, glandular-pubescent, margins spinous-serrate or dentate. Flowers in compound globose, terminal, solitary heads. Achenes oblong, obconical, angles.

Fls. & Frts. : November–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 386. 1982.

Distrib. : On drying moist grounds. 168475.



f. 42. *Sphaeranthus africanus* L.

SYNEDRELLA Gaertn. (*nom. cons.*)

Synedrella nodiflora (L.) Gaertn. Fruct. Sem. Pl. 2: 456, t. 171, f. 7. 1791; Hook. f. Fl. Brit. India 3: 308. 1881; Rao *et al.* Fl. Ind. Enum. Aster. 74. 1988. *Verbesina nodiflora* L. Cent. Pl. 1: 28. 1755 & Amoen. Acad. 4: 290. 1787.

Herbs, 30–60 cm tall. Leaves 6 × 2.5 cm, opposite, elliptic–ovate, rounded or acute at base, acute at apex, margins serrulate, hairy; petioles up to 2 cm long. Flowers pale yellow, in axillary heads or heads between forks of the branches. Achenes of ray florets prominently ribbed, lacerate; those of disc florets compressed, subtrigonal, minutely tubercled.

Fls. & Frts. : June–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 388. 1982.

Distrib. : Frequent near villages and open areas. 167202, 167713, 167754, 167940.

TITHONIA Desf. ex Juss.

Tithonia diversifolia (Hemsley) A. Gray, in Proc. Amer. Acad. Arts. 19. 1833; Sald. & Nicol. in Sald. Fl. Hassan Dt. 625. 1976; Rao *et al.* Fl. Ind. Enum. Aster. 84. 1988; H. J. Chowdhary in Hajra *et al.* Fl. India 12: 416. f. 118. 1995. *Mirasolia diversifolia* Hemsley, Biol. Cent.–Amer. Bot. 2: 168, t. 47. 1881.

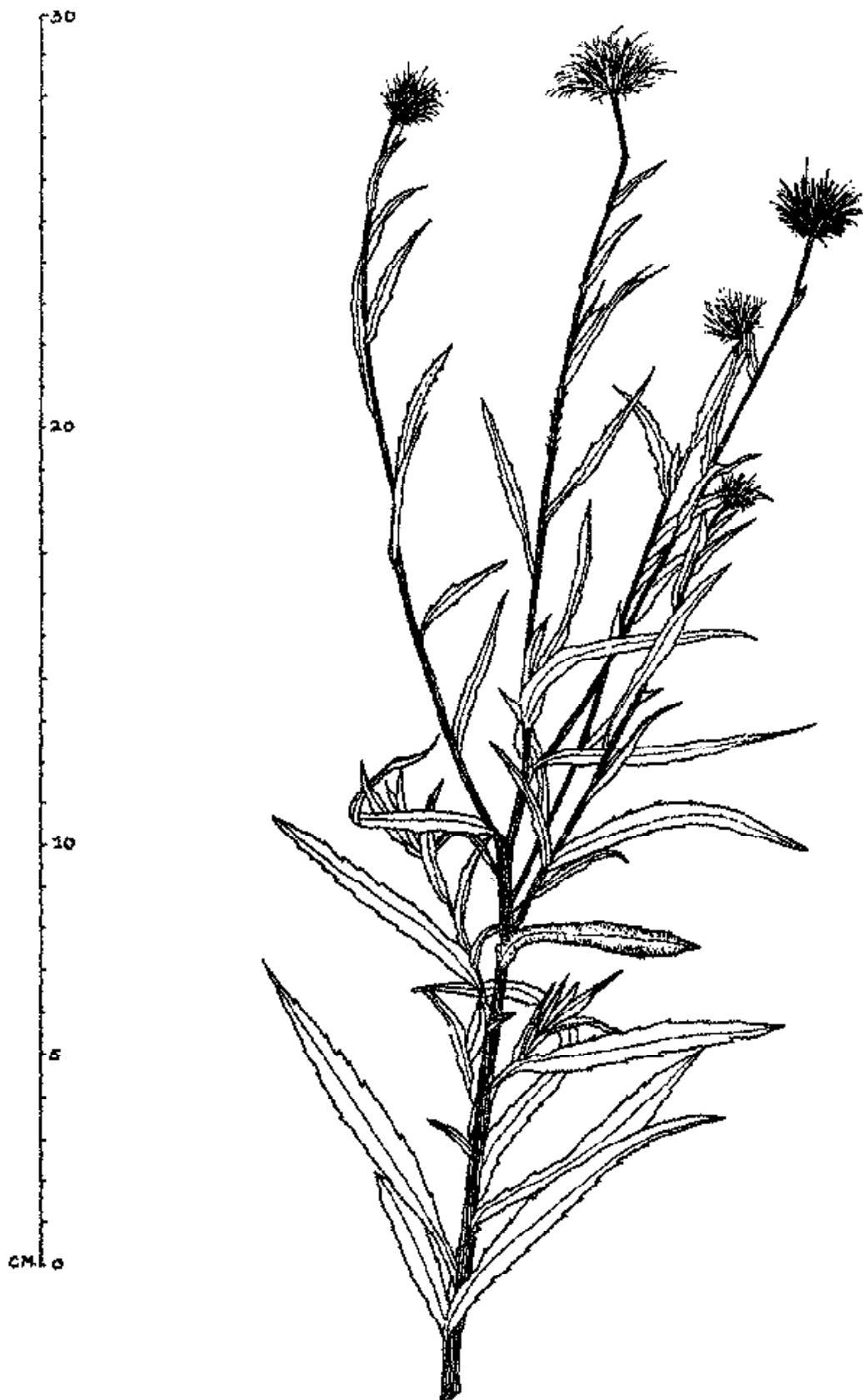
Shrubs up to 3 m tall, stems branched. Leaves 15–20 × 13–18 cm, divided into 3 lobes; lobes acute, pubescent beneath. Flower heads yellow, pedunculate, terminal.

Fls. & Frts. : September–December.

Distrib. : Common as hedges and growing as an escape. Native of Mexico & C. America. Pradhan, *s. n.*

TRICHOLEPIS DC.

Tricholepis glaberrima DC. Prodr. 6: 564 1837; Hook. f. Fl. Brit. India 3: 381. 1881; Cooke, Fl. Pres. Bombay 2: 114. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 85. 1988; Choudhary & Pandey in Rheedeia 4: 43, f. 2. A–G. 1994; Hajra in Hajra *et al.* Fl. India 12: 222. 1995. 'Dahan'.



f. 43. *Tricholepis glaberrima* DC.

Herbs, 0.5–2.5 m tall; stems erect, slender. Leaves 2.5–8.0 × 0.3–0.1 cm, sessile, linear-oblong or lanceolate, acute, entire, spinous-toothed. Flowers purple, in ovoid, terminal heads. Achenes oblong, smooth; pappus subpaleaceous.

Fls. & Frts. : September–December.

Illus : Choudhary & Pandey, *op. cit.*

Distrib. : Frequent on hill slopes. 167266, 168911.

TRIDAX L.

Tridax procumbens L. Sp. Pl. 900. 1753; Hook. f. Fl. Brit. India 3: 311. 1881; Cooke, Fl. Pres. Bombay 2: 102. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 85. 1988. '*Dagadi-pala*'.

Herbs, 20–30 cm tall; stems straggling, hairy. Leaves 2.5–4.0 × 2.25 cm, ovate-elliptic, acute at base & apex, deeply inciso-dentate or pinnatisect hairy, petiolate. Flowers yellowish-white, in terminal, solitary heads, on 20–25 cm long peduncles. Achenes oblong, obovoid, faintly ribbed, densely hairy.

Fls. & Frts. : Mostly throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 391. 1982.

Distrib. : Common in open areas. 167241.

VERNONIA Schreb. (*nom. cons.*)

1. Achenes strongly ribbed :
 2. Achenes glabrous or glandular between the ribs ... *V. divergens*
 2. Achenes pubescent ... *V. anthelmintica*
1. Achenes not ribbed; hairy all over :
 3. Achenes 0.25 cm long, densely silky ... *V. cinerascens*
 3. Achenes 0.13 cm long, appressedly hairy ... *V. cinerea*

Vernonia anthelmintica (L.) Willd. Sp. Pl. 3 : 1634. 1803; Hook. f. Fl. Brit. India 3: 236. 1881; Cooke, Fl. Pres. Bombay 2: 66. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 86. 1988. *Conyza anthelmintica* L. Sp. Pl. ed. 2, 1207. 1763. '*Kadu-jeera*'.

Annual herbs, 60–90 cm tall, pubescent. Leaves 5–8 × 2.5–4.0 cm, lanceolate or elliptic-lanceolate, tapering at base. Florets all tubular in subcorymbose heads 1.0–1.8 cm across. Achenes *ca.* 0.5 cm long, oblong-cylindric, ribbed, pubescent. Pappus reddish in two whorls.

Fls. & Frts. : September–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 393. 1982.

Distrib. : Salsette, *Shah* (1969).

Vernonia cinerascens Schult.–Bip. in Schweinf. *Fl. Aethiop.* 162. 1867; Hook. f. *Fl. Brit. India* 3: 237. 1881; Cooke, *Fl. Pres. Bombay* 2: 66. 1958 (Repr. ed.); Almeida, *Fl. Mah.* 3: 144. 2001.

Undershrubs, 30–90 cm tall, stems branched, terete. Leaves 2–5 × 0.4–1.2 cm, sessile, oblong–spatulate, obtuse at apex, pubescent. Flower heads bright purple, in terminal, corymbose panicles. Achenes obconical, ca. 0.25 cm long.

Fls. & Frts. : October–December.

Distrib. : Borivli, *A. J. Randeria*, 564 (BLAT).

Vernonia cinerea (L.) Less. in *Linnaea* 4: 291. 1829; Hook. f. *Fl. Brit. India* 3: 233. 1881; Cooke, *Fl. Pres. Bombay* 2: 65. 1958 (Repr. ed.); Rao *et al.* *Fl. Ind. Enum. Aster.* 87. 1988; Uniyal in Hajra *et al.* *Fl. India* 13: 367. 1995. *Conyza cinerea* L. *Sp. Pl.* ed. 862. 1753.

Herbs, 20–50 cm tall; stems erect, striate, slightly pubescent. Leaves 2–5 × 2–3 cm, broadly elliptic or lanceolate, obtuse or acute at apex, margins toothed or crenate–serrate, pubescent, petiolate. Flowers pink–violet, in divaricate, terminal, corymbose heads. Achenes oblong, terete, slightly narrowed at base, pappus white.

Fls. & Frts. : July–February.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 101. 1966.

Distrib. : Common. 167341, 168447.

Vernonia divergens (Roxb.) Edgew. in *J. Asiat. Soc. Bengal* 21: 172. 1853; Hook. f. *Fl. Brit. India* 3: 234. 1881; Cooke, *Fl. Pres. Bombay* 2: 67. 1958 (Repr. ed.); Rao *et al.* *Fl. Ind. Enum. Aster.* 88: 1988; Uniyal in Hajra *et al.* *Fl. India* 13: 370. 1995. *Eupatorium divergens* Roxb. *Fl. Ind.* 3: 414. 1832. 'Bundar'.

Shrubs, 1.5–2.0 m tall, young parts thinly pubescent. Leaves 5–12 × 2.5–6.0 cm, elliptic–obovate, acute to acuminate at both ends, margins serrate. Flower heads bright purple, in terminal and axillary, dense, corymbose cymes. Achenes 10–ribbed, truncate at both ends.

Fls. & Frts. : December–May.

Illus. : Wight, Ic. t. 1084. 1846. [*Decaneurum divergens* (Roxb.) DC. Prodr. 5: 68. 1836.]

Distrib. : Tulsi lake, Collector ? 309 (BLAT).

WEDELIA Jacq. (nom. cons.)

Wedelia urticaefolia DC. in Wight, Contrib. Bot. Ind. 18. 1834; Hook. f. Fl. Brit. India 3: 306. 1881; Cooke, Fl. Pres. Bombay 2: 98. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 91. 1988.

Herbs, 0.5–1.0 cm tall; stems erect, weak. Leaves 5–15 × 2–7 cm, ovate or ovate-lanceolate, acute or acuminate at apex, margins sharply serrate, hispidly hairy. Flowers yellow, in axillary or terminal, solitary or fascicled heads. Achenes obovate, triangular, cuneate, faintly ribbed, truncate; pappus of ciliolate cup.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 1106. 1846.

Distrib. : Common. 167349, 167964.

XANTHIUM L.

Xanthium indicum Koen. in Roxb. Fl. Ind. 3: 601. 1832; H. J. Chowdhary in Hajra *et al.* 12: 427, f. 123. 1995. *X. strumarium* L. Sp. Pl. 987. 1753 p. p.; Hook. f. Fl. Brit. India 3: 303. 1881; Cooke, Fl. Pres. Bombay 2: 94. 1958 (Repr. ed.); Rao *et al.* Fl. Ind. Enum. Aster. 91. 1988. 'Sankeshwar'.

Undershrubs, 40–130 cm tall; stems stout, branched, hairy. Leaves 5–8 × 3–10 cm, alternate, broadly ovate-triangular, suborbicular, acute at apex, 3-lobed, hairy; petioles 2–8 cm long. Flowers in terminal or axillary, racemose heads. Fruits 1.5–2.2 cm long, ellipsoid or oblong, covered with hooked prickles and 2 erect beaks. Achenes oblong to ovoid, compressed.

Fls. & Frts. : October–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 397. 1982; Chowdhary in Hajra *et al. op. cit.*

Distrib. : Frequent in waste lands, open areas and dried pools. 167370.

CULTIVATED SPECIES :

Ridens sulphurea (Cav.) Sch.-Bip. in Seemann, B. Voy. Herald 308. 1856; Rao et al. Fl. Ind. Enum. Aster. 14. 1988; Chowdhary in Hajra et al. Fl. India 12: 373, f 99. 1995. *Cosmos sulphureus* Cav. Ic. Decr. Pl. 56, t. 79. 1791; Bailey, Man. Cul. Pl. 999. 1949.

Shrubs, 1.2–2.0 m tall; stems much branched, Leaves often 2–3 pinnatisect, segments elliptic to lanceolate, mucronate, ciliate. Flower heads 5–7 across; ray florets golden yellow, disc florets yellow. Achenes hispid; beaked.

Fls. & Frts. : September–December.

Illus. : Chowdhary in Hajra et al. *op. cit.*

Distrib. : Borivli, A. J. Randeria, 505, 7.12.52, 583 (BLAT). (ornamental). A native of central and South America, grown in gardens as ornamental plant.

Coreopsis tinctoria Nutt. in J. Acad. Philadelphia 2: 114. 1821; Cooke, Fl. Pres. Bombay 2: 125. 1958 (Repr. ed.); Bailey, Man. Cul. Pl. 1003. 1949; Rao et al. Fl. Ind. Enum. Aster. 28. 1988.

Herbs, 40–75 cm tall. Leaves 5–13 cm long, bipinnatisect; segments linear–lanceolate. Flower heads yellow, with maroon centre, solitary, terminal. Achenes linear–oblong, beaked, curved.

Fls. & Frts. : September–December.

Distrib. : Borivli, A. J. Randeria, 220, 526 (BLAT). (cultivated). A native of N. America, grown in gardens.

Cosmos bipinnatus Cav. Ic. 1: 10, t.14, 1791; Cooke, Fl. Pres. Bombay 2: 125. 1958 (Repr. ed.); Bailey, Man. Cul. Pl. 999. 1949; Rao et al. Fl. Ind. Enum. Aster. 28. 1988.

Shrubs, 2.0–2.5 m tall. Leaves 5–10 cm long, bipinnately cut. segments linear to filiform. Flower heads 5–7 cm across; ray florets white, pink or crimson, disc florets yellow. Achenes abruptly beaked.

Herbs, 40–75 cm tall. Leaves bipinnatisect, segments linear lanceolate. Flower heads yellow with maroon centre, solitary, terminal. Achenes linear–oblong, beaked, curved.

Fls. & Frts. : August–November.

Distrib. : Borivli, A. J. Randeria, 66, (BLAT). A native of Mexico, grown in gardens.

Chromolaena odorata (L.) King & Robins. in *Phytologia* 20 : 204. 1970; Almeida, *Fl. Mah.* 3: 88. 2001. *Eupatorium odoratum* (L.) L. *Syst. Nat.* (ed. 10(2)) : 1250. 1759; Hook. f. *Fl. Brit. India* 3: 244. 1881; Uniyal in Hajra *et al.* *Fl. India* 12: 354. 1995.

Herbs, 30–45 cm tall, glandular–pubescent. Leaves, ovate–lanceolate, glandular–punctate, glabrescent. Flower heads bluish in terminal, lax, corymbose panicles. Achenes, deltoid–conical, black.

Fls. & Frts. : November–May.

Distrib. : Borivli, A. J. *Randeria*, 577 (BLAT). A native of C. America, cultivated in gardens.

Dyssodia tenuifolia Loes. in *Bull. Herb. Boiss.* 2, 6: 866. 1906; R. Rao in Hajra *et al.* *Fl. India* 13: 325, f.99. 1995. *Hymenatherum tenuifolium* Cass. *Dict. Sci. Nat.* 22: 313. 1821–22; *Randeria* in *J. Bombay nat. Hist. Soc.* 53: 216. 1956; Rao *et al.* *Fl. Ind. Enum. Aster.* 44. 1988.

Herbs, 15–20 cm tall; stems erect. Leaves pinnatisect, segments filiform. Flower heads 2 cm across, yellowish–brown, terminal. Achenes oblong, angled, hispid–hairy.

Fls. & Frts. : October–December.

Illus. : R. R. Rao in Hajra *et al. op. cit.*

Distrib. : Borivli, A. J. *Randeria*, 57, (BLAT). (ornamental). Native of central America.

Eupatorium repandum Willd. *Sp. Pl.* 3: 1767. 1803; *Randeria* in *Bombay nat. Hist. Soc.* 53: 216, t. 3. 1955; Rao *et al.* *Fl. Ind. Enum. Aster.* 38. 1988; Almeida, *Fl. Mah.* 3: 104. 2001.

Branched, erect shrubs. Leaves ovate–lanceolate, sagittate at base, acuminate at apex. Florets in elongated heads, in terminal corymbs. Achenes angled, compressed, pubescent on angles.

Fls. & Frts. : October–May.

Distrib. : *Randeria*, 577 (BLAT); Borivli, Almeida (2002). Native of Central America, grown in gardens.

Guizotia abyssinica (L. f.) Cass. in F. Cuvier, *Dict. Sci. Nat.* 59: 248. 1829; Hook. f. *Fl. Brit. India* 3: 308. 1881; Cooke, *Fl. Pres. Bombay* 2: 125. 1958 (Repr. ed.); Rao *et al.* *Fl. Ind. Enum. Aster.* 42. 1988; H. J. Chowdhary in Hajra *et al.* *Fl. India* 12: 395. f. 109. 1995. *Polymia abyssinica* L.f. *Suppl. Pl.* 383. 1781. 'Kala-til'.

Herbs up to 1 m tall. Leaves opposite, oblong to lanceolate, amplexicaul, margins entire or irregularly serrate. Flowers yellow, in terminal or subterminal, solitary, long-stalked heads. Achenes angled, cuneate, black.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 375. 1982, Chowdhary in Hajra *et al. op. cit.*

Distrib. : A native of Tropical Africa cultivated for oil seeds in forest villages. 169109.

Gynura procumbens (Lour.) Merr. *Enum.* 3: 618. 1929. Almeida, *Fl. Mah.* 3: 112. 2001. *Cacalia procumbens* Lour. *Fl. Cochinch.* 2: 485. 1790.

Scandent shrubs. Leaves sessile, elliptic to lanceolate, acute or acuminate, margins subentire, sinuately toothed. Florets in paniculate heads.

Flowers : August–September.

Distrib. : Malad, Almeida (2001). Native of China & Japan.

Helianthus annuus L. *Sp. Pl.* 904. 1753; Cooke, *Fl. Pres. Bombay* 2: 124. 1958 (Repr. ed.); Rao *et al. Fl. Ind. Enum. Aster.* 43. 1988. 'Surya-ful'.

Erect annuals up to 3 m tall, stems hispid. Lower leaves opposite, upper ones alternate, ovate–acute, petioled, hispid. Heads large, solitary, terminal, central disc florets brownish–purple, marginal ray florets yellow. Achenes obovoid; pappus with 2 scaly awns.

Fls. & Frts. : November–May.

Distrib. : Salsette, Shah (1984) Native of W.USA grown for oil seeds.

Helianthus tuberosus L. *Sp. Pl.* 905. 1753; Cooke, *Fl. Pres. Bombay* 2: 124. 1958 (Repr. ed.); Bailey, *Man. Cult. Pl.* 998. 1949; Rao *et al. Fl. Ind. Enum. Aster.* 43. 1988; Hajra *et al. Fl. India* 12: 431. 1995. 'Surya-ful'.

Perennial herbs, 1–2 m tall; stems hispid. Leaves lower ones opposite and upper alternate, ovate to ovate–oblong, abruptly narrowed into winged petiole, margins serrate–dentate. Head solitary, terminal with yellow, margined ray florets and central tubular florets. Achenes ovoid; pappus of 2 scales.

Fls. & Frts. : September–December.

Distrib. : Salsette, Shah 1962. Native of USA & Texas, grown in gardens.

Lactuca sativa L. Sp. Pl. 795. 1753; Rao *et al.* Fl. Ind. Enum. Aster. 49. 1988. Mangain & R.R. Rao in Hajra *et al.* Fl. India 12: 300. 1995. *L. scariola* L. var. *sativa* Boiss. Fl. Orient. 3 : 809, 1875; Hook. f. Fl. Brit. India 3: 404. 1881; Cooke, Fl. Pres. Bombay 2: 119. 1958 (Repr. ed.). 'Garden lettuce'.

Annual or biennial herbs, 30–80 cm high with woody root stock; stems succulent. Leaves succulent, sessile, ovate-oblong, margins spinulose. Florets yellow, in heads on paniculate leafy branches. Achenes ribbed, oblanceolate.

Fls. & Frts. : March–November.

Distrib. : Salsette, Shah (1962) Native of Persia, cultivated for seeds.

Tagetes patula L. Sp. Pl. 887. 1753; Cooke, Fl. Pres. Bombay 2: 125. 1958 (Repr. ed.); Bailey, Man. Cul. Pl. 1013. 1949; Rao *et al.* Fl. Ind. Enum. Aster. 76. 1988; Rao in Hajra *et al.* Fl. India 13: 329. 1995. 'French marigold'.

Herbs 20–45 cm tall, erect. Leaves deltoid-ovate, linear-lanceolate to linear-oblong. Flowers yellow, in terminal heads; central florets yellow with tubular corollas. Achenes linear-oblong, black, pappus with 4 unequal awns.

Fls. & Frts. : September–December.

Distrib. : Randeria, 608 (BLAT). Native of Mexico, often grown in gardens.

Tithonia rotundifolia (Mill.) S. F. Blake in Contrib. Gray Herb. n. s. 52: 41. 1917; Rao *et al.* Fl. Ind. Enum. Aster. 84. 1988. H. J. Chowdhary in Hajra *et al.* Fl. India 12: 416. 1995. *Tagetes rotundifolia* Mill. Gard. Dict. ed. 8, 4. 1768. *Tithonia tagetiflora* Lam. Encycl. 2: 284, t.708. 1797; Cooke, Fl. Pres. Bombay 2: 124. 1958 (Repr. ed.).

Shrubs ca. 2 m tall. Leaves alternate, deltoid, 3–5-lobed, acute to acuminate at apex, margins-crenate serrate. Florets yellow, in heterogamous solitary, peduncled heads. Achenes of ray florets white; pappus of short scales.

Fls. & Frts. : July–January.

Distrib. : Kandivli, Almeida (2001). Native of C. Mexico, cultivated for showy flowers.

Vernonia elliptica DC. in Wight, Contrib. Bot. Ind. 5, 1834; Uniyal in Hajra *et al.* Fl. India 13: 370. 1995. *V. elaeagnifolia* DC. Prodr. 5: 22. 1836; Hook. f. Fl. Brit. India 3: 237. 1881; Rao *et al.* Fl. Ind. Enum. Aster. 88. 1988.

Scandent shrubs, stems woody, branches drooping, pubescent. Leaves alternate, oblong–elliptic, acute or obtuse, silky pubescent beneath. Florets dirty white, tubular, in terminal, corymbose panicles.

Fls. & Frts. : January–April.

Distrib. : Goregaon, Almeida (2001). Native of Molmein, cultivated in gardens.

GOODENIACEAE

SCAEVOLA L. (*nom. cons.*)

Scaevola plumieri Vahl, Symb. Bot. 3: 36. 1791; Jeffrey in Kew Bull. 34: 543. 1980; Almeida, Fl. Mah. 3: 150. 2001. *S. lobelia* Murr. Syst. Veg. ed. 13, 178. 1774; C.B.Cl. in Hook. f. Fl. Brit. India 3: 421. 1881; Cooke, Fl. Pres. Bombay 2: 128. 1958 (Repr. ed.).

Shrubs up to 3 m tall, branches stout, pale green, glabrous. Leaves 5–10 × 3.5–6.5 cm, obovate, tapering at base, obtuse at apex, margins entire with long, white woolly tuft in axils. Flowers white, 2.5–3.5 cm, long, in short, dichotmous, axillary cymes, bracts woolly. Drupes ca. 1.5 cm, across, globose, purple, crowned by persistent calyx.

Fls. & Frts. : February–July.

Illus. : Wight, Ic. t. 1613. 1850 (*Scaevola unifera*. Stocks ex Wight, Ic. t. 1613. 1850).

Distrib. : Versova Creek, Almeida, *op. cit.*

LOBELIAOCEAE

LOBELIA L.

- | | | |
|---|-----|----------------------|
| 1. Stems distinctly winged; anthers of 2 stamens penicillate | ... | <i>L. heyneana</i> |
| 1. Stems not winged or wings if any, obscure;
anthers of all stamens penicillate | ... | <i>L. alsinoides</i> |

Lobelia alsinoides Lam. Encyl. 3: 558. 1792; Moel. & Tuyn in Steenis, Fl. Males. 1, 6: 126. 1960. *L. trigona* Roxb. Fl. Ind. 2: 111. 1824; C. B. Cl. in Hook. f. Fl. Brit. India 3: 423. 1881; Cooke, Fl. Pres. Bombay 2: 130. 1958 (Repr. ed.); Haridsan *et al.* in Nayar *et al.* Fasc. Fl. India 19: 42. 1988.

Herbs, 30 cm long; stems prostrate, rooting near the base, branches ascending. Leaves 1.5–2.0 cm, ovate or elliptic, rounded to attenuate at base, acute at apex, margins serrate. Flowers blue, axillary, pedicellate. Capsules 0.5–0.6 × 0.3 cm, turbinate, obconic, ribbed. Seeds trigonous.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 1170. 1848 (*Lobelia trigona*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 399. 1982.

Distrib. : Borivli, A. Randeria, 520 (BLAT).

Lobelia heyneana Roem. & Schult. in L. Syst. Veg. 5: 50. 1819 non Spr. 1825; Moel. & Tuyn in Steenis, Fl. Males. 1, 6: 129. 1960. *L. trialata* Buch.–Ham. ex D. Don, Prodr. Fl. Nepal 157. 1825; C. B. Cl. in Hook. f. Fl. Brit. India 3: 425. 1881; Cooke, Fl. Pres. Bombay 2: 130. 1958 (Repr. ed.).

Annual herbs, 20–30 cm tall; stems suberect. Leaves shortly petioled or sessile, 0.6–2.3 × 0.3–1.8 cm, ovate, elliptic or upper lanceolate, glabrous, margins crenate–serrate, narrowed at base. Flowers, axillary, solitary, pedicellate, bracteate; corolla blue or violet. Capsules 0.5 × 0.8 cm seeds ellipsoid, compressed.

Fls. & Frts. : July–November.

Illus. : Moeliona & Tuyn, *op. cit.* 132, f. 16d.

Distrib. : Vihar lake. H. Santapau 22918 (BLAT).

SPHENOCLEACEAE

SPHENOCLEA Gaertn. (*nom. cons.*)

Sphenoclea zeylanica Gaertn. Fruct. Sem. Pl. 1: 113, t. 24, f. 5. 1788; C. B. Cl. in Hook. f. Fl. Brit. India 3: 438. 1881; Cooke, Fl. Pres. Bombay 2: 134. 1958 (Repr. ed.).



f. 44. *Sphenoclea zeylanica* Gaertn.

Herbs, 30–90 cm high; stems stout, fleshy. Leaves 2–6 × 0.6–1.2 cm, oblong-lanceolate, acute at apex. Flowers greenish-yellow, bracteate, in 2–5 cm long, compact spikes. Capsules wedge-shaped, truncate at apex, with persistent calyx lobes. Seeds narrow-oblong, scabrous silky.

Fls. & Frts. : September–December.

Illus. : Mahesh. *Illus. Fl. Delhi* t. 115. 1966.

Distrib. : Borivli, A. Randeria, 404 (BLAT).

PLUMBAGINACEAE

PLUMBAGO L.

Plumbago zeylanica L. Sp. Pl. 151. 1753; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 480. 1832; Cooke, *Fl. Pres. Bombay* 2: 136. 1958 (Repr. ed.). 'Chitrak'.

Undershrubs, 1.0–1.5 m tall; stems and branches subscaudent, terete. Leaves 2.5–5.0 × 1–5 cm, ovate, attenuate at base, subacute at apex, shortly petiolate; petioles amplexicaule. Flowers white or pale blue, in 8–20 cm long, terminal spikes; calyx glandular. Capsules 0.6–8.0 cm long, oblong, pointed. Seeds oblong, smooth.

Fls. & Frts. : August–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 116. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 403. 1982.

Distrib. : Frequent in shady places of the forest. 167303.

MYRSINACEAE

- | | | |
|-----------------------|-----|-----------|
| 1. Flowers in umbels | ... | AEGICERAS |
| 1. Flowers in racemes | ... | EMBELIA |

AEGICERAS Gaertn.

Aegiceras corniculatum (L.) Blanco, *Fl. Filip.* 1: 79. 1837; Jafri & Guiser in Nasir & Ali, *Fl. W. Pakistan* 89: 7, f.2 C & D. 1975. *Rhizophora corniculata* L. in *Stickm. Herb. Amb.* 13. 1754 & Amoen. *Acad.* 4: 123. 1762. *Aegiceras majus* Gaertn. *Fruct. Sem. Pl.* 1: 216, t. 46, f.1 1788; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 533. 1881; Cooke, *Fl. Pres. Bombay* 2: 147. 1958 (Repr. ed.). 'Kajla'.

Shrubs, 2–5 m tall. Leaves 5–7 × 2.5–5.0 cm, obovate, ovate, cuneate at base, obtuse or emarginate at apex, glaucous beneath; petioles up to 1 cm long. Flowers white, in axillary and terminal, sessile, or subsessile inflorescence; pedicels 0.7–0.9 cm long. Follicles ca. 5 cm long, falcate, cylindric, dehiscent, with a cup of persistent calyx at base. Seeds elongate.

Fls. & Frts. : February–May.

Illus. : Jaffri & Guiser in Nasir & Ali, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 406. 1982.

Distrib. : Common along Ghodbundar creek bank. 168437.

EMBELIA N. L. Burm. (*nom. cons.*)

Embelia bassal (Roem. & Schult.) A. DC. *Trans. Linn. Soc.* 17: 131. 1837; Panigr. & S. M. Almeida in *J. Bombay nat. Hist. Soc.* 84: 472 (1987) 1988. *Aridisia basaal* Roem. & Schult. *Syst. Veg.* 4: 517. 1819. *E. tsjerium-cottam sensu* Sant. in *Rec. Bot. Surv. India* 16(1): 141. 1967 (3rd Rev.) *p. p. quoad. Syn. E. basaal non* (Roem. & Schult.) A. DC. 1837. *E. robusta auct. Plur. non* Roxb. 1820; C. B. Cl. in *Hook. f. Fl. Brit. India* 3: 515. 1882 *p. p. quoad. E. basaal* T. Cooke, *Fl. Pres. Bombay* 2: 144. 1958 (Repr. ed.) 'Wavading'.

Shrubs, 2–5 m tall. Leaves 5–7 × 2.5–5.0 cm, obovate, ovate, cuneate at base, obtuse or emarginate at apex, glaucous beneath; petioles up to 1 cm long. Flowers white, in axillary and terminal, sessile, or subsessile inflorescence; pedicels 0.7–0.9 cm long. Follicles ca. 5 cm long, falcate, cylindric, dehiscent, with cup of persistent calyx at base. Seeds elongate.

Fls. & Frts. : February–May.

Illus. : Wight, *Ic. t.* 209. 1848.

Distrib. : Common along Ghodbunder creek bank. 168437.

SAPOTACEAE

- | | | |
|--|-----|----------|
| 1. Calyx segments 4; staminodes absent | ... | MADHUCA |
| 1. Calyx segments more than 4 (5 or 8); staminodes present : | | |
| 2. Corolla lobes 5–6 | ... | XANTOLIS |
| 2. Corolla lobes 18 or 24 : | | |

3. *Staminodes* bifid or denticulate at apex, glabrous ... MANILKARA
 3. *Staminodes* acuminate at apex, hairy ... MIMUSOPS

MADHUCA J. F. Gmel.

Madhuca longifolia (Koen.) Mac Bride var. **latifolia** (Roxb.) Chevalier in Rev. Bot. Appl. 23: 149. 1943; Oza in Indian Forester 97: 652. 1971. *Bassia latifolia* Roxb. Pl. Cor. 1: 20. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 3: 544. 1882; Cooke, F. Pres. Bombay 2: 152. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 293. 2001. 'Mahua'

Trees, 10–15 m tall. Leaves 6–20 × 3–10 cm, elliptic or elliptic-oblong, rounded at base, acute to apiculate at apex, subcoriaceous. Flowers creamy white, in dense, axillary fascicles. Berries 2.5–5.0 cm, ovoid, fleshy, yellow when ripe. Seeds ovoid, smooth, shining.

Fls. & Frts. : January–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 157, f. 372. 1911. (*Bassia latifolia*).

MANILKARA Adans. (*nom. cons.*)

Manilkara hexandra (Roxb.) Dub. in Ann. Inst. Bot. Geol. Colon. Marseille (ser. 3) 3: 9, f. 2. 1915; van Royen in Blumea 7: 408. 1953. *Mimusops hexandra* Roxb. Pl. Cor. 1:16, t.15.1795. & Fl. Ind. 238. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 3: 549. 1882; Cooke, Fl. Pres. Bombay 2: 155. 1958 (Repr. ed.). 'Khirni'.

Trees, 10–15 m tall. Leaves 5–10 × 3–6 cm, elliptic-oblong, obovate-oblong, or broadly ovate. Flowers creamy white, in axillary fascicles of 2–6. Berries 1.0–1.6 cm long, or obovoid-oblong or ellipsoid, 1–2-seeded. Seeds ovoid, shining, black.

Fls. & Frts. : September–November.

Illus. : Wight, Ic. t. 1587. 1850 (*Mimusops indica* DC. Prodr. 8 : 205. 1844).

Distrib. : Occasional, 167722.

MIMUSOPS L.

Mimusops elengi L. Sp. Pl. 349. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 548. 1882; Cooke, Fl. Pres. Bombay 2: 155. 1958 (Repr. ed.); Oza in J. Bombay nat. Hist. Soc. 72(2): 601. 1975. 'Bakul'

Evergreen trees, 10–15 m tall. Leaves 5–13 × 4–6 cm, elliptic-ovate to lanceolate, acute to attenuate at base, acute to shortly acuminate at apex, subcoriaceous. Flowers cream-coloured, fragrant, solitary, axillary or in fascicles of 2–6. Berries 2.5 cm long, ovoid, fleshy 1–2-seeded. Seeds oblong, black, shining.

Fls. & Frts. : January–March.

Illus. : Wight, Ic. t. 1586. 1850; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t.414. 1982.

Distrib. : Occasional in forests, 167706.

XANTOLIS Raf.

Xantolis tomentosa (Roxb.) Raf. *Sylv. Tell.* 36. 1838; van Royen in *Blumea* 8: 226. 1957; Pradhan in Singh *et al.* *Fl. Maharashtra* 2: 295. 2001. *Sideroxylon tomentosum* Roxb. *Pl. Cor.* t.28. 1795; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 538. 1882; Cooke, *Fl. Pres. Bombay* 2: 150. 1958 (Repr. ed.). 'Kumbal'.

Medium-sized trees with spiny twigs and cracked bark, tomentose, in young parts. Leaves 4–10 × 2.5–5.0 cm, elliptic or elliptic-obovate, acute at base, rounded, subacute or sometimes retuse at apex, subcoriaceous. Flowers white, slightly fragrant, in head like axillary clusters; calyx fulvous pubescent, campanulate, corolla 0.6–0.8 cm long. Berries 1.8–2.3 × 1.2–1.5 cm, pubescent when young, becoming glabrous with age, yellowish-green, ellipsoid, usually 1-seeded.

Fls. & Frts. : October–January.

Illus. : Wight, Ic. t. 1218. 1848; Talbot, *For. Fl. Bombay Pres. & Sind* 2: 154, f. 371. 1911. (*Sideroxylon tomentosum*).

Distrib. : Anjankar & Bharathi (1999).

CULTIVATED SPECIES :

Chrysophyllum cainito L. *Sp. Pl.* 192. 1753; Cooke, *Fl. Pres. Bombay* 2: 149. 1958 (Repr. ed.); Bailey, *Man. Cult. Pl.* (ed. 2), 791. 1949. *C. roxburghii* Woodr. in *J. Bombay Nat. Hist. Soc.* 12: 163. 1898 non G. Don, 1837.

Trees. Leaves elliptic-oblong, acute at base, obtuse and abruptly acuminate at apex, coriaceous, silky beneath. Flowers in fascicles; corolla campanulate. Berries oblong or globose, fleshy 5–7 cm across.

Fls. & Frts. : August–October.

Distrib. : Malad, Almeida (2001). Native of West Indies. Planted in gardens.

Manilkara zapota (L.) Van Royen in Blumea 7: 410. 1953; Moore & Stearn in Taxon 16: 383. 1967. *Achras zapota* L. Sp. Pl. 2: 1190. 1753. *A. sapota* L. Sp. Pl. ed. 2: 470. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 3: 534. 1882. 'Chikku'.

Evergreen trees up to 10 m high. Leaves alternate, elliptic to elliptic-lanceolate, acute at base, acute to acuminate at apex. Flowers white, solitary, in axils of leaves; corolla urceolate, staminodes petaloid. Berries 6–8 cm across, ovoid. Seeds ellipsoid, shining, black.

Fls. & Frts. : More or less throughout the year.

Distrib. : Salsette, Shah (1984). Native of Tropical America and West Indies, grown for edible fruits.

EBENACEAE

DIOSPYROS L

- | | |
|---|---------------------------|
| 1. Calyx of male flowers pubescent or hairy outside : | |
| 2. Corolla of male flowers tubular; styles 2 | ... <i>D. melanoxylon</i> |
| 2. Corolla of male flowers urceolate : styles 3–4 | ... <i>D. sylvatica</i> |
| 1. Calyx of male flowers glabrous | ... <i>D. montana</i> |

Diospyros melanoxylon Roxb. Pl. Cor. 1: 36, t.46. 1795 & Fl. Ind. 2: 530. 1832; C. B. Cl. in Hook. f. Fl. Brit. India 3: 564. 1882; Cooke, Fl. Pres. Bombay 2: 159. 1958 (Repr. ed.); Pradhan in Singh et al. Fl. Maharashtra 2: 301. 2001. 'Temru', 'Temburni'.

Trees up to 15 m tall, deciduous; young parts tomentose. Leaves 6–15 × 2.5–7.0 cm, alternate or subopposite, elliptic to elliptic-oblong, obtuse or subacute, coriaceous, glabrous above, tomentose beneath. Flowers unisexual; male flowers 3–10, in paniculate, drooping cymes, female flower solitary, sessile. Fruits 2–3 cm across, globose or ovoid, fruiting calyx persistent, coriaceous. Seeds 2–8, oblong, flat.

Fls. & Frts. : November–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 972. 1982.

Distrib. : Frequent. 167253, 167720, 167860.

Diospyros montana Roxb. Pl. Cor. 1: 37, t. 48. 1795 & Fl. Ind. 2: 538. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 3: 555. 1882; Cooke, Fl.

Pres. Bombay 2: 165. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 301. 2001. 'Gaindu'.

Trees, 6–12 m tall, young parts softly pubescent. Leaves 5–8 × 2–5 cm, ovate-oblong to elliptic, subacute or obtusely acuminate. Flowers unisexual; male flowers in few-flowered, short panicles, greenish white, female flowers axillary, solitary, stout-pedicelled. Fruits 2.5–3.0 cm across, globose; fruiting calyx persistent, reddish-brown. Seeds 2–8.

Fls. & Frts. : January–April.

Illus. : Wight, Ic. t. 1225. 1848; Talbot, For. Fl. Bombay Pres. & Sind. 2: 170, f. 377. 1911.

Distrib. : InFrequent. 167482.

Diospyros sylvatica Roxb. Cor. 1: 34, t. 47. 1795 & Fl. Ind. 2: 537. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 3: 559. 1882; Cooke, Fl. Pres. Bombay 2: 150. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 303. 2001.

Trees up to 20 m tall. Leaves 6–10 × 2.5–3.0 cm, oblong-lanceolate, acute at base, acuminate at apex, coriaceous. Flowers unisexual; male flowers in axillary, 6–10-flowered cymes, female flower solitary, axillary. Fruits 1.2–2.0 cm across, globose, with persistent fruiting calyx. Seeds oblong, 2–3 rugose.

Fls. & Frts. : January–February.

Distrib. : Vihar lake, Y. A. Merchant. 755 [BLAT].

CULTIVATED SPECIES :

Diospyros peregrina (Gaertn.) Guerke in Engl. & Prantl, Pflanzenf. 4(1): 164. 1891; Gamble, Fl. Madras 2: 777 (846) : 1923. *Embryopteris peregrina* Gaertn. Fruct. Sem. Pl. 1: 145, t. 29, f. 2. 1788. *Diospyros embryopteris* Pers. Syn. Pl. 2: 624. 1807; C.B.Cl. in Hook. f. Fl. Brit. India 3: 556. 1882; Cooke, Fl. Pres. Bombay 2: 167. 1958 (Repr. ed.). 'Temburni'.

Evergreen trees, 6–15 m tall. Leaves thickly coriaceous, oblong, acute. Flowers unisexual, yellowish, solitary or few, in axillary clusters. Fruits ca. 4 cm across, globose, brownish-tomentose, fruiting calyx enlarged, reflexed.

Fls. & Frts. : March–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 416. 1982.

Distrib. : Koppikar. (1974).

OLEACEAE

- | | | |
|--------------------------------------|-----|------------|
| 1. Corolla tube orange | ... | NYCTANTHES |
| 1. Corolla tube not orange : | | |
| 2. Plants climbing; petals imbricate | ... | JASMINUM |
| 2. Plants erect; petals valvate | ... | OLEA |

JASMINUM L.

- | | | |
|---|-----|-----------------------|
| 1. Bracts foliaceous | ... | <i>J. multiflorum</i> |
| 1. Bracts not foliaceous : | | |
| 2. Calyx glabrous : | | |
| 3. Leaves simple | ... | <i>J. ritchiei</i> |
| 3. Leaves compound | ... | <i>J. azoricum</i> |
| 2. Calyx hairy : | | |
| 4. Leaves compound | ... | <i>J. auriculatum</i> |
| 4. Leaves simple : | | |
| 5. Petioles 1.2–2.5 cm long;
calyx lobes ca. 0.8 cm long | ... | <i>J. malabaricum</i> |
| 5. Petioles 0.6–1.2 long;
calyx lobes ca. 0.25–0.4 cm long | ... | <i>J. arborescens</i> |

Jasminum arborescens Roxb. Fl. Ind. Carry & Wall. ed. 1: 93. 1820; C. B. Cl. in Hook. f. Fl. Brit. India 3: 594. 1882; Cooke, Fl. Pres. Bombay 2: 173. 1958 (Repr. ed.). *J. arborescens* var. *latifolia* (Roxb.) C.B.Cl. in Hook. f. *op. cit.*

Extensive climbing or straggling shrubs. Leaves opposite, 7–10 × 3.5–5 cm, ovate, rounded or cordate at base, acute to acuminate at apex, shortly petiolate. Flowers white, in lax, trichotomous, terminal cymes; corolla lobes 10–12, linear, lanceolate. Berries ellipsoid ca. 1.2 × 0.5 cm.

Fls. & Frts. : February–April.

Illus. : Wight, Ic. t. 699. 1843.

Distrib. : Malad, Almeida (2001).

Jasminum auriculatum Vahl, Symb. Bot. 3: 1. 1794; C. B. Cl. in Hook. f. Fl. Brit. India 3: 600. 1882; Cooke, Fl. Pres. Bombay 2: 174.

1958 (Repr. ed.); Pradhan in Singh et al. Fl. Maharashtra 2: 307. 2001. 'Jai'.

Scandent shrubs; Leaflets 3-foliolate; lateral ones reduced or absent; central one; 1.5–3.0 × 1.0–1.5 cm, ovate to orbicular, obtuse or acuminate. Flowers white, in corymbose cymes. Berries ca. 0.5 cm across, black.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 700. 1843.

Distrib. : Goregaon, Almeida (2001).

Jasminum azoricum L. Sp. Pl. 7. 1753; Backer & Bakh. f. Fl. Java 2: 217. 1965. *J. flexile* Vahl, Symb. Bot. 3: 1: 1794; C.B.Cl. in Hook. f. Fl. Brit. India 3: 601. 1882; Cooke, Fl. Pres. Bombay 2: 175. 1958 (Repr. ed.). 'Chameli', 'Jai'.

Extensive twiners. Leaves opposite, 3-foliolate, turning yellow on drying; terminal leaflets 5–10–2.5–5.01 cm, elliptic-oblong to oblong-lanceolate, subacute or rounded at base, acute to acuminate at apex, lateral ones smaller. Flowers ca. 2.5 cm long, white, in lax, paniculate, axillary cymes. Berries ca. 1.5 cm long, ovoid, stalked, dark-purple when ripe.

Fls. & Frts. : March–April.

Illus. : Wight, Ic. t. 1253. 1848.

Distrib. : Malad, Almeida (2001).

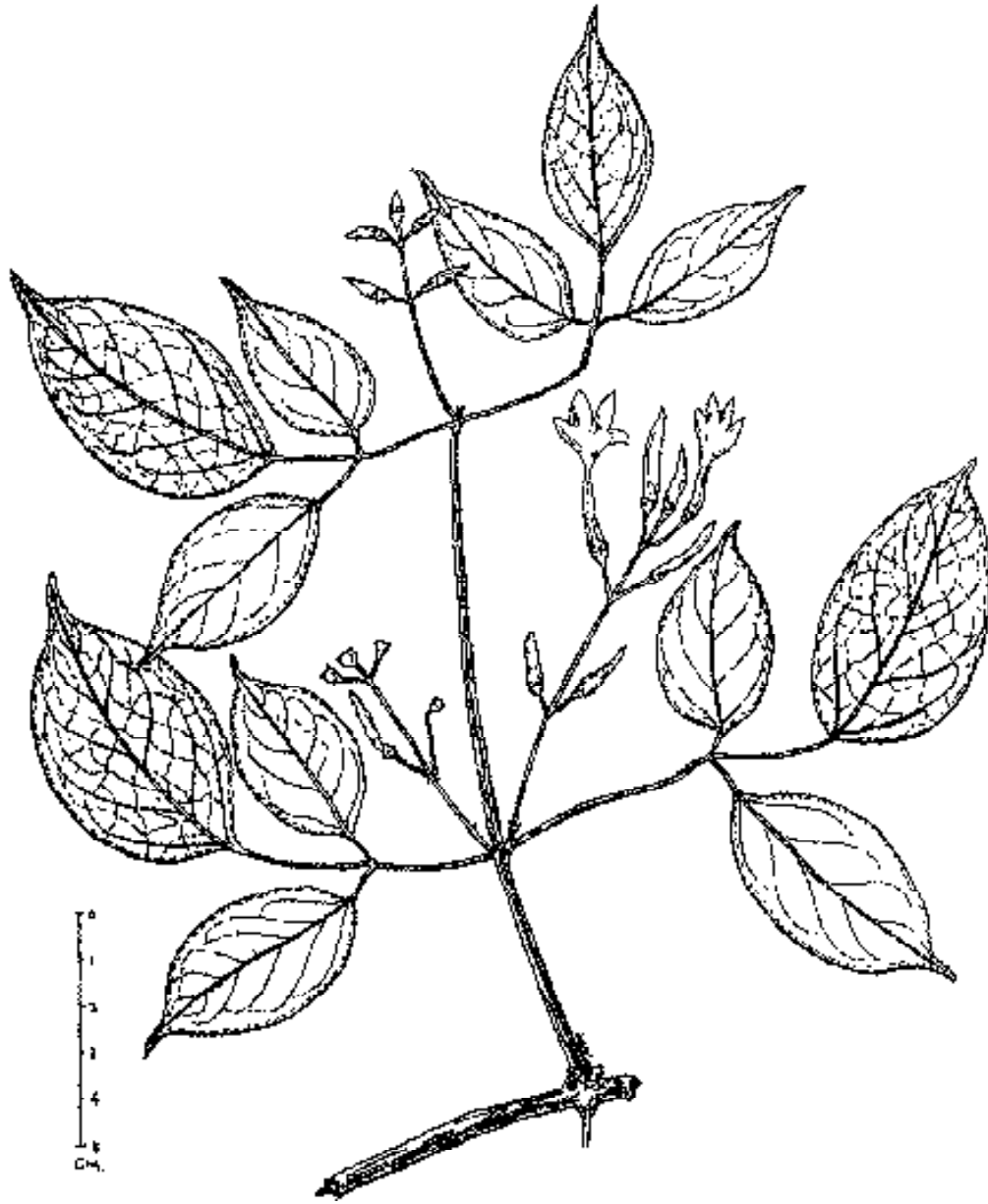
Jasminum malabaricum Wight, Ic. t. 1250. 1848; C.B.Cl. in Hook. f. Fl. Brit. India 3: 594. 1882; Cooke, Fl. Pres. Bombay 2: 172. 1958 (Repr. ed.); Pradhan in Singh, et al. Fl. Maharashtra 2: 309. 2001. 'Chameli', 'Jai'.

Shrubs; stems climbing, woody. Leaves opposite, 3–8 × 2–5 cm, cordiform or deltoid-elliptic; truncate or cordate at base, acuminate at apex. Flowers white; fragrant, in lax, trichotomously compound, many-flowered, terminal cymes. Berries 0.9–1.1 × 0.7–0.8 cm, oblong-globose, purplish black.

Fls. & Frts. : March–June.

Illus. : Wight, op. cit.; Talbot, For. Fl. Bombay Pres. & Sind 2: 187, f. 384. 1911.

Distrib. : Koppikar (1974).



f. 45. *Jasminum azoricum* L.

Jasminum multiflorum (Burm. f.) Willd. Sp. Pl. 1: 37. 1797. *Nyctanthes multiflora* Burm. f. Fl. Ind. 5, t. 3, f. 1. 1768. *Jasminum pubescens* Willd. Sp. Pl. 1: 37. 1797; C.B.Cl. in Hook. f. Fl. Brit. India 3: 592. 1882; Cooke, Fl. Pres. Bombay 2: 173. 1958 (Repr. ed.). 'Ran-Mogra'.

Shrubs; stems scandant; branchlets pubescent. Leaves 3-6 × 1.5-3.5 cm, ovate, elliptic or deltoid-ovate, truncate at base, acute at apex, mucronate. Flowers white, sessile in capitate, terminal cymes. Berries ca. 0.5 cm across, globose.

Fls. & Frts. : November-February.

Illus. : Wight, Ic. t. 1248. 1848 (*Jasminum bracteatum* Roxb. Fl. Ind. t. 1: 192. 1820).

Distrib. : Frequent. 168987.

Jasminum ritchiei C.B.Cl. in Hook. f. Fl. Brit. India 3: 598. 1882; Cooke, Fl. Pres. Bombay 2: 174. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 310. 2001. 'Jaswandi'.

Shrubs; stems climbing, much branched. Leaves 2-9 × 1.8-5.5 cm, opposite, ovate-elliptic or elliptic, obtuse at base, acuminate at apex. Flowers white, in 3-10-flowered, lax, subpaniculate cymes. Berries globose. ca. 0.8 across, globose.

Fls. & Frts. : August-September.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 190, f. 386. 1911.

Distrib. : Occasional, 167987.

NYCTANTHES L.

Nyctanthes arbor-tristis L. Sp. Pl. 6: 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 603. 1882; Cooke, Fl. Pres. Bombay 2: 176. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 311. 2001. 'Parijatak'.

Shrubs or trees up to 4 m tall; stems and branches quadrangular, hairy. Leaves 5-10 × 3-6 cm, opposite, ovate, rounded or cuneate at base, acute to acuminate at apex, margins entire or coarsely toothed. Flowers white, fragrant, caducous, in terminal and axillary, trichotomous cymes. Capsules 1.5-2.0 × 1.2-1.8 cm, obovoid, compressed. Seeds orbicular.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 421. 1982.

Distrib. : Borivli, Kanheri Caves, Almeida (2001).

OLEA L.

Olea dioica Roxb. *Fl. Ind.* 1: 106. 1832; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 612. 1882; Cooke, *Fl. Pres. Bombay* 2: 179. 1958 (Repr. ed.); Pradhan in Singh *et al.* *Fl. Maharashtra* 2: 311. 2001. 'Karamb' Par-jambhul'.

Trees up to 10 m tall. Leaves 5–12 × 3–5 cm, elliptic-obovate to elliptic-lanceolate, acute at base, acute to acuminate at apex, margins dentate-serrate. Flowers polygamodioecious, in axillary panicles 4–6 cm long. Drupes 0.8–0.9 × 8.5–0.6 cm, ellipsoid, pointed. Seeds ellipsoid, rugose.

Fls. & Frts. : January–April.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 2: 197, f. 390. 1911.

Distrib. : Frequent. 167441, 167443, 167471.

CULTIVATED SPECIES :

Jasminum humile L. *Sp. Pl.* 7: 1753; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 602. 1882; Cooke, *Fl. Pres. Bombay* 2: 175. 1958 (Repr. ed.).

Erect, rigid, ramous, shrubs 2–5 m high; branches straggling. Leaves alternate, 3-foliolate or pinnate, leaflets ovate or oblong. Flowers yellow, fragrant, ca. 1 cm across, in clusters.

Fls. & Frts. : May.

Distrib. : Goregaon, Almeida (2001).

Jasminum officinale L. *Sp. Pl.* 7: 1753; C.B.Cl. in Hook. f. *Fl. Brit. India* 3: 603. 1882; Naik, *Fl. Osmanabad* 196. 1979; Almeida, *Fl. Mah.* 3: 187. 2001. 'Chameli', 'Jai-Jui'.

Scandent shrubs with green branches. Leaves pinnate; leaflets elliptic or ovate, acute at base, acute to acuminate at apex. Flowers white, fragrant, in lax, terminal or axillary dichasial cymes. Fruits globose.

Fls. & Frts. : March–October.

Distrib. : Malad, Goregaon, Almeida (2001).

Jasminum sambac (L.) Ait. Hort. Kew 1: 8. 1789; C. B. Cl. in Hook. f. Fl. Brit. India 3: 591. 1882; Baily, Man. Cult. Pl. (ed. 2), 798. 1949; Naik, Fl. Osmanabad 195. 1979. *Nyctanthes sambac* L. Sp. Pl. 6. 1753.

Scandent shrubs, pubescent in young parts. Leaves 4–10 × 2–5 cm, ovate or elliptic, acute to obtuse at base, acute at apex. Flowers white, ca. 1 cm long, solitary or in 3-flowered terminal cymes.

Fls. & Frts. : March–May.

Distrib. : Borivli, Goregaon, Malad, Almeida (2001), grown in gardens.

SALVADORACEAE

SALVADORA L.

Salvadora persica L. var. **wightiana** (Planch. ex Thw.) Verdc. in Kew Bull. 19: 150. 1964; V. N. Naik, Fl. Marathwada 527. 1998. *S. wightiana* Planch. ex Thw. Enum. Pl. Zeyl. 190. 1860. *S. persica sensu* Roxb, Fl. Ind. 1: 389. 1837 non L. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 3: 619. 1882; Cooke, Fl. Pres. Bombay 2: 182. 1958 (Repr. ed.). 'Pilu'.

Shrubs, 3–4 m tall with drooping branches. Leaves 3–6 × 1.5–3.0 cm, elliptic-oblong, rounded to acute at base, acute and apiculate at apex, chartaceous. Flowers greenish-yellow, in axillary or terminal panicles. Drupes ca. 0.4 cm across, globular, 1-seeded, red when ripe.

Fls. & Frts. : November–April.

Illus. : Mahesh. Illus. Fl. Delhi f. 118. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 425. 1982.

Distrib. : Common along Ghodbandar creek, 167401.

APOCYNACEAE

- | | | |
|---|-----|-----------|
| 1. Plants armed; fruit a berry | ... | CARISSA |
| 1. Plants unarmed; fruit a drupe or a follicle : | | |
| 2. Leaves whorled : | | |
| 3. Calyx glabrous; fruits single or 1–2-lobed, drupe ca. 0.6 cm across; seeds ovoid | ... | RAUWOLFIA |
| 3. Calyx pubescent; fruits a paired follicles, 30–60 cm long; seeds linear oblong | ... | ALSTONIA |

2. Leaves opposite :
4. Plants scandent ... PARSONSIA
4. Plants erect :
6. Corolla with corona scales; stamens exerted ... WRIGHTIA
6. Corolla without corona scales; stamens included ... HOLARRHENA

ALSTONIA R. Br. (*nom. cons.*)

Alstonia scholaris (L.) R. Br. Mem. Wern. Nat. Hist. Soc. 1: 76. 1811; Hook. f. Fl. Brit. India 3: 642. 1882; Cooke, Fl. Pres. Bombay 2: 194. 1958 (Repr. ed.). *Echites scholaris* L. Mant. Pl. 53. 1767; Pradhan in Singh *et al.* Fl. Maharashtra 2: 318. 2001. 'Satvin'.

Trees, 15–20 m tall; bark grey, rough. Leaves whorled, 8–20 × 3–6 cm, obovate–elliptic or oblong–lanceolate, tapering at base, obtuse or bluntly acuminate at apex. Flowers cream–coloured, in umbellate, capitate cymes. Follicles 30–60 × 0.3 cm, cylindrical, pendulous. Seeds linear–oblong, flat, hairy at both ends.

Fls. & Frts. : December–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 427. 1982.

Distrib. : Koppikar (1974).

CARISSA L. (*nom. cons.*)

Carissa congesta Wight, Ic. t. 1289. 1848. *C. carandas auct. non* L. 1767; Hook. f. Fl. Brit. India 3: 360. 1882 *p.p.* ; Cooke, Fl. Pres. Bombay 2: 186. 1958 (Repr. ed.); Pradhan in Singh *et al.* Fl. Maharashtra 2: 320. 2001. 'Karvanda'.

1. Berries ellipsoid; 4 or more–seeded ... var. *congesta*.
1. Berries almost spherical; usually 4–seeded ... var. *albida*.
- var. **congesta**.

Shrubs, 2–3 m tall, evergreen, stems much branched, branches with paired, stout and sharp, horizontal spines 2–3 cm long. Leaves 2.5–7.0 × 2–3 cm, elliptic or obovate, subacute at base, obtuse and shortly mucronate at apex, coriaceous. Flowers white, in terminal corymbose cymes. Fruits 1.0–1.8 cm long, ellipsoid, purplish–black when ripe, 4 or more–seeded.

Fls. & Frts. : January–April.

Illus. : Wight, *op. cit.*; Talbot, For. Fl. Bombay Pres. & Sind 2: 206, f. 393. 1911. (*C. carandas*).

Distrib. : Frequent bushes. 168960.

var. **albida** Sant. in Kew Bull. 1948: 90. 1949 & in Rec. Bot. Surv. India 16(1): 146. 1967 (3rd Rev.ed.). '*Safed-Karvand*'.

Erect shrubs, or small trees. Fruits green at length, later turning pale greenish-yellow.

Fls. & Frts. : February-June.

Distrib. : Vihar lake, Kanheri Caves, Borivli, Almeida (2001).

HOLARRHENA R. Br.

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don, Gen. Syst. 4. 78. 1837; Panigr. in Taxon 36(2): 46. 1987. *Echites pubescens* Buch. -Ham. in Trans. Linn. Soc. London 13: 524. 1822. *Holarrhena antidysenterica* (Heyne ex Roth) Wall. ex A. DC. in DC. Prodr. 8: 413. 1844; Hook. f. Fl. Brit. India 3: 644. 1882; Cooke, Fl. Pres. Bombay 2: 195. 1958 (Repr. ed.). '*Pandhra kuda*'.

Shrubs or small trees, 3-6 m high. Leaves 10-20 cm × 5-12 cm, broadly ovate to elliptic, obtuse or obtusely acuminate. Flowers white, in terminal and axillary, corymbose-cymes; peduncles ca. 5 cm long, slender. Follicles 20-35 × 0.5-0.7 cm, cylindrical, dotted with white spots. Seeds linear-oblong, topped with brown hairs.

Fls. & Frts. : February-June.

Illus. : Wight, Ic. tt. 1297 & 1298, 1848 (*Holarrhena malaccensis*); Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 430. 1982. (*H. antidesynterica*).

Distrib. : Common. 167770.

PARSONSIA R. Br. (nom. cons.)

Parsonsia alboflavescens (Dennst.) Mabb. in Taxon 26: 532. 1977. *Periploca alboflavescens* Dennst. Schluss. Hortus Malab. 12, 23 & 35. 1818. *Parsonsia spiralis* Wall. ex G. Don, Gen. Hist. 4: 80. 1837-38; Hook. f. Fl. Brit. India 3: 650. 1882; Cooke, Fl. Pres. Bombay 2: 198 (Repr. ed.). *Nagal-nude*.

Twining shrubs up to 4 m long. Leaves 7-5 × 4-7 cm, elliptic, chartaceous; lanceolate, rounded or acute at base, acuminate at apex, petioles up to 3 cm long. Flowers greenish, in dichasial, corymbose, axillary and terminal cymes. Follicles 13-17 × 2 cm, cylindrical,

longitudinally grooved, coriaceous. Seeds 1.2–1.5 cm long, oblong, acute at both ends, hairs of coma up to 4 cm long, silky.

Fls. & Frts. : March–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 433. 1982.

Distrib. : Koppikar (1974).

RAUVOLFIA L.

- | | | |
|--|-----|-----------------------|
| 1. Leaves lanceolate, acute or acuminate, glabrous | ... | <i>B. serpentina</i> |
| 1. Leaves ovate-oblong, obtuse or subacute, softly pubescent | ... | <i>B. tetraphylla</i> |

Rauvolfia serpentina (L.) Bth. ex Kurz, *For. Fl. Brit. Burma* 2: 171. 1877; Hook. f. *Fl. Brit. India* 3: 632. 1882; Cooke, *Fl. Pres. Bombay* 2: 188. 1958 (Repr. ed.). *Ophioxylon serpentinum* L. *Sp. Pl.* 1043. 1753. 'Sarpagandha'.

Shrubs ca. 1 m tall. Leaves in whorls of 3, 6–15 × 2–6 cm, attenuate at base, acute to shortly acuminate at apex. Flowers white, tinged with violet, in many-flowered, pedunculate, corymbose-cymes. Drupes ca. 0.6 cm across, single or didymous.

Fls. & Frts. : March–May.

Illus. : Wight, *Ic. t.* 849. 1844. *Ophioxylon serpentinum*.

Distrib. : Borivli, R. Fernandez. 1863–5 (BLAT).

Rauvolfia tetraphylla L. *Sp. Pl.* 208. 1753. *R. canescens* L. *Sp. Pl.* (ed. 2), 303. 1762; Cooke, *Fl. Pres. Bombay* 2: 190. 1958 (Repr. ed.).

Shrubs, 1.0–1.5 m tall, stems erect, puberulous. Leaves 4 in a whorl, 4–8 × 2–4 cm, elliptic-ovate, subacute to acute at both ends, densely pubescent beneath. Flowers in axillary or terminal, 5–7-flowered coymbs. Drupes 0.6–0.7 cm across, globose, red when ripe. Seeds ovoid.

Fls. & Frts. : May–June.

Distrib. : Borivli, G. L. Shah, 10565–7 (BLAT). Native of West Indies.

WRIGHTIA R. Br.

- | | | |
|--|-----|---------------------|
| 1. Mericarps paired, apically joined | ... | <i>W. tinctoria</i> |
| 1. Mericarps cylindric, not paired, grooved indicating the junction of carpels | ... | <i>W. arborea</i> |

Wrightia arborea (Dennst.) Mabb. in *Taxon* 26: 533. 1977. *Periploca arborea* Dennst. *Schluss. Hortus. Malab.* 13, 23 & 25. 1818 & in *Forts. Allg. Deutsch. Gaert.-Mag.* 3: 32, 41, 83. 1818. *Wrightia tomentosa* (Roxb.) Roem. & Schult. in *L. Syst. Veg.* 4: 414. 1819; Hook. f. *Fl. Brit. India* 3: 653. 1882; Cooke, *Fl. Pres. Bombay* 2: 199. 1958 (Repr. ed.). 'Tambada-kuda'.

Trees, 8-10 m tall; branches tomentose. Leaves 7-15 × 3-6 cm, elliptic to oblong, acute at base, acuminate at apex, tomentose. Flowers white, turning yellow, in short, erect, terminal, corymbose cymes. Follicles 15-30 × 1.1-3.0 cm, cylindric, grooved, indicating the junction of the carpels, rough with white tubercles. Seeds slender, attenuated at apex, with coma of white hairs 2.5-5.0 cm long.

Fls. & Frts. : April-June.

Illus. : Wight, *Ic. t.* 443. 1841 (*Wrightia tomentosa*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 973a. 1945.

Distrib. : Occasional. 168948.

Wrightia tinctoria R. Br. in *Mem. Wern. Nat. Hist. Soc.* 1: 74. 1811; Hook. f. *Fl. Brit. India* 3: 653. 1882; Cooke, *Fl. Pres. Bombay* 2: 200. 1858 (Repr. ed.); Ngan in *Ann. Missouri Bot. Gard.* 52: 143. 1965. 'Kalakuda'.

Trees, 8-12 m tall, deciduous. Leaves 7-15 × 2.5-5.5 cm, elliptic-lanceolate or oblong-lanceolate, rounded or acute at base, acuminate at apex. Flowers white, in lax, terminal, dichotomously branched cymes. Mericarps 20-30 × 0.6-1.3 cm, cylindric, apically joined. Seeds pointed at apex; coma 3 cm long, deciduous.

Fls. & Frts. : February-May.

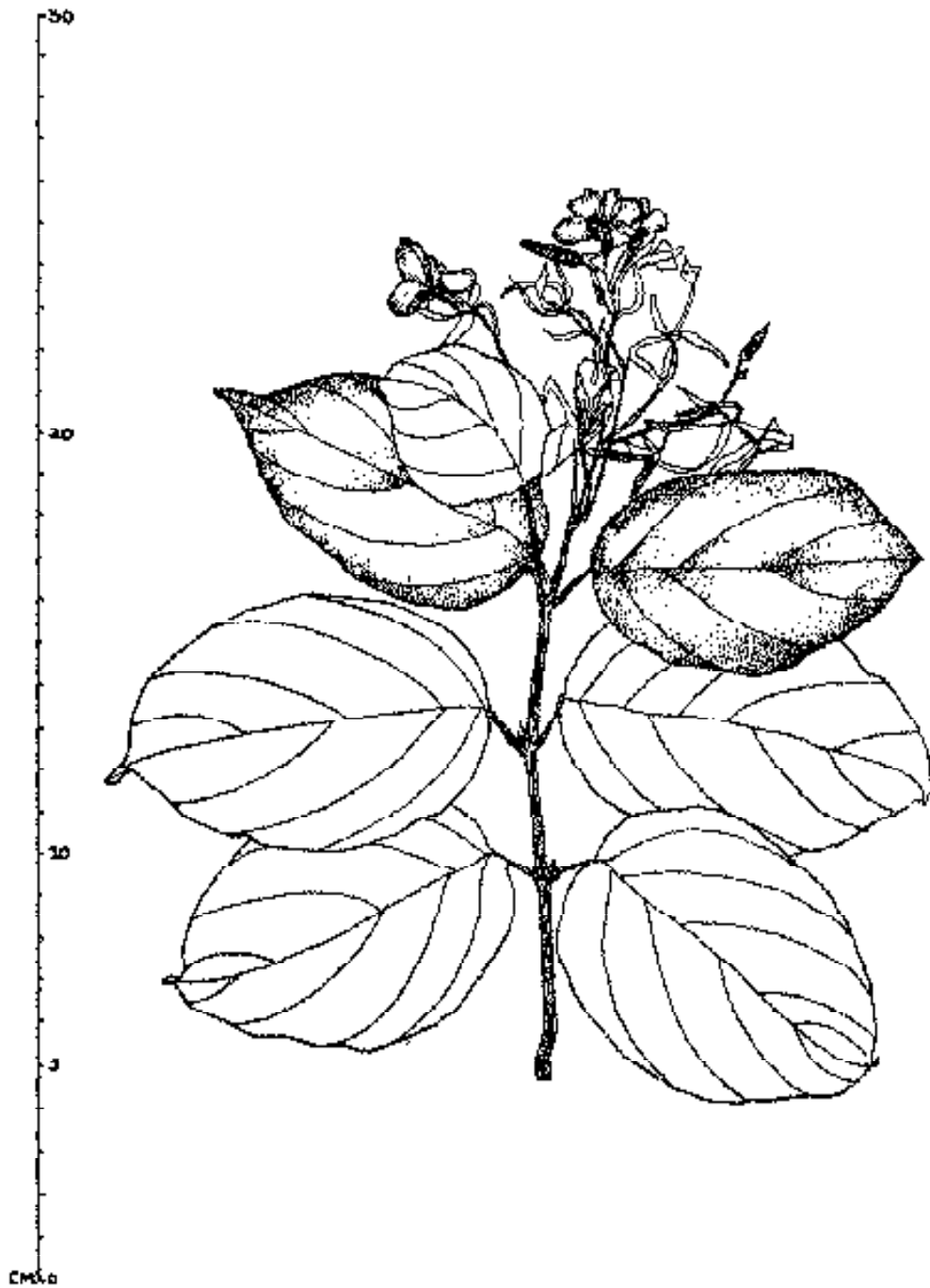
Illus. : Wight, *Ic. t.* 444. 1840-1843 Mathew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 435. 1982.

Distrib. : Frequent on plains and hill slopes. 167260.

CULTIVATED SPECIES :

Aganosma caryophyllata G. Don, *Gen. Syst.* 4: 77. 1837; Hook. f. *Fl. Brit. India* 3: 664. 1882; Cooke, *Fl. Pres. Bombay* 2: 203. 1958 (Repr. ed.). 'Malati'.

Lianas, stems extensive, woody, branched. Leaves 10-13 cm long, ovate, subcordate at base. Flowers white, fragrant ca. 4 cm across, in terminal, tomentose cymes. Follicles terete, linear, cylindric. Seeds comose, flat.



f. 46. *Aganosma caryophyllata* G. Don

Fls. & Frts. : July–September.

Distrib. : Ghodbunder, G. L. Shah, 4863–4 (BLAT). A native of lower Bengal, grown in gardens.

Allamanda cathartica L. var. **hendersonii** (Raff.) Bailey, Standard Encyclop. Hort. 1: 246. 1914 & in Man. Cult. Pl. 2: 810. 1949; Shah, Fl. Gujarat 445: 1978.

Dwarf, rambling, evergreen shrubs with thin wiry stems. Leaves in whorls of 3–4 or opposite, ovate–lanceolate. Flowers lemon yellow, 10–11 cm long.

Cascabela thevetia (L.) Lippold in Feddes Rept 91: 52. 1990. *Cerbera thevetia* L. Sp. Pl. 203. 1953. *Thevetia peruviana* (Pers.) Merr. in Philip. J. Sci. Bot. 9: 130. 1914; Bailay, Man. Cult. Pl. (ed. 2), 809. 1949. *T. neriifolia* Juss. ex Steud. Nom. Bot. (ed. 2), 2: 680. 1841; Cooke, Fl. Pres. Bombay 2: 207. 1958 (Repr. ed.). 'Pivla-kanher'.

Shrubs up to 4 m tall. Leaves alternate, linear–lanceolate, cuneate at base, acute at apex, petioles up to 1 m long, subcoriaceous. Flowers yellow, in terminal cymes. Drupes ca. 3 cm across, broadly turbinate, slightly laterally compressed. Seeds flattened, coma absent.

Fls. & Frts. : Throughout the year.

Distrib. : Cultivated on Kanheri hills near ashram. 167248. Pradhan s.n.

Catharanthus roseus (L.) G. Don, Gen. Syst. 4: 95. 1837; Sant. in Bull. Bot. Surv. India 3: 15. 1961; Naik, Fl. Osmanabad 199. 1979. *Vinca rosea* L. Syst. ed. 10.944. 1759; C. B. Cl. in Hook. f. Fl. Brit. India 3: 640. 1882. 'Sadaphuli'

Perennial herbs up to 90 cm tall. Leaves elliptic–oblong, acute at base, obtuse and apiculate at apex. Flowers white or rosy, in pairs, shortly pedicellate. Follicles up to 3 cm long, cylindrical. Seeds black.

Fls. & Frts. : Throughout the year.

Distrib. : Salsette, G. L. Shah (1962). Native of West Indies, grown in gardens.

Nerium indicum Mill. Gard. Dict. ed. 8, no. 2. 1768; Naik, Fl. Osmanabad, 200. 1979. *N. odorum* Soland. in Ait. Hort. Kew 1: 297. 1789; C. B. Cl. in Hook. f. Fl. Brit. India 3: 655. 1882; Cooke, Fl. Pres. Bombay 2: 206. 1958 (Repr. ed.). 'Kanher'.

Shrubs, 2–3 m tall. Leaves linear–lanceolate, acute. Flowers showy, fragrant, pure white or pink to dark red, in terminal, corymbose cymes.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 432. 1982.

Distrib. : *Koppikar* (1974). A native of *W. Himalayas & Nepal*, usually cultivated.

Plumeria rubra L. *Sp. Pl.* 209. 1753 forma *lutea* (Roem. & Schult.) Woodson in *Ann. Missouri Bot. Gard.* 25: 297. 1938; Matthew in *Rec. Bot. Surv. India* 20 : 154. 1969. *P. acutifolia* Poir. in *Lam. Encycl. (Suppl. 2)*, 667. 1812; C.B.Cl. in *Hook. f. Fl. Brit. India* 3: 641. 1882; Cooke, *Fl. Pres. Bombay* 2: 205. 1958 (Repr. ed.); Bailey, *Man. Cult. Pl. (ed. 2)*, 810. 1949. '*Pandhra chapha*'.

Trees, 4–8 m tall. Leaves 15–30 × 8–10 cm, alternate, broadly obovate–spathulate, cuneate to attenuate at base, acuminate at apex, subcoriaceous. Flowers cream–coloured, with yellow or red centre, in terminal, stout–peduncled, corymbose cymes. Follicles paired, pustulate. Seeds flat, winged.

Fls. & Frts. : April–October.

Illus. : Wight, *lc. t.* 471. 1841 (*Plumeria acutifolia*).

Distrib. : Borivli, A. *Randeria*, 214 (BLAT). Native of Tropical America, planted.

This taxon differs from typical form in having yellow flowers.

Flowers : December–June.

Distrib. : Malad. Cultivated in gardens, *Almeida* (2001).

Tabernaemontana divaricata (L.) R. Br. in Roem. & Schult. *Syst. Veg.* 4: 427. 1819; Sant. in *Rec. Bot. Surv. India* 16(1) : 167. 1953. *Nerium divaricatum* L. *Sp. Pl.* 209. 1753. *Tabernaemontana coronaria* (Jacq.) Willd. *Enum. Hort. Berol.* 275. 1809; C. B. Cl. in *Hook. f. Fl. Brit. India* 3: 646. 1882. *Ervatamia coronaria* (Jacq.) Stapf in Dyer, *Fl. Trop. Africa* 4 (1). 127. 1902; Cooke, *Fl. Pres. Bombay* 2: 197. 1958 (Repr. ed.). '*Tagar*'.

Shrubs, 1.5–2.0 m tall. Leaves 8–15 × 2–6 cm, lanceolate or oblong, cuneate to attenuate at base, acuminate at apex, subcoriaceous. Flowers white, in lax, divaricate, terminal cymes. Mericarps 8–10 × 1 cm, lanceolate, curved, beaked. Seeds arillate.

Fls. & Frts. : In successive waves.

Illus. : Wight, Ic. t. 477. 1841, (*Tabernaemontana coronaria*).

Distrib. : Borivli, A. *Randeria*, 5490 (BLAT). (cultivated).

ASCLEPIADACEAE

- | | | |
|--|-----|--------------|
| 1. Stems erect ; corolla tube not inflated at base. | | |
| 2. Leaves auricled at base | ... | CALOTROPIS |
| 2. Leaves tapering at base | ... | ASCLEPIAS |
| 1. Stems twining, if erect, then corolla tube inflated at base | ... | CEROPEGIA |
| 2. Corona uniseriate : | | |
| 3. Corona corolline : | ... | GYMHEMA |
| 3. Corona staminal : | | |
| 4. Follicles blunt at apex | ... | HOLOSTEMMA |
| 4. Follicles pointed at apex : | | |
| 5. Inflorescence 3–7-flowered : | | |
| 6. Pedicels filiform, slender; calyx sparsely pubescent | ... | PENTATROPIS |
| 6. Pedicels stout; calyx glabrous | ... | HETEROSTEMMA |
| 5. Inflorescence ca. 25-flowered : | | |
| 7. Flowers in drooping umbellate cymes | ... | WATTAKAKA |
| 7. Flowers in erect dichotomous cymes | ... | TOXOCARPUS |
| 2. Corona biseriate : | | |
| 8. Follicles softly echinate | ... | PERGULARIA |
| 8. Follicles not echinate : | | |
| 9. Corolla tube basally inflated | ... | CEROPEGIA |
| 9. Corolla tube not inflated : | | |
| 10. Corona staminal only : | | |
| 11. Flowers in sessile umbels | ... | SARCOSTEMMA |
| 11. Flowers in racemose cymes | ... | COSMOSTIGMA |
| 10. Corona staminal and corolline : | | |

- | | | |
|---------------------------|-----|------------|
| 12. Corolla 2.5 cm across | ... | OXYSTELMA |
| 12. Corolla 0.5 cm across | ... | LEPTADENIA |

ASCLEPIAS L.

Asclepias curassavica L. Sp. Pl. 215. 1753; Hook. f. Fl. Brit. India 4: 18. 1883; Cooke, Fl. Pres. Bombay 2: 245. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 15. 1962; Jagtap & Singh in Fasc. Fl. India 24: 6. 1999. 'Halad-kunku'.

Undershrubs ca. 1 m tall; stems branched, branches purplish. Leaves 7–11 × 1.5–2.0 cm, lanceolate, acute at base and apex. Flowers bright orange–red in extra–axillary, umbellate cymes. Follicles ca. 10 cm long, paired, lanceolate, beaked.

Fls. & Frts. : February–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: 436. 1982.

Distrib. : Goregaon, Almeida (2001), Native of West Indies naturalised as a weed.

CALOTROPIS R. Br.

- | | | |
|--|-----|--------------------|
| 1. Corona lobes shorter than staminal column, auricled | ... | <i>C. gigantea</i> |
| 1. Corona lobes equalling or longer than staminal column, not auricled | ... | <i>C. procera</i> |

Calotropis gigantea (L.) R. Br. in Ait. Hortus Kew ed. 2, 2: 78. 1811; Hook. f. Fl. Brit. India 4: 17. 1883; Cooke, Fl. Pres. Bombay 2: 214. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 17. 1962; Jagtap & Singh in Fasc. Fl. India 24: 9. 1999. *Asclepias gigantea* L. Sp. Pl. 214. 1753. 'Rui'.

Shrubs; stems erect, 2–3 m tall, bark yellowish–white in young parts. Leaves glaucous green, 10–15 × 4.0–8.5 cm, broadly ovate, ovate–oblong, elliptic or obovate, shortly cordate at base, acute at apex. Flowers pale purple, in lateral umbellate–cymes, pedicellate; peduncles 2.5–8.0 cm long. Follicles 8–10 × 5–6 cm, ellipsoid or ovoid–oblong. Seeds broadly ovate, acute, flattened, margined, tomentose; coma hairs 3 cm long.

Fls. & Frts. : July–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 437. 1982.

Distrib. : Common in open areas and cleared forest strips. 167352.

Calotropis procera (Ait.) R. Br. in Ait. Hortus Kew ed. 2, 2: 78. 1811; Hook. f. Fl. Brit. India 4: 18. 1883; Cooke, Fl. Pres. Bombay 2: 215. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 19. 1962; Jagtap & Singh in Fasc. Fl. India 24: 11. 1999. *Asclepias procera* Ait. Hort. Kew (ed. 1), 1: 305. 1789. 'Rui'.

Shrubs up to 3 m tall; young parts white-tomentose. Leaves 5–15 × 3.5–10.0 cm, ovate-oblong, elliptic or obovate, shortly acuminate. Flowers light purple, in umbellate cymes; peduncles 2.5–8.0 cm long. Follicles 8–10 × 5–7 cm, ellipsoid or ovoid-oblong. Seeds numerous, broadly ovate, compressed, tomentose; coma hairs up to 3 m long.

Fls. & Frts. : Mostly throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi f. 124. 1966.

Distrib. : Frequent in open places. 168420.

CEROPEGIA L.

- | | | |
|---|-----|---------------------|
| 1. Flowers usually solitary, or in pairs; corolla ca. 5.5 cm long | ... | <i>C. attenuata</i> |
| 1. Flowers in peduncled, umbellate cymes; corolla up to 4 cm long : | | |
| 2. Leaves membranous, linear to linear-lanceolate | ... | <i>C. odorata</i> |
| 2. Leaves fleshy, elliptic-ovate or obovate or orbicular | ... | <i>C. bulbosa</i> |

Ceropegia attenuata Hook. Ic. Pl. 9, t. 867. 1852; Hook. f. Fl. Brit. India 4: 67. 1883; Cooke, Fl. Pres. Bombay 2: 239. 1958 (Repr. ed.); Huber in Mem. Soc. Broter. 12: 128. 1957; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 25; 1962; Ansari in Fasc. Fl. India 16: 9. 1984; Jagtap & Singh in Fasc. Fl. India 24: 215. 1999.

Herbs, 15–60 cm tall; stems erect. Leaves 5.0–8 × 0.8–1.0 cm, linear, acute at base. Flowers 5.0–7.5 cm long; solitary, peduncled; outer corona lobes deeply bifid, inner corona lobes linear. Follicles ca. 7.5 cm long; single or paired. Seeds ca. 0.3 cm long, ovoid-oblong, thickly margined.

Fls. & Frts. : July–September.

Illus. : Sant. & Irani *op. cit.* 105, t.2. 1962.

Distrib. : Salsette, Kanheri, H. Santapau. 26238 (BLAT); G. L. Shah (1962).

Ceropegia bulbosa Roxb. Pl. Cor 1: 11 t. 7. 1795 & Fl. Ind. 28. 1832; Hook. f. Fl. Brit. India 4: 67. 1883; Cooke, Fl. Pres. Bombay 2:

240. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 28. 1962; Ansari in Fasc. Fl. India 16: 11. 1984; Jagtap & Singh. in Fasc. Fl. India 24: 217. 1999. '*Khapparkadu*'.

Twiners with tuberous roots; stems slender. Leaves 3.0–8.8 × 0.5–2.56 cm, linear–lanceolate to elliptic–oblong, the lowest, rounded, truncate or subcordate at base, apiculate at apex, petiolate. Flowers pedunculate, bracteate, dark purple; outer corona cupular, inner corona linear–spathulate. Follicles ca. 10 cm long, cylindrical, linear, tapering. Seeds ovate–oblong, flattened, with membranous margins.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 845. 1844–45.

Distrib. : Salsette, G. L. Shah (1962), Malad, Almeida (2001).

Ceropegia odorata Hook. f. Fl. Brit. India 4: 75. 1883; Huber in Mem. Soc. Broter. 12: 69, t.3, f. 37. 1957; Sant. & Irani in Univ. Bombay Bot. Mem. 4: 29. 1962; Ansari in Fasc. Fl. India 16: 9. 1984; Jagtap & Singh in Fasc. Fl. India 24: 234. 1999.

Herbaceous, slender twiners. Leaves opposite or seldom 3 at nodes, 6–7 × 0.5–1.0 cm, narrowly lanceolate or linear, narrowed at base, acuminate at apex. Flowers bright yellow, in peduncled, umbellate cymes; corona biseriate.

Fls. & Frts. : August–November.

Illus. : Huber, *op. cit.*

Distrib. : Salsette, Almeida (2001).

COSMOSTIGMA R. Wight

Cosmostigma racemosum (Roxb.) Wight, Contrib. Bot. India 42. 1834 & Ic. Pl. Ind. Orient. t. 591. 1842; Hook. f. Fl. Brit. India 4: 46. 1883; Cooke, Fl. Pres. Bombay 2: 232. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 36. 1962; Jagtap & Singh in Fasc. Fl. India 24: 72. 1999. *Asclepias racemosa* Roxb. Fl. Ind. 2: 32. 1832. '*Jati*', '*Shend-vel*'.

Shrubby twiners; stems stout, terete. Leaves 6–12 × 2–13 cm, cordiform, ovate, cordate at base, acute to acuminate at apex. Flowers small, greenish in laterally peduncled corymbs. Follicles ca. 15 × 5 cm, stout, ovate–oblong. Seeds ovate, flattened, margined; coma silky, brownish ca. 2.5 cm long.

Fls. & Frts. : June–August.

Illus. : Wight, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt.440 & 973d. 1982.

Distrib. : Salsette, *Blatter* (1933); Ghodbunder, *N. A. Irani* 112–3 (BLAT).

GYMNEMA R. Br.

Gymnema sylvestre (Retz.) R. Br. ex Schult. in Roem. & Schult. *Syst. Veg.* 6: 57. 1820; Hook. f. *Fl. Brit. India* 4: 29. 1883; Cooke, *Fl. Pres. Bombay* 2: 224. 1958 (Repr. ed.); Sant. & Irani in *Univ. Bombay Bot. Mem.* no. 4: 47. 1962; Jagtap & Singh in *Fasc. Fl. India* 24: 89. 1999. *Periploca sylvestris* Retz. *Obs. Bot.* 2: 15. 1781. 'Pitani'.

Lianas, much branched; young parts pubescent. Leaves 3–5 × 1.5–3.0 cm, elliptic to obovate or oblanceolate, rounded, cuneate or cordate at base, acute to shortly acuminate at apex, pubescent. Flowers yellow, in pedunculate or sessile corymbose cymes, pedicels a 1 cm long. Follicles 6–7.5 × 0.7 cm, terete, stout, lanceolate, beaked. Seeds ovoid-oblong, compressed, margined.

Fls. & Frts. : April–May.

Illus. : Wight, *l.c.* t. 349. 1840; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 445. 1982.

Distrib. : Koppikar (1974).

HETEROSTEMMA Wight & Arn.

Heterostemma dalzellii Hook. f. *Fl. Brit. India* 4: 48. 1883; Cooke, *Fl. Pres. Bombay* 2: 232. 1958 (Repr. ed.); Sant. & Irani in *Univ. Bombay Bot. Mem.* no. 4: 51. 1962; Jagtap & Singh in *Fasc. Fl. India* 24: 249. 1999.

Shrubby twiners; stems terete. Leaves petiolate, ca. 14 × 10 cm, broadly ovate; rounded or cordate at base, subacute to acuminate at apex, upper leaves 8–12 × 4–5 cm, ovate-oblong. Flowers pedicellate, in lateral, sessile, umbellate cymes. Follicles 6–8 cm long, tapering at apex, straight. Seeds oblong, margined; coma ca. 2.5 cm long.

Fls. & Frts. : August–September.

Distrib. : Borivli, *P. S. Herbert*. 2259–61. 2398 (BLAT).

HOLOSTEMMA R. Br.

Holostemma annulare (Roxb.) K. Schum. in Engl. & Prantl, Pflanzent. 4(2): 250, f. 71. J. K. 1895; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4 : 53. 1962; Jagtap & Singh in Fasc. Fl. India 24: 29. 1999. *Asclepias annulare* Roxb. Fl. Ind. 2: 37. 1832. *Holostemma ada-kodien* Schult. in L. Syst. Veg. 6: 95. 1820. *H. rheedianum* Spr. Syst. 1: 851. 1825; Cooke, Fl. Pres. Bombay 2: 220. 1958 (Repr. ed.). *H. rheedei* Wall. Pl. As. Rar. 2.51. 1831; Hook. f. Fl. Brit. India 4: 21. 1883. 'Shindodi', 'Tultuli'.

Twining shrubs. Leaves 5–12 × 3.5–7.5 cm, ovate to oblong, cordate to hastate at base, acuminate at apex, glabrous above, pubescent beneath; petioles ca. 3 cm long. Flowers purple, in axillary clusters, bracts and bracteoles scaly. Follicles 10–12 × 0.6 cm, linear-oblong, cylindrical. Seeds oblong, thin, flat; coma hairs up to 2.5 cm long.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 597. 1842 (*H. rheedei*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 448. 1982.

Distrib. : Occasional. 167923.

LEPTADENIA R. Br.

Leptadenia reticulata (Retz.) Wight & Arn. in Wight, Contrib. Bot. Ind. 47. 1834 & Ic. t.350. 1840; Hook. f. Fl. Brit. India 4: 63. 1883; Cooke, Fl. Pres. Bombay 2: 237. 1958 (Repr. ed.); Bullock in Kew Bull. 10 : 291. 1955; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 60. 1962; Jagtap & Singh in Fasc. Fl. India 24: 260. 1999. *Cynanchum reticulatum* Retz. Obs. Bot. 2: 15. 1781. 'Hirandodi'.

Shrubs; stems twining, swollen at nodes, puberulous; bark corky. Leaves petiolate, 4.0–7.5 × 1.5–5.0 cm, elliptic-oblong or ovate, truncate, rounded or subcordate at base, acute at apex. Flowers greenish-yellow, ca. 0.7 cm across, in many-flowered, umbellate, axillary or subaxillary cymes; corona outer massive, corolline, inner staminal corona of 5 annular lobes around staminal column. Follicles linear-oblong, paired, turgid, cylindrical, bluntly acute, subwoody.

Fls. & Frts. : April–November.

Illus. : Wight, *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 449. 1982.

Distrib. : Salsette, G. L. Shah (1962).

OXYTELMA R. Br.

Oxystelma esculentum (L. f.) R. Br. in Mem. Wern. Soc. 5: 40. 1809. printed in 1811 ex Schult. in L. Syst. Veg. 6: 89. 1820; Hook. f. Fl. Brit. India 4: 17. 1883; Cooke, Fl. Pres. Bombay 2: 216. 1958 (Repr. ed.); Jagtap & Singh in Fasc. Fl. India 24: 33. 1999. *Periploca esculenta* L. f. Suppl. Pl. 168. 1781. *Oxystelma secamone* (L.) Karst. Deut. Fl. 1031. 1880–1853 *nom. illegit.*; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 67. 1962, 'Dudhani'.

Herbs, twining, slender. Leaves 3.5–8.0 × 0.5–2.0 cm, oblong to linear or linear-lanceolate, rounded or acute at base; acute at apex, petioles up to 1 cm long, slender. Flowers large, ca. 2 cm across, pale rose or white, drooping, in lateral pedunculate, subumbellate-cymes. Follicles 2 cm, inflated, ovoid lanceolate. Seeds numerous, broadly ovate, flat, with minute denticulations at base.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 451. 1982.

Distrib. : Salsette, Blatter (1933); R. D. Anand, Vihar Lake 693, (BLAT) Malad, Goregaon, Almeida (2001).

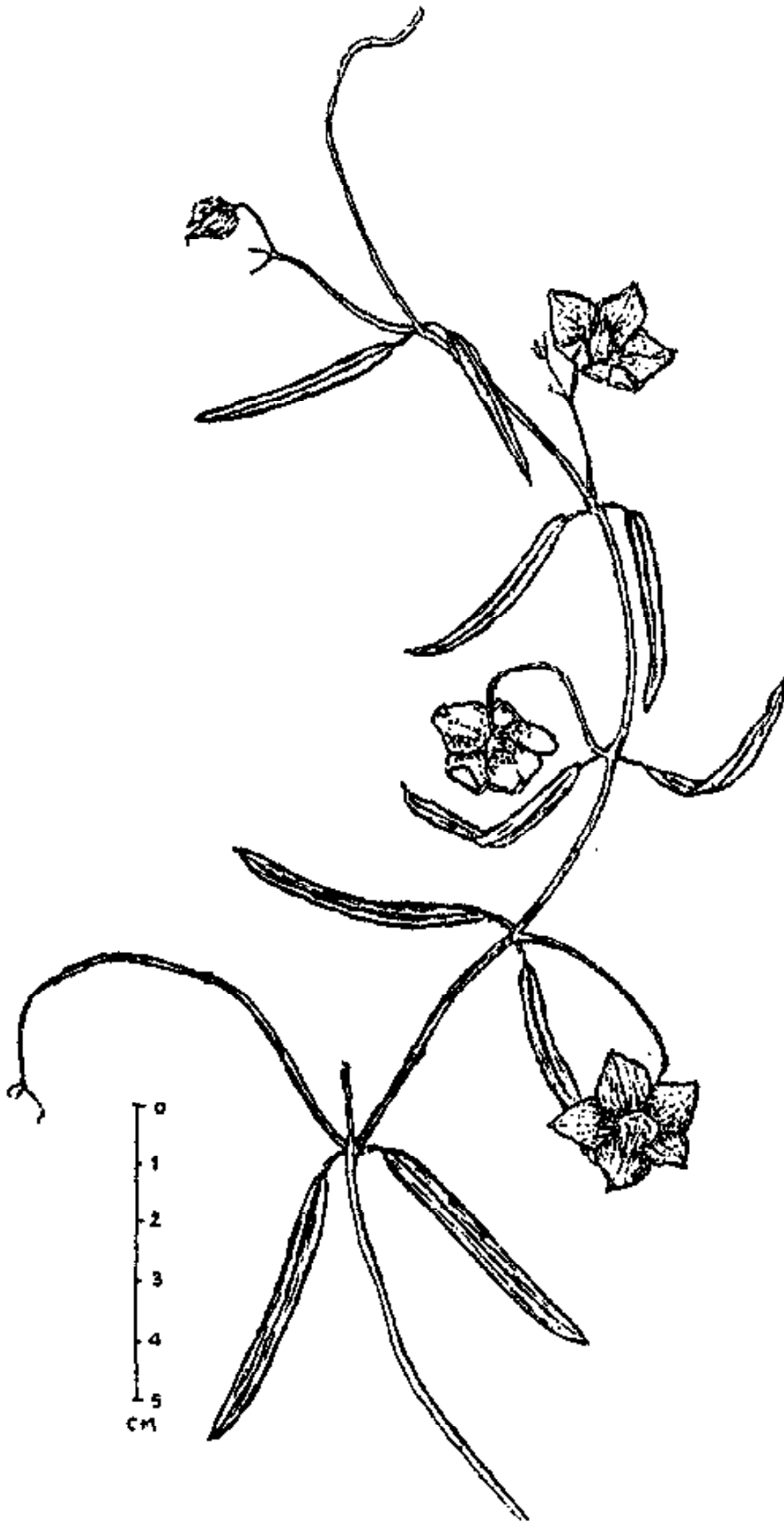
PENTATROPIS Wight & Arn.

- | | | |
|---------------------------------|-----|--------------------|
| 1. Corolla lobes acute at apex | ... | <i>P. capensis</i> |
| 1. Corolla lobes tailed at apex | ... | <i>P. nivalis</i> |

Pentatropis capensis (L. f.) Bullock in Kew Bull. 1955: 284. 1955; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 69. 1964; Jagtap & Singh in Fasc. Fl. India 24: 38. 1999. *Cynanchum capense* L. f. Suppl. 168. 1781. *Pentatropis microphylla* (Roth) Wight & Arn. in Wight, Contrib. Bot. Ind. 52. 1834 & Wight, Ic. t. 352. 1840; Hook. f. Fl. Brit. India 4: 20. 1883; Cooke, Fl. Pres. Bombay 2: 218. 1958 (Repr. ed.). 'Parparam'.

Twining herbs; stems slender. Leaves 1.0–2.5 × 1.0–2.0 cm, oblong elliptic, ovate-elliptic, truncate to subcordate at base, obtuse and mucronate at apex. Flowers lanceolate, in few-flowered, lateral umbellate cymes. Follicles 4–5 × 1 cm, lanceolate, inflated at base, tapering at apex. Seeds ovate, compressed, winged; coma silky.

Fls. & Frts. : October–December.



f. 47. *Oxystelma esculentum* (L. f.) R. Br.

Illus. : Wight, *op. cit.* (*Pentatropis microphylla*); Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 452. 1982.

Distrib. : Salsette, *Graham* (1839).

Pentatropis nivalis (J. F. Gmel.) Field & Wood in *Kew Bull.* 38: 215. 1983; Jagtap & Singh in *Fasc. Fl. India* 24: 39. 1999. *Asclepias nivalis* J. F. Gmel. in *L. Syst. Nat.* ed. 13, 2(2) : 444. 1791. *Pentatropis cyananchoides* R. Br. in *Salt, Voy. Abyss. App.* 64. 1814; Cooke, *Fl. Pres. Bombay* 2: 218. 1958 (Repr. ed.). *P. spiralis* (Forssk.) Decne in *Ann. Sci. Nat.* 2, 9: 329. 1838; Hook. f. *Fl. Brit. India* 4: 19. 1883. 'Ambar-vel'.

Shrubby twiners; stems twining, slender. Leaves 1-4 × 0.5-2.0 cm, ovate, ovate-lanceolate or elliptic-oblong, rounded at base, acute or obtuse; usually mucronate at apex, somewhat fleshy. Flowers greenish, in lateral, umbellate, 4-6-flowered, peduncled cymes. Follicles ca. 4.7 × 0.8 cm, lanceolate, beaked. Seeds flat, ovate-oblong.

Fls. & Frts. : February-October.

Distrib. : Ghodbundar, *McCann* 5123. (BLAT)

PERGULARIA L.

Pergularia daemia (Forssk.) Choiv. *Result. Sc. Miss. Stefan. Paoli Somal. Ital.* 1: 115. 1916; Sant. & Irani in *Univ. Bombay Bot. Mem. no. 4*: 74. 1962; Jagtap & Singh in *Fasc. Fl. India* 24: 41. 1999. *Asclepias daemia* Forssk. *Fl. Aeg.-Arab.* 51. 1775. *Daemia extensa* (Jacq.) R. Br. in *Mem. Wern. Soc.* 5(1) : 50. 1811; Hook. f. *Fl. Brit. India* 4: 20. 1883; Cooke, *Fl. Pres. Bombay* 2: 219. 1958 (Repr. ed.). 'Utarni'.

Herbaceous twiners, hairy. Leaves 5-10 × 3-7 cm, broadly ovate, deeply cordate at base, acute at apex. Flowers greenish-yellow, in lateral, peduncled racemes. Follicles paired. 6-7 × 0.2 cm, curved, basally swollen, lanceolate, echinate. Seeds broadly ovate; coma silky, 3-5 cm long.

Fls. & Frts. : August-January.

Illus. : Wight, *Ic.* t. 596. 1842; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 453. 1982.

Distrib. : Versova, *H. Santapau*, 137 (BLAT).

SARCOSTEMMA R. Br.

Sarcostemma viminalis (L.) R. Br. in Mem. Wern. Soc. 1: 51. 1810; Jagtap & Singh in Fasc. Fl. India 24: 50. 1999. *Euphorbia viminalis* L. Sp. Pl. 452. 1753. *Sarcostemma acidum* (Roxb.) Voigt, Hort. Sub. Calc. 542. 1845; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 76. 1962. *S. brevistigma* Wight & Arn. in Wight, Contrib. 59: 1834; Hook. f. Fl. Brit. India 4: 26. 1883; Cooke, Fl. Pres. Bombay 2: 222. 1958 (Repr. ed.). 'Ran-sheer', 'Som-vel'.

Straggling shrubs; stems and branches leafless, green, glabrous. Flowers pale; greenish-white, many, in terminal sessile umbels, shortly pedicellate; corolla campanulate, divided; corona biseriate, outer crenately 10-lobed. Follicles 10-12 × 0.7-0.8 cm, lanceolate.

Fls. & Frts. : June-October.

Illus. : Wight, Ic. t. 595. 1840-43.

Distrib. : Salsette, H. Santapau (BLAT).

TOXOCARPUS Wight & Arn.

Toxicarpus kleinii Wight & Arn. in Wight, Contrib. Bot. Ind. 61. 1834; Hook. f. Fl. Brit. India 4: 14. 1883; Cooke, Fl. Pres. Bombay 2: 212. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 84. 1962; Jagtap & Singh in Fasc. Fl. India 24: 282. 1999.

Shrubs. Stems twining, rufous-tomentose. Leaves 6-8 × 3-5 cm, ovate-elliptic or obovate to lanceolate, acute at base, acuminate at apex, shortly petiolate. Flowers in axillary, rusty pubescent, paniculate cymes. Follicles 7-13 × 0.6-0.8 cm, slightly curved, tapering to apex. Seeds 0.8 cm long, ovate-lanceolate; coma 2.5 cm long.

Fls. & Frts. : November-March.

Illus. : Wight, Ic. t. 886. 1844-45.

Distrib. : Rare, Salsette, Graham (BLAT).

WATTAKAKA Hassk.

Wattakaka volubilis (L. f.) Stapf in Curtis Bot. Mag. 148 Sub. t. 8976. 1923; Jagtap & Singh in Fasc. Fl. India 24: 175. 1999. *Asclepias volubilis* L. f. Suppl. Pl. 170. 1781. *Marsdenia volubilis* (L. f.) T. Cooke, Fl. Pres. Bombay 2: 166. 1904 & 2: 230. 1958 (Repr. ed.). 'Hirandodi'.

Large twining shrubs; branches lenticular; rufous-tomentose. Leaves 6-8 × 4-5 cm, elliptic-ovate or obovate, rounded or acute at

base, shortly acuminate at apex, petioles 1–2 cm long. Flowers yellowish–green, pedicelate. in lateral, drooping rusty–pubescent, paniculate–cymes. Follicles 7–10 × 0.6–0.8 cm, obovoid, tapering to a blunt point, striate. Seeds broadly ovate, compressed, margined; coma hairs ca. 4.5 cm long.

Fls. & Frts. : November–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 458. 1982.

Distrib. : Common. 167921, 1684444.

PERIPLOCACEAE

- | | | | |
|----|--|-----|--------------|
| 1. | Flowers large, showy, ca. 8 cm across | ... | CRYPTOSTEGIA |
| 1. | Flowers small, inconspicuous 0.5–0.8 cm across : | | |
| 2. | Flowers greenish–yellow, in pedunculate cymes | ... | CRYPTOLEPIS |
| 2. | Flowers greenish–purple, in sessile cymes | ... | HEMIDESMUS |

CRYPTOLEPIS R. Br.

Cryptolepis buchmanii Roem. & Schult. in L. Syst. Veg. 4: 409. 1819; Hook. f. *Fl. Brit. India* 4: 5. 1883; Cooke, *Fl. Pres. Bombay* 2: 210. 1958 (Repr. ed); Sant. & Irani in *Univ. Bombay Bot. Mem.* no. 4: 91. 1962; Jagtap & Singh in *Fasc. Fl. India* 24: 290. 1999. 'Kavli'.

Straggling shrubs; stems twining, terete, glabrous. Leaves 6–10 × 3–5 cm, oblong–elliptic to oblong–lanceolate, acute at base, rounded, acute, retuse or apiculate at apex. Flowers greenish–yellow, in short, paniculate cymes, bracts ovate–acute, with scarious margins. Follicles 5–10 × 2–4 cm, paired, lanceolate, stout. Seeds obovoid, narrowed at apex; corona ca. 2.5 cm long.

Fls. & Frts. : June–October.

Illus. : Wight, *Ic. t.* 494. 1841; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2t. 441. 1982.

Distrib. : Common. abundant, 1684443.

CRYPTOSTEGIA R. Br.

Cryptostegia grandiflora R. Br. in *Bot. Reg.* 5: t. 435. 1819; Hook. f. *Fl. Brit. India* 4: 6. 1883; Cooke, *Fl. Pres. Bombay* 2: 245. 1958 (Repr. ed); Sant. & Irani in *Univ. Bombay Bot. Mem.* 4: 93. 1962; Jagtap et Singh in *Fasc. Fl. India* 24: 295. 1999.

Climbing shrubs; stems terete, suberect, swollen at nodes. Leaves 6–9 × 3.5–5, elliptic-oblong, tapering at base, obtuse at apex, glabrous. Flowers rose-purple or whitish in di or trichotomous cymes; corona corolline, each divided into two filiform segments. Follicles 12–15 cm long, 3-winged. Seeds winged.

Fls. & Frts. : June–September.

Illus. : Wight, Ic. t. 831. 1844 –45; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 370. 1988.

Distrib. : Frequent, cultivated but naturalised in the park, *Pradhan s. n.*

HEMIDESMUS R. Br.

Hemidesmus indicus (L.) Schult. in Roem. & Schult. Syst. Veg. 6: 126. 1819; Hook. f. Fl. Brit. India 4: 5. 1883; Cooke, Fl. Pres. Bombay 2: 210. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 94. 1962; Jagtap & Singh in Fasc. Fl. India 24: 296. 1999. *Periploca indica* L. Sp. Pl. 211. 1753. 'Anant-vel'.

Shrubs, prostrate or twining, perennials; rootstock woody. Leaves 5–10 × 0.8–3.0 cm, rounded at base, acute to apiculate at apex. Flowers bracteate, fascicled, in subsessile, axillary cymes, Follicles 10–15 × 0.6–0.7 cm, cylindric, tapering towards apex. Seeds ovate-oblong compressed; coma hairs silvery-white.

Fls. & Frts. : Mostly throughout the year.

Illus. : Wight, Ic. t. 594. 1842.

Distrib. : Very common, twining among other bushes. 167358, 167751, 168416.

CULTIVATED SPECIES :

Cryptostegia madagascariensis Boj. Hort. Maurit. 212. 1837; Sant. & Irani in Univ. Bombay Bot. Mem. no. 4. 94. 1962; Jagtap & Singh in Fasc. Fl. India 24: 296. 1989.

Straggling shrubs, stems branched, swollen at nodes, lenticelled. Leaves ovate or elliptic-oblong, rounded to subacute at base, abruptly acuminate at apex, Flowers large, whitish, tinged with purple, in terminal, dichotomous cymes. Follicles sharply angular.

Fls. & Frts. : July–April.

Distrib. : Salsette, Sant. & Irani (1985)

Notes : Native of Madagascar, occasionally cultivated in gardens.

LOGANIACEAE

MITREOLA L.

Mitreola petiolata (J. F. Gmel.) Torr. & A. Gray, Fl. N. America 2: 45. 1845; Heine in Kew Bull. 23: 251. 1969; C. R. Jadhav in Singh *et al.* Fl. Maharashtra 2: 390. 2001. *Cynoctonum petiolatum* J. F. Gmel. Syst. Nat. ed. 13, 2: 443. 1791. *Mitreola oldenlandioides* Wall. ex DC. Prodr. 9: 9. 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 79. 1883; Cooke, Fl. Pres. Bombay 2: 246. 1958 (Repr. ed). *Cynoctonum mitreola* (L.) Britt. in Mem. Torr. Bot. Club 5: 258. 1884; Sant. & Wagh in Bull. Bot. Surv. India 5: 106 (1963) 1964.

Annual herbs. 10–30 cm tall; stems erect. slender. Leaves 2–7 × 1.5 cm, ovate-elliptic or elliptic-oblong. acute at base, acute or acuminate at apex. Flowers white, in secund, axillary and terminal, forked cymes. Capsules 0.4–0.6 cm long, wedge-shaped. 2-horned. Seeds oblong. faintly trigonous.

Fls. & Frts. : August–September.

Illus. : Wight, Ic. t. 1600. 1850 (*Cynoctonum mitreola*).

Distrib. : Borivli, H. Santapau 16115–6 & A. J. Randeria, 551 (BLAT).

BUDDLEJACEAE

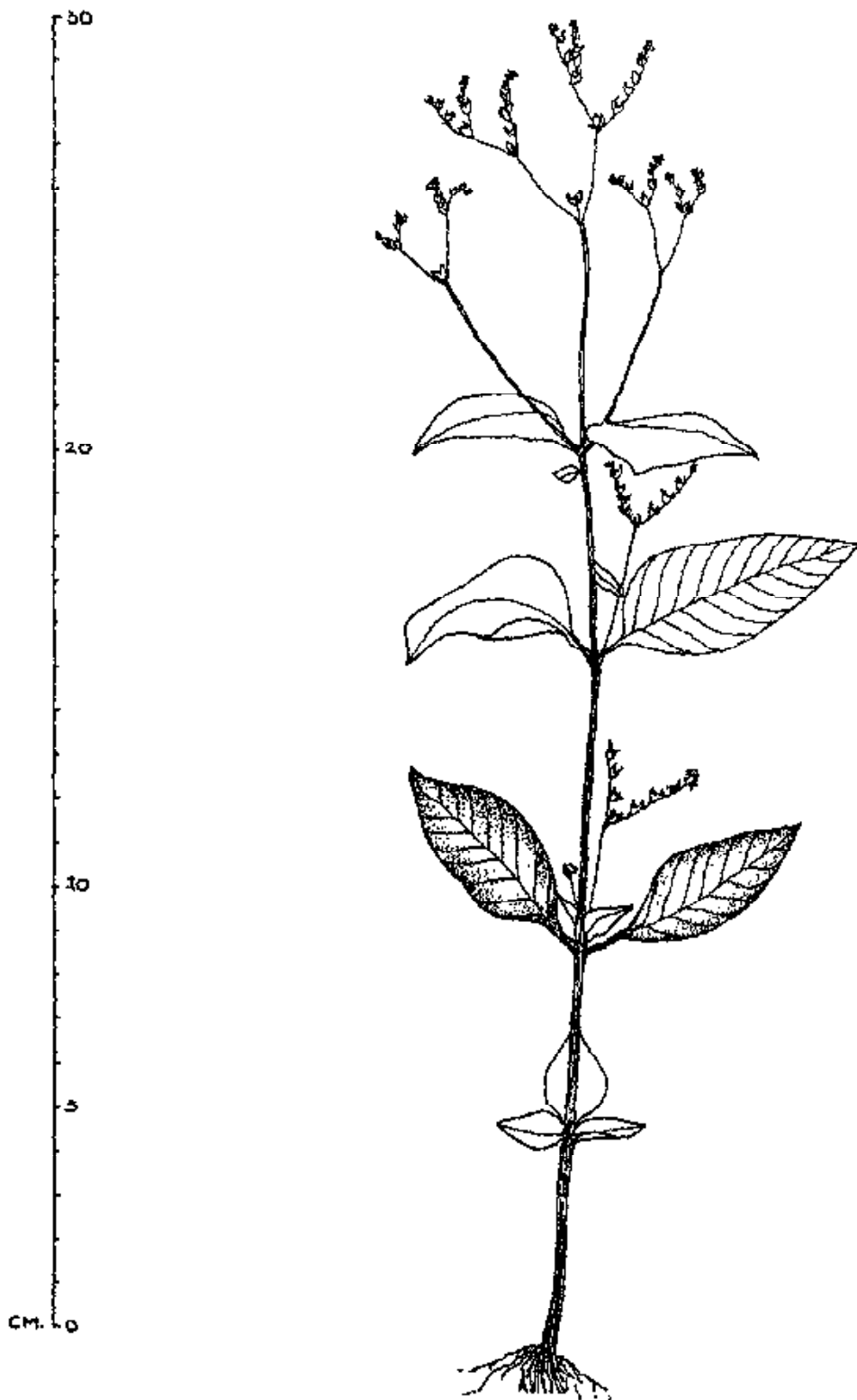
BUDDLEJA L.

Buddleja asiatica Lour. Fl. Cochinch. 72. 1790; C. B. Cl. in Hook. f. Fl. Brit. India 4: 82. 1883; Cooke, Fl. Pres. Bombay 2. 248. 1958 (Repr. ed.); Leench. in Steenis, Fl. Males. 1, 6: 337. 1962.

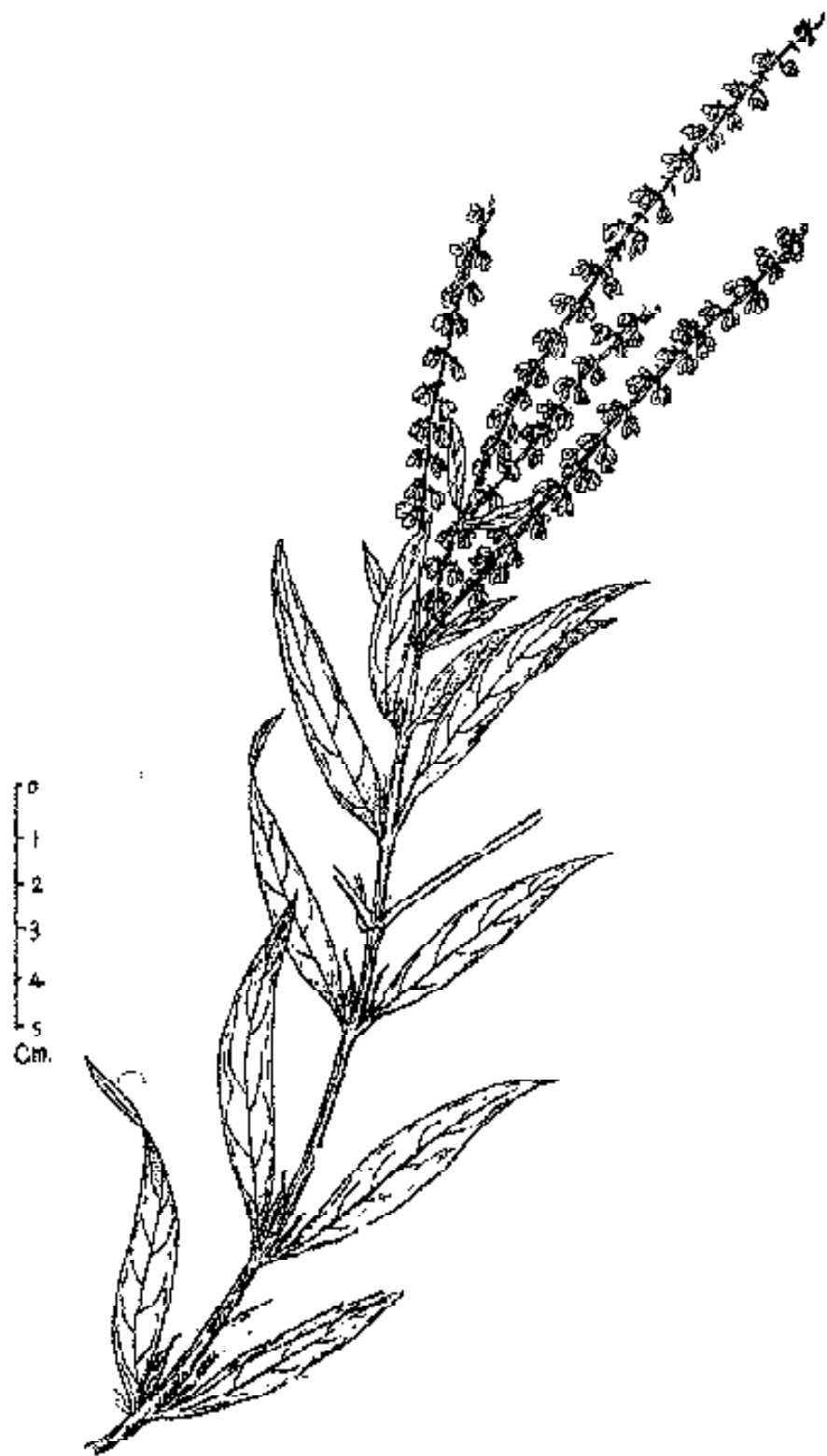
Shrubs 2–4 m tall, tomentose in young parts. Leaves 5.5–10.0 × 1–3 cm, lanceolate, acute at base, acute to acuminate at apex, margins entire or serrulate, whitish-tomentose beneath. Flowers white, ca. 0.8 cm long, subsessile, in bracteate, tomentose, terminal or axillary solitary or a few in spikes; calyx woolly-tomentose; corolla tubular. Capsules ca. 0.5 cm long, ellipsoid.

Fls. & Frts. : September.

Illus. : Wight, Ic t. 894. 1844–45 *Buddleja discolor* Roth, Nov. Pl. Sp. 83. 1821.



f. 48. *Mitreola petiolata* (J. F. Gmel.) Torr. & A. Gray



f. 49. *Buddleja asiatica* Lour.

Distrib. : Goregaon, Almeida (2001).

GENTIANACEAE

- | | | |
|---|-----|------------|
| 1. Capsules narrowly oblong | ... | CANSCORA |
| 1. Capsules globose, ovoid or ellipsoid : | | |
| 2. Flowers in axillary clusters | ... | ENICOSTEMA |
| 2. Flowers in cymes : | | |
| 3. Stigmas capitate or subentire : | | |
| 4. Calyx lobes winged | ... | EXACUM |
| 4. Calyx lobes not winged | ... | HOPPEA |
| 3. Stigma 3-lobed | ... | CENTAURIUM |

CANSCORA Lam.

- | | | |
|------------------------------|-----|----------------------|
| 1. Calyx strongly 4-winged : | | |
| 2. Bracts perfoliate | ... | <i>C. perfoliata</i> |
| 2. Bracts not perfoliate | ... | <i>C. decussata</i> |
| 1. Calyx not winged : | | |
| 3. Stems not winged | ... | <i>C. diffusa</i> |
| 3. Stems winged | ... | <i>C. decurrens</i> |

Canscora decurrens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2: 136. 1850; C. B. Cl. in Hook. f. Fl. Brit. India 4: 103. 1883; Cooke, Fl. Pres. Bombay 2: 257. 1958 (Repr. ed.).

Slender herbs, 30–45 cm tall; stems erect, 4-winged. Leaves variable in size, sessile; lower ones 2.5–4.0 × 1.0–2.5, oblong–elliptic, attenuate at base, acute at apex, upper leaves smaller than lower ones, ovate or lanceolate. Flowers pink, in subtrichotomous cymes. Capsules ellipsoid.

Fls. & Frts. : September–December.

Illus. : C. R. Jadhav in Singh, *et al.* Fl. Maharashtra 2: 399. 2001.

Distrib. : Goregaon, Almeida (2001).

Canscora decussata (Roxb.) J. A. & G. H. Schult. Mant. 3: 229. 1827; C. B. Cl. in Hook. f. Fl. Brit. India 4: 104. 1883; C. R. Jadhav in Singh *et al.* Fl. Maharashtra 2: 400. 2001. *Pladera decussata* Roxb. Fl. Ind. 1: 418. 1820.

Herbs, 15–25 cm tall; stems 4-winged. Leaves 1.7–2.0 × 0.5–1.0 cm, elliptic-lanceolate, rounded to acute at base, upper leaves lanceolate. Flowers white, in axillary or terminal, dichasial cymes; pedicels winged. Capsules ca. 1.5 × 0.5. Seeds angular.

Fls. & Frts. : August–October.

Illus. : Ramam. in Sald. & Nicols. Fl. Hassan Dt. 423. f. 55. 1976. (Flower only).

Distrib. : Salsette, Graham (1839).

Canscora diffusa (Vahl) R. Br. ex. Roem. & Schult. Syst. Veg. 3 : 301. 1818.; C.B. Cl. in Hook. f. Fl. Brit. India 4: 103. 1883; Cooke, Fl. Pres. Bombay 2, 257. 1958 (Repr. ed.). *Gentiana diffusa* Vahl, Symb. Bot. 3: 47. 1794.

Annual herbs, usually 15–60 cm tall; stems obscurely or not winged, much branched. Leaves; lower 2.0–3.5 × 0.6–2.0 cm, broadly elliptic, rounded at base, acute, apiculate at apex, sessile, upper leaves much smaller, ovate, acute. Flowers rosy-pink, in lax, terminal and axillary, paniculate cymes. Capsules 0.5–0.6 cm long, narrowly oblong. Seeds angular or rounded, minutely rugose.

Fls. & Frts. : September–January.

Illus. : Wight, Ic. t. 1327. 1848. (*Canscora lawii*).

Distrib. : Common in moist and shady places along banks of streams. 167232, 168446.

Canscora perfoliata Lam. Encycl. 1: 601. 1785; C. B. Cl. in Hook. f. Fl. Brit. India 4: 104. 1883; Cooke Fl. Pres. Bombay 2: 258. 1958 (Repr. ed.).

Herbs, 15–50 cm tall; stems erect, 4-winged. Leaves on stems 1.8–3.0 × 0.4–0.9 cm, oblong-lanceolate, acute to acuminate at apex, those of on branches 0.6–1.2 cm across, orbicular, perfoliate, bract-like. Flowers rosy, in terminal, paniculate cymes. Capsules 0.8–1.2 cm long.

Fls. & Frts. : September–February.

Illus. : Ramam. in Sald. & Nicols. Fl. Hassan Dt. 422. f. 85. 1976.

Distrib. : Salsette, Graham (1839).

CENTAURIUM St. Hill.

Centaurium meyeri (Bunge) Druce in Rep. Bot. Exch. Club Brit. Isles 4: 613. 1917; Garg, Indian Gentianaceae 3: 1988; *Erythraea meyeri* Bunge in Ledeb. Fl. Altai 1: 220. 1839; C. B. Cl. in Hook. f. Fl. Brit. India 4: 102. 1883; *E. roxburghii* G. Don in Lond. & Edinb. Phill. Mag. & J. Sci. 8: 77. 1836; C. B. Cl. in Hook f. *op. cit.*; Cooke, Fl. Pres. Bombay 2: 255. 1958. (Repr. ed.). *Centaurium centauroides* (Roxb.) Rolla Rao & Hemadri in Bombay nat. Hist. Soc. 67(2): 357. 1970. 'Luntak'.

Herbs, 5–20 cm tall; stems erect. Leaves radical and cauline, former rosulate, persistent, 1.5–2.5 × 0.3–0.6 cm obovate or oblong, obtuse at apex, later smaller in size, linear-oblong. Flowers pink, pedicellate, in dichotomous cymes. Capsules 0.8–1.0 cm long, linear-oblong.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 1325. 1848 (*Erythraea roxburghii*).

Distrib. : Randeria, 519. (BLAT). Koppikar (1974).

ENICOSTEMA Bl.

Enicostema axillare (Lam.) A. Raynal in Adansonia 2, 9: 75. 1969; Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 66. 1981. *Gentiana axillaris* Lam. Illus. Gen, 487. 1793. *Enicostema littorale* auct. non Bl. 1826; C. B. Cl. in Hook. f. Fl. Brit. India 4: 101. 1887; Cooke, Fl. Pres. Bombay 2: 255. 1958 (Repr. ed.). 'Chota-karait'.

Herbs, 30–40 cm tall; stems erect, branched. Leaves 3–5 × 0.6–1.2 cm, cuneate at base, acute at apex. Flowers white, in axillary, subsessile, ebracteate fascicles. Capsules ca. 0.35 × 0.3 cm, ellipsoid.

Fls. & Frts. : August–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. t. 463. 1982; *Enicostema hyssopifolium* (Willd.) Verdc. Bothalia 7: 462. 1961.

Distrib. : Salsette, Shah (1962).

EXACUM L.

- | | | |
|---------------------|-----|-----------------|
| 1. Calyx not winged | ... | <i>E. lawii</i> |
| 1. Calyx winged : | | |

- | | | | |
|----|---|-----|------------------------|
| 2. | Corolla 2.5–3.0 cm long | ... | <i>E. tetragonum</i> |
| 2. | Corolla 0.8–1.2 cm long : | | |
| 3. | Pedicels stout; corolla lobes acute | ... | <i>E. pedunculatum</i> |
| 3. | Pedicels filiform; corolla lobes obtuse | ... | <i>E. pumilum</i> |

Exacum lawii C. B. Cl. in Hook. f. Fl. Brit. India 4: 98. 1883; Cooke, Fl. Pres. Bombay 2: 254. 1958 (Repr. ed.); C. R. Jadhav in Singh *et al.* Fl. Maharashtra 2: 407. 2001.

Slender, erect herbs, 5–10 cm tall. Leaves sessile, 0.2–0.5 cm, as broad as long, ovate, acute to subobtuse at apex. Flowers bluish–purple, terminal, usually, 1-flowered, pedunculate inflorescence. Capsules *ca.* 0.3 cm across, subglobose or ovoid.

Fls. & Frts. : July–October.

Illus. : Lakshminaras. & Sharma, Fl. Nasik Dt. 311, f. 20. 1991.

Distrib. : Goregaon, Almeida (2001).

Exacum pedunculatum L. Sp. Pl. 112. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 97. 1883; Cooke, Fl. Pres. Bombay 2: 253. 1958 (Repr. ed.); Klakenberg in Nord. J. Bot. 3: 367. 1983; Garg, Indian Gentianaceae 7: 1988.

Annual herbs, 10–40 cm tall; stems erect, much branched, quadrangular. Leaves 2.1–4.5 × 0.8–1.2 cm, elliptic, lanceolate, subsessile, tapering at base. Flowers blue to lilac, pedicellate, in terminal, dichasial, pedunculate cymes. Capsules 0.4–0.5 cm across, globose.

Fls. & Frts. : December–February.

Illus. : Wight, Ic. t. 336. 1840; Matthew; *Illus. Fl. Tamilnadu Carnatic* 2: t. 464. 1982.

Distrib. : Salsette, G. L. Shah (1962).

Exacum pumilum Griseb. in DC. Prodr. 9: 46. 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 98. 1883; Cooke, Fl. Pres. Bombay 2: 254. 1958 (Repr. ed.).

Herbs; stems 10–20 cm tall, erect. Leaves: upper ones 1.2–2.0 × 0.4–0.6 cm, sessile, linear–lanceolate, attenuate at base, subobtuse at apex, lower ones 0.5 cm long, linear, acute. Flowers bluish–purple, pedicellate, in lax, axillary, pedunculate cymes. Capsules 0.3–0.4 cm across, subglobose to ovoid. Seeds numerous.

Fls. & Frts. : August–September.

Illus. : Wight, Ic. t. 1324. 1848.

Distrib. : Borivli, A. Randeria, 368 & R. Fernandez, 2068 (BLAT).

Exacum tetragonum Roxb. Fl. Ind. ed. Carey & Wall, 1: 413. 1820; C. B. Cl. in Hook. f. Fl. Brit. India 4: 95. 1883; Garg, Indian Gentianaceae 8: 1988. *Exacum bicolor* Roxb. Fl. Ind. op. cit.; C. B. Cl. in Hook. f. op. cit. 96; Cooke, Fl. Pres. Bombay 2: 252. 1958 (Repr. ed.). 'Udichirayet'.

Annual herbs, 30–60 cm tall. Leaves variable, 3.5–10.0 × 1–5 cm. ovate–lanceolate, or elliptic, acute or obtuse at apex. Flowers partly white, partly blue, in dense, terminal cymes. Capsules 0.8–1.2 cm long, obovoid or ellipsoid. Seeds numerous, globose or angular, finely reticulate.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 1321. 1848.

Distrib. : Vihar lake, Collector (?) 21126 (BLAT); Salsette, Graham (1839).

HOPPEA Willd.

Hoppea dichotoma Heyne ex Willd. in Ges. Naturf. Freunde–Berlin Neue Schr. 3: 435. 1801; C. B. Cl. in Hook. f. Fl. Brit. India 4: 100. 1883; Cooke, Fl. Pres. Bombay 2: 256. 1958 (Repr. ed.).

Herbs, 6–12 cm tall; branchlets divaricate, quadrangular. Leaves 0.3–0.6 × 0.2–0.4 cm, elliptic–ovate, cuneate at base, acute at apex. Flowers pale–yellow, in lax, peduncled, dichasial cymes. Capsules ca. 0.5 cm across, globose or ellipsoid.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 465. 1982.

Distrib. : Frequent in open areas and fallow fields. 169102.

MENYANTHACEAE

NYMPHOIDES Seguiet

- | | | |
|-------------------------------------|-----|-----------------------|
| 1. Corolla lobes glabrous, crested | ... | <i>N. hydrophylla</i> |
| 1. Corolla lobes hairy, not crested | ... | <i>N. indicum</i> |

Nymphoides hydrophylla (Lour.) O. Ktze. Rev. Gen. Pl. 429. 1891; Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 208. 1981. *Menyanthes hydrophylla* Lour. Fl. Cochinch. 1: 129. 1790. *Limnanthemum cristatum* (Roxb.) Griseb. Gen. Sp. Gent. 342. 1839; C.B.Cl. in Hook. f. Fl. Brit. India 4: 131, 1883; Cooke, Fl. Pres. Bombay 2: 261. 1958 (Repr. ed.). *Nymphoides cristata* (Roxb.) O. Ktze. Rev. Gen. Pl. 429. 1891; Subram. Aquat. Ang. 24, f. 16. 1962. 'Kumudini'.

Aquatic herbs. Leaves 5–10 cm across, orbicular, deeply cordate, purplish with green veins beneath, petioled—branches arising from rhizome, 3–8 cm long. Flowers white, ca. 8 cm across, in dense clusters. Capsules 0.4–0.5 cm long, broadly ovoid or subglobose. Seeds tubercled.

Fls. & Frts. : April–November.

Illus. : Subram. *op. cit.* (*Nymphoides cristata*); Sald. & Nicol. Fl. Hassan Dt. 476, f. 90. 1976.

Distrib. : Common and abundant in lakes and ponds. 167753. 167486.

Nymphoides indicum (L.) O. Ktze. Rev. Gen. Pl. 429. 1991; Subram. Aquat. Ang. 24, t.2, f. 17. 1962; Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 207. 1981. *Menyanthes indica* L. Sp. Pl. 145. 1753. *Limnanthemum indicum* (L.) Griseb. in DC. Prodr. 9: 139. 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 131. 1883; Cooke, Fl. Pres. Bombay 2: 261. 1958 (Repr. ed.). 'Kumud'.

Aquatic, rhizomatous herbs. Leaves 5–20 cm, orbicular or nearly so, cordate at base with wide sinus. Flowers white. pedicellate, in axillary fascicles. Capsules ca. 0.6 cm long, ellipsoid–oblong. Seeds smooth.

Fls. & Frts. : April–October.

Illus. : Subram. *op. cit.*; Matthew. Illus. Fl. Tamilnadu Carnatic 2: t. 974b. 1982.

Distrib. : Borivli, A. J. Randeria, 514, 515 (BLAT).

HYDROPHYLLACEAE

HYDROLEA L.

Hydrolea zeylanica (L.) Vahl, Symb. Bot. 2: 46. 1791; C. B. Cl. in Hook. f. Fl. Brit. India 4: 133. 1883; Cooke, Fl. Pres. Bombay 2: 263. 1958 (Repr. ed.). *Nama zeylanica* L. Sp. Pl. 226. 1753. 'Keriti'.

Annual herbs, 15–30 cm long; stems subsucculent, spreading, rooting at nodes, branchlets decumbent. Leaves 1.5–5.0 × 0.4–1.5 cm, lanceolate to linear-lanceolate, tapering at base, acute at apex. Flowers blue, numerous, in lax, lateral racemes. Capsules 0.3–0.4 cm across, globose or ovoid-oblong, hispid. Seeds numerous, minute, oblong and wrinkled.

Fls. & Frts. : November–December.

Illus. : Wight, Ic. t. 601. 1842; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 467. 1982.

Distrib. : Frequent in open areas and fallow fields. 167281, 167723.

BORAGINACEAE

- | | | |
|-------------------------------|-----|--------------|
| 1. Leaves radical and cauline | ... | PARACARYOPIS |
| 1. Leaves all cauline : | | |
| 2. Styles 2 | ... | COLDENIA |
| 2. Style 1 : | | |
| 3. Ovary deeply 4-lobed | ... | TRICHODESMA |
| 3. Ovary entire | ... | ROTULA |

COLDENIA L.

Coldenia procumbens L. Sp. Pl. 125. 1753; C. B. Cl. in Hook. f. *Fl. Brit. India 4*: 144. 1883; Cooke, *Fl. Pres. Bombay 2*: 271. 1958 (Repr. ed.); Kazmi in *J. Arnold Arbor.* 51. 148. 1970. '*Tripanki*'.

Herbs; stems prostrate or procumbent, spreading flat on ground, up to 40 cm long, branched, hairy. Leaves 1–3 × 0.5–2.0 cm, obovate-oblong, tapering at base, rounded at apex, crisped, margins coarsely crenate, hairy. Flowers pale, yellow, solitary, axillary, subsessile. Drupes 0.3–0.4 cm long, conical, 4-lobed, 2-beaked, muriculate.

Fls. & Frts. : September–October.

Illus. : Mahesh, *Illus. Fl. Delhi* f. 131. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 468. 1982.

Distrib. : Frequent in open moist areas. 168923.

PARACARYOPSIS (H. Riedl.) R. Mill.

Paracaryopsis malabarica (C.B. Cl.) R. Mill. in Edinb. J. Bot. 48(1). 59. 1991; S. G. Pradhan & Singh, Fl. Ahmednagar Dist. 371. 1999. *Paracaryum malabaricum* C. B. Cl. in Hook. f. Fl. Brit. India 4: 160. 1883; Cooke, Fl. Pres. Bombay 2: 286. 1958 (Repr. ed.), '*Kalanisurdhi*'.

Herbs, 1.0–1.5 m tall; stems and branches erect, red, pubescent, in young parts. Radical leaves 10–20 cm × 8–17 cm, broadly ovate, cordate at base, acute at apex, with deeply impressed nerves above, long petioled; upper cauline ones 4–10 × 2–5 cm, ovate, cuneate at base, acute at apex, becoming sessile upwards. Flowers pale blue, with dark centre, in twice forked racemes. Fruits pyramidal; nutlets 4, ovate, acute, with hooked, bristled margins.

Fls. & Frts. : August–October.

Illus. : Lakshmi & Sharma. Fl. of Nasik Dt. 315, f. 21. 1991.

Distrib. : Frequent. 167878.

ROTULA Lour.

Rotula aquatica Lour. Fl. Cochinch. 121. 1790; Gamble Fl. Pres. Madras 2: 627. 1987 (Repr. ed.). *Rhabdia lycioides* Mart. Nov. Gen. & Sp. 2: 137, t. 195. 1826; C. B. Cl. in Hook. f. Fl. Brit. India 4: 145. 1883. Cooke, Fl. Pres. Bombay 2: 272. 1958 (Repr. ed.). '*Machim*'.

Shrubs, 0.6–2.0 m tall; branches virgate, with short lateral branchlets. Leaves 0.6–2.5 × 0.3–0.4 cm, sessile, fascicle spatulate, rounded at apex. Flowers pink, shortly pedicellate, solitary or 2–3 together on lateral branches. Fruits ca. 0.3 cm across, dry, subglobose, tipped with persistent style base, orange when ripe.

Fls. & Frts. : October–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. t. 474. 1982.

Distrib. : Common in stream beds 167418.

TRICHODESMA R. Br.

- | | | |
|---------------------------|-----|---------------------|
| 1. Staminal cone exserted | ... | <i>T. indicum</i> |
| 1. Staminal cone inserted | ... | <i>T. inaequale</i> |

Trichodesma indicum (L.) Lehm Pl. Fam. Asperif. 193. 1918; C. B. Cl. in Hook. f. Fl. Brit. India 4. 153. 1883; Cooke, Fl. Pres.

Bombay 2: 281. 1958 (Repr. ed.); Kazmi in J. Arnold Arbor. 52: 516. 1971. *Borago indica* L. Sp. Pl. 137. 1753. 'Chota-kalpa'.

Herbs up to 15–50 cm tall; stems much branched, hispid. Leaves 3–10 × 2.0–3.5 cm, ovate or oblong-lanceolate, cordate at base, obtuse or subacute at apex, sessile, stiff-hairy. Flowers blue, solitary, leaf-opposed and in terminal few-flowered cymes; pedicels up to 1 cm long, hispid. Fruits pyramidal, subtruncate at apex, tipped with persistent styles; nutlets ovoid, smooth.

Fls. & Frts. : July–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 475. 1982.

Distrib. : Koppikar (1974).

Trichodesma inaequale Edgew. in *Asiat. Soc. Bengal* 21: 175. 1835; Verdc. in *Kew Bull.* 44: 700. 1989. *T. amplexicaule sensu* A. DC. in *D. C. Prodr.* 10. 172. 1846 p.p; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 153. 1883 p.p. *T. indicum* var. *amplexicaule* T. Cooke, *Fl. Pres. Bombay* 2: 215. 1904 & 2: 282. 1958 (Repr. ed.). p.p. *T. sedgewickianum* S. P. Banerjee in *Bull. Bot. Soc. Bengal* 16. 10. 1962; S. P. Banerjee and B. B. Pramanik in *Bull. Bot. Surv. India* 17: 116 (1975) 1978.

Annual herbs, 15–45 cm tall; stems erect, much branched, hispid. Leaves 2–6 × 0.6–5.0 cm, variable, sessile, ovate or oblong to lanceolate-oblong, cordate at base, obtuse or subacute at apex, tubercled-hairy. Flowers pale violet-blue, solitary, leaf-opposed or in terminal cymes. Fruits pyramidal, 4-ribbed, tipped with style bases; nutlets 0.4 cm across, ovoid, polished, rugose on inner part, white.

Fls. & Frts. : August–October.

Illus. : S. P. Banerjee & Pramanik, *op. cit.* 117. f. A–D. (*Trichodesma sedgewickianum*).

Distrib. : Common. 167259, 167787, 168474.

CORDIACEAE

CORDIA L.

- | | | |
|-------------------------------------|-----|---------------------|
| 1. Anther filaments glabrous | ... | <i>C. gharaf</i> |
| 1. Anther filaments hairy at base : | | |
| 2. Calyx ribbed | ... | <i>C. macleodii</i> |
| 2. Calyx not ribbed | ... | <i>C. dichotoma</i> |

Cordia dichotoma Forst. f. Prodr. 18. 1786; Kazmi in J. Arnold Arbor. 51: 141. 1970. *C. myxa* auct. plur. non. L. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 136. 1883; Cooke, Fl. Pres. Bombay 2: 265. 1958 (Repr. ed.). 'Bhokar'.

Trees, 10–12 m tall. Leaves alternate, 8–12 × 6–9 cm, broadly ovate, rounded or cordate at base, obtuse at apex. Flowers white, polygamous, in lax, axillary and terminal, peduncled cymose-panicles. Drupes 1.0–2.5 cm across, ovoid, apiculate, finely rugose with persistent calyx.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 159. 1839 (*Corydia myxa*); Talbot, For. Fl. Bombay Pres. & Sind 2: 270, f. 422. 1922.

Distrib. : Frequent. 167468.

Cordia gharaf (Forssk.) Ehrenb and Asch. in Bitszung. Bericht Ges. Naturf. Fl. Berl. 46. 1879; Sant. & Wagh in Bull. Bot. Surv. India 5: 106. (1963) 1964; Kazmi in J. Arnold Arbor. 51: 140. 1970. *Cornus gharaf* Forssk. Fl. Aeg.–Arab. 94. 1775. *Cordia rothii* R. & S. Syst. Veg. 4: 798. 1819; C. B. Cl. in Hook. f. Fl. Brit. India 4: 138. 1883; Cooke, Fl. Pres. Bombay 2: 268. 1958 (Repr. ed.).

Trees, 6–12 m tall; bark fissured, grey. Leaves subopposite, 5–10 × 2.0–3.5 cm, oblanceolate, oblong, tapering at base, rounded at apex. Flowers white, 0.6–0.8 cm across, in terminal and axillary, pedunculate cymes. Drupes 0.8–1.2 long. ovoid, yellow to reddish-brown, pellucid, pulpy.

Fls. & Frts. : April–October.

Illus. : Wight, Ic. t. 1379. 1848 (*Cordia rothii*.)

Distrib. : Goregaon, Almeida (2001).

Cordia macleodii (Griff.) Hook. f. & Thoms. in J. Linn. Soc. 2: 128. 1858; C. B. Cl. in Hook. f. Fl. Brit. India 4: 139. 1883; Cooke, Fl. Pres. Bombay 2: 266. 1958 (Repr. ed.); Kazmi in J. Arnold Arbor. 51: 143. 1970. *Hemigymnia macleodii* Griff. in Calc. J. Nat. Hist. 3: 3. 363. 1843. 'Dahivan'.

Trees, 8–12 m high. Leaves alternate to subopposite, 5–15 cm, nearly as long as broad, ovate, cordate at base, obtuse at apex, margins crenulate, dentate, scabrous on upper surface, grey, woolly-tomentose beneath. Flowers white, in dense, terminal and axillary paniculate cymes. Drupes 1.2–1.8 cm, ovoid, apiculate with persistent, ribbed calyx.

Fls. & Frts. : February–April.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 2: 272, f. 423. 1911.

Distrib. : Goregaon, *Almeida* (2001).

EHRETIACEAE

EHRETIA L.

Ehretia laevis (Roxb.) Pl. Cor. 1: 42, t. 55. 1795 & Fl. Ind. 2: 341. 1824; C. B. Cl. in Hook. f. Fl. Brit. India 4: 141. 1883; Cooke, Fl. Pres. Bombay 2: 269. 1958 (Repr. ed.); Kazmi in J. Arnold Arbor. 51: 147. 1970. '*Datrang*'.

Trees, 5–6 m tall; stems with grey and scaly bark. Leaves 2.5–14.0 × 2–8 cm, obovate–oblong or elliptic–oblong, cuneate or rounded at base. subacute to acuminate, obtuse or emarginate at apex. Flowers white, sessile, ebracteate, in terminal, corymbose–cymes of unilateral spikes or racemes. Drupes 0.4–0.8 cm broad, subglobose, little broader than long, black when dry.

Fls. & Frts. : January–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 471. 1982.

Distrib. : *Koppikar* (1974).

HELIOTROPIACEAE

HELIOTROPIUM L.

- | | | |
|--|-----|-----------------------|
| 1. Fruits glabrous, 4-beaked | ... | <i>H. indicum</i> |
| 1. Fruits hairy, not beaked : | | |
| 2. Anthers free : | | |
| 3. Plants villous; nutlets enclosed
in persistent calyx | ... | <i>H. supinum</i> |
| 3. Plants not villous;
nutlets not enclosed in persistent calyx | ... | <i>H. ovalifolium</i> |
| 2. Anthers united | ... | <i>H. marifolium</i> |

Heliotropium indicum L. Sp. Pl. 130. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 152. 1883; Cooke, Fl. Pres. Bombay 2: 273. 1958 (Repr. ed.). '*Bhurundi*'.

Herbs, 15–50 cm tall, annuals; stems stout, densely hirsute, branches ascending. Leaves 4–10 × 2.5 cm, alternate or subopposite,

ovate or ovate-oblong, rounded or cordate at base, obtuse or subacute at apex, margins subserrate. Flowers light violet, sessile, many in bristly, extra axillary, scorpioid spikes. Fruits 0.4 cm long, 4-lobed, each 2-seeded.

Fls. & Frts. : October–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 473. 1982.

Distrib. : Frequent on plains and hills. 167491.

Heliotropium marifolium Koen. ex Retz. *Obs. Bot.* 2: 8. 1781; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 152. 1883; Cooke, *Fl. Pres. Bombay* 2: 280. 1958 (Repr. ed.); Kazmi in *J. Arnold Arbor.* 51:154. 1970.

- | | | |
|------------------------|------|--------------------------|
| 1. Spikes lax, slender | ... | var. <i>laxiflora</i> |
| 1. Spikes not as above | | var. <i>marifolium</i> . |

var. marifolium

Herbs; stems decumbent, branched, hairy. Leaves 0.6–1.2 × 0.2–0.3 cm, ovate to lanceolate, obtuse to acute at base, acute at apex. Flowers white, in short, axillary and terminal, bracteate spikes 2.5–5.0 cm long; bracts foliaceous, lanceolate. Fruits subglobose, pubescent with 4 nutlets.

Fls. & Frts. : September–October.

Illus. : Wight, *Ic. t.* 1398. 1848.

Distrib. : Salsette, *G. L. Shah* (1962).

var. laxiflora (C.B. Cl.) T. Cooke, *Fl. Pres. Bombay* 2: 280. 1904 & [2: 280. 1958 (Repr. ed.)]. *H. bracteatum* DC. var. *laxiflora* C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 152. 1883.

Herbs, perennials; stems suberect. Leaves lanceolate, appressed-hairy. Flowers white, in axillary and terminal, bracteate spikes. Fruits subglobose, pubescent.

Fls. & Frts. : September–December.

Distrib. : Borivli, *A. Randeria.* 309. 314. (BLAT).

Heliotropium ovalifolium Forssk. *Fl. Aeg.–Arab.* 38. 1775; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 150. 1883; Cooke, *Fl. Pres. Bombay* 2: 278. 1958 (Repr. ed.); Kazmi in *J. Arnold Arbor.* 51. 178. 1970.

Herbs, 20–30 cm tall; stems erect or decumbent; branchlets some times prostrate or ascending, white-sericeous. Leaves 0.8–2.0 × 0.3–0.8 cm, obovate-spathulate, cuneate at base, obtusely apiculate at apex. Flowers white, 1–2-ranked, in terminal or axillary spikes up to 4 cm long, nutlets 4, subglobose, densely hairy.

Fls. & Frts. : June–February.

Illus. : Wight, Ic. t. 1388. 1848 (*Heliotropium coromandelianum* Retz. Obs. Bot. 2: 9. 1781).

Distrib. : Borivli, H. Santapau 2.4. (BLAT).

Heliotropium supinum L. Sp. Pl. 130. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 149. 1883; Cooke, Fl. Pres. Bombay 2: 275. 1858 (Repr. ed.); Kazmi in J. Arnold Arbor. 51. 179. 1970.

Herbs up to 50 cm long; stems prostrate or ascending, villous. Leaves 1.2–2.5 × 0.6–1.3 cm, ovate or elliptic-ovate, attenuate at base, subacute to acute at apex, softly white-woolly on both sides. Flowers sessile, in simple or forked, axillary or subterminal, 5–8 cm long spikes. Fruits of 2–3 nutlets, tuberculate, appressed-hairy, enclosed in persistent woolly calyx.

Fls. & Frts. : August–February.

Illus. : Wight, Ic. t. 1387. 1848; Mahesh. Illus. Fl. Delhi f. 132. 1966.

Distrib. : Versova, M. R. Almeida 543. (BLAT).

CONVOLVULACEAE

1. Styles 2 :
 2. Flowers in axillary or terminal clusters or spikes ... CRESSA
 2. Flowers axillary, solitary or a few on peduncled cyme :
 3. Corolla subentire, infundibuliform ... EVOLVULUS
 3. Corolla lobed, campanulate ... VOLVULOPSIS
1. Styles 1 or with lobed stigmas :
 4. Fruits indehiscent :
 5. Stigmas globose ... ARGYREIA
 5. Stigmas linear-oblong ... RIVEA
 4. Fruits dehiscent :

6. Stigmas globose :
7. Pollen grains echinulate ... IPOMOEA
7. Pollen grains not echinulate :
8. Stems winged;
capsules circumscissile ... OPERCULINA
8. Stems and capsules not as above :
9. Anthers spirally twisting after anthesis ... XENOSTEGIA
9. Anthers not spirally twisting ... MERREMIA
6. Stigmas not globose :
10. Flowers solitary or few
on peduncles ... HEWITTIA
10. Flowers in many-flowered,
umbellate cymes ... JACQUEMONTII

ARGYREIA LOUR.

1. Leaves glabrous on upper surface ... *A. nervosa*
1. Leaves appressed-hairy on upper surface :
2. Bracts large, foliaceous; corolla more than 4 cm long. ... *S. sericea*
2. Bracts small, not foliaceous; corolla less than 4 cm long. ... *A. strigosa*

Argyreia nervosa (Burm.f.) Boj. Hort. Maurit. 224. 1837; Ooststr. in Steenis, Fl. Males. 1,4: 499. 1953. *Convolvulus nervosus* Burm. f. Fl. Ind. 48, t.20, f.1. 1768. *Argyreia speciosa* (L.f.) Sw. Hort. Brit. 289. 1827; C. B. Cl. in Hook. f. Fl. Brit. India 4: 185. 1883; Cooke, Fl. Pres. Bombay 2: 324. 1958 (Repr. ed.). 'Samudrashok'.

Twiners; stems extensive, white-tomentose, stout. Leaves 7-30 × 5-25 cm, ovate, cordate at base, acute at apex, white-tomentose beneath; petioles 5-10 cm long. Flowers rose-purple, silky-pubescent. in subcapitate cymes; peduncles 8-15 cm long. Capsules ca. 2 cm across, globose, apiculate.

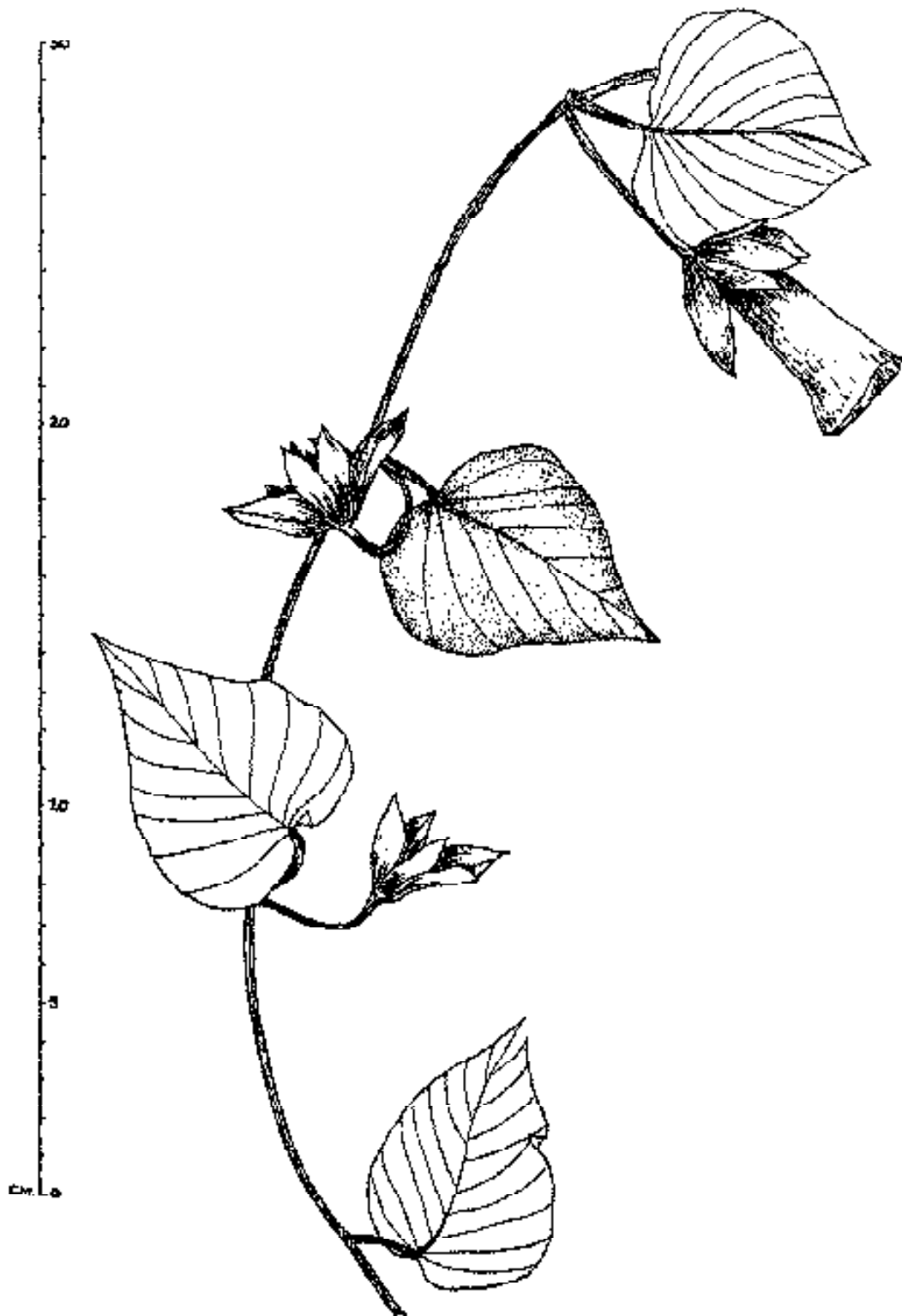
Fls. & Frts. : July-December.

Illus. : Wight, Ic. t. 851. 1845 (*Argyreia speciosa*)

Distrib. : Frequent. 167796; 167350.

Argyreia sericea Dalz. in Dalz. and Gibs. Bombay Fl. 169. 1861; C. B. Cl. in Hook. f. Fl. Brit. India 4: 188. 1883; Cooke, Fl. Pres. Bombay 2: 326. 1958 (Repr. ed.). 'Gavef'.

Twiners; stems silky. Leaves 5-15 × 4-13 cm, broadly ovate, acuminate, cordate, with rounded lobes, silky-tomentose beneath;



f. 50. *Argyreia nervosa* (Burm.f.) Boj.

petioles 2.5–5.0 cm long. Flowers pink, sessile, in axillary, capitate cymes; peduncles 2.5–10.0 cm long, silky; bracts ovate-oblong. Berries 1.0–1.5 cm across, globose, orange when ripe.

Fls. & Frts. : August–October.

Illus. : Lakshminaras. & Sharma, Fl. Nasik Dt. 323, f. 22. 1991.

Distrib. : Frequent on trees. 167764, 167795 & 167932.

Argyreia strigosa (Roth) Roberty in *Candollea* 14: 44. 1952. Sant. & Patel in *Trans. Bose Res. Inst. Calcutta* 22: 41. 1958. *Ipomoea strigosa* Roth, *Nov. Pl. Sp.* 113. 1821. *Lettsomia setosa* Roxb. *Fl. Ind.* 2: 180. 1824; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 194. 1883; Cooke, *Fl. Pres. Bombay* 2: 330. 1958 (Repr. ed.). 'Dudh-vel', 'Sambhar-vel'.

Shrubby twiners; stems extensive, terete, appressedly strigose-hairy in young parts, becoming glabrous with age. Leaves 7–15 × 5–12 cm, ovate, cordate at base with rounded lobes, acute or acuminate at apex, petioles 2.5–7.0 cm long. Flowers rose coloured, in dense, corymbose-cymes; peduncles 5–10 cm long, strigose, bracts ovate, obtuse. Berries 1 cm long, ovoid, red.

Fls. & Frts. : September–December.

Illus. : Wight, *Ic. t.* 1360. 1848; Talbot, *For. Fl. Bombay Pres. Sind* 291, f. 430. 1911 (*Lettsomia setosa*).

Distrib. : Koppikar (1974).

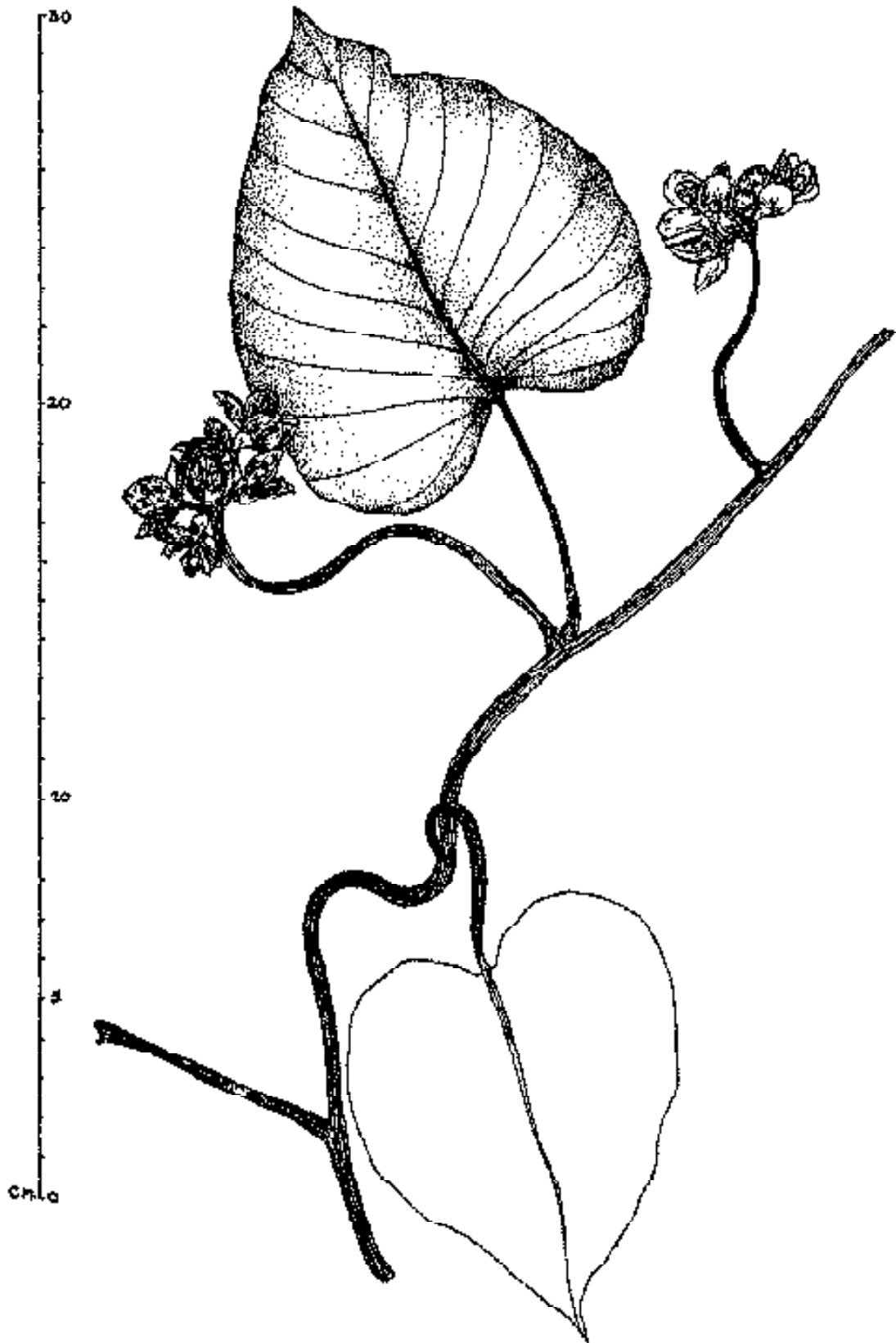
CRESSA L.

Cressa cretica L. *Sp. Pl.* 223. 1753; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 225. 1883; Cooke, *Fl. Pres. Bombay* 2: 296. 1958 (Repr. ed.); Venkanna & S. K. Das Das in *Singh et al. Fl. Maharashtra* 2: 452. 2001. 'Kardi'.

Herbs, 10–20 cm tall, perennial; stems with woody base, much branched, hairy. Leaves 0.3–0.6 × 0.15–0.2 cm, sessile, ovate or elliptic, acute, appressed hairy. Flowers white or pink, in clusters, in axils of upper leaves; pedicels stout; bracts linear, hairy. Capsules 0.4–0.6 cm long, ovoid, apiculate, hairy near apex, 1-seeded.

Fls. & Frts. : November–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2. t. 477. 1982.



f. 51. *Argyreia strigosa* (Roth) Roberty

Distrib. : Common in the marshy creek at Ghodbundar, 167371.

EVOLVULUS L.

Evolvulus alsinoides (L.) L. Sp. Pl. (ed. 2), 2: 392. 1762; C. B. Cl. in Hook. f. Fl. Brit. India 4: 220. 1883; Cooke, Fl. Pres. Bombay 2: 297. 1958 (Repr. ed.). *Convolvulus alsinoides* L. Sp. Pl. 157. 1753. '*Shankvel*'.

Perennial herbs; rootstock woody; stems 15–30 cm long, prostrate, creeping, wiry, hairy or glabrous. Leaves 0.6–2.0 × 0.2–5.0 cm, ovate–elliptic–oblong, acute at base, obtuse and apiculate at apex. appressed–hairy. Flowers solitary, axillary, on filiform pedicels or in pairs. Capsules 0.25–0.4 cm across, globose, 4-seeded. Seeds oblong.

Fls. & Frts. : July–November.

Illus. : Mahesh. Illus. Fl. Delhi t. 136. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 479. 1982.

Distrib. : Common. 167958.

HEWITTIA Wight & Arn.

Hewittia malabarica (L.) Suresh in Nicols. et al. Interp. Hort. Malab. 89. 1989. *Convolvulus malabaricus* L. Sp. Pl. 155. 1753. *Hewittia sublobata* (L. f.) O. Ktze. Rev. Gen. Pl. 2: 441. 1891; Ooststr. in Steenis, Fl. Males. 1, 4: 438. 1953. *H. bicolor* (Vahl) Wight & Arn. in Madras J. Lit. & Sci. 5: 22. 1837; C. B. Cl. in Hook f. Fl. Brit. India 4: 216. 1883; Cooke, Fl. Pres. Bombay 2: 299. 1958 (Repr. ed.).

Herbaceous twiners; stems pubescent or glabrous. Leaves 4.0–10.0 × 3.0–6.5 cm, ovate or dentate, cordate at base, acute at apex, margins entire or dentate. Flowers yellowish, axillary, solitary, pedicellate. Capsules 0.4–0.6 cm across, globose, beaked, pubescent. Seeds oblong, subtrigonus.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 835. 1844–45 (*Hewittia bicolor*).

Distrib. : Borivli, A. J. Randeria, 563. (BLAT).

IPOMOEA L.

1. Stems muricate :

2. Sepals aristate

... *I. turbinata*

2. Sepals not aristate ... *I. trichosperma*
1. Stems not muricate :
3. Leaves variously lobed or dissected :
4. Leaves 2-lobed ... *I. pes-caprae*
4. Leaves with more than 2 lobes or segments :
5. Corolla 8-12 cm long :
6. Corolla 4-6 cm across ... *I. salsettensis*
6. Corolla 8-10 cm across ... *I. violacea*
5. Corolla up to 6 cm long. :
7. Corolla up to 2 cm long :
8. Leaves 3-lobed; capsules
bristly-hairy ... *I. triloba*
8. Leaves 5-lobed. capsules glabrous ... *I. coptica*
7. Corolla 3-6 cm long :
9. Stems glabrous :
10. Leaves divided to the base;
pseudostipules present ... *I. cairica*
10. Leaves divided beyond middle;
pseudostipules absent ... *I. mauritiana*
9. Stems hairy :
11. Leaflets 3-5, triangular ... *I. nil*
11. Leaflets 5-9, elliptic to obovate ... *I. pes-tigridis*
3. Leaves entire :
12. Plants aquatic, rooting at nodes ... *I. aquatica*
12. Plants terrestrial, not rooting at nodes :
13. Stems erect; corolla 7-9 cm long ... *I. carnea* esp.
fistulosa
13. Stems twining; corolla less than 5 cm long :
14. Corolla bright red ... *I. hederifolia*
14. Corolla colour other than red :
15. Capsules pubescent :
16. Flowers sessile or
subsessile, in heads ... *I. eriocarpa*
16. Flowers pedicelled,
in lax racemose-cymes ... *I. arachnosperma*
15. Capsules glabrous :
17. Leaves sagittate at base
with angled lobes ... *I. pallida*

17. Leaves cordate with rounded lobes at base :
18. Calyx lobes sagittate ... *I. sinensis*
18. Calyx lobes not as above :
19. Peduncles filiform ... *I. obscura*
19. Peduncles stout ... *I. marginata*

Ipomoea aquatica Forssk. Fl. Aeg.-Arab. 44. 1775; C. B. Cl. in Hook. f. Fl. Brit. India 4: 210. 1883; Cooke, Fl. Pres. Bombay 2: 315. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1, 4: 473. 1953. 'Nalichi-Bhaji'.

Herbs; stems spreading, trailing on mud or floating. Leaves 5.0-12.5 × 3.0-7.5 cm, elliptic-oblong or subdeltoid, cordate at base, acute at apex; petioles 3-8 cm long. Flowers pale-purple, solitary or 3-4, in pedunculate cymes. Capsules 0.5-0.8 cm long, ovoid, apiculate. Seeds 3 or 4, minutely pubescent.

Fls. & Frts. : More or less throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi. Fl. 139. 1966.

Distrib. : Koppikar (1974).

Ipomoea arachnosperma Welw. Apont. Phyto-Geogr. 588 1859; Naik, Fl. Marathwada 1: 585 1998. *Convolvulus dichrous* Roem. & Schult. in Syst. Mant. 4: 263. 1819. *Ipomoea dichroa* (Roem. & Schult.) Choisy in DC. Prodr. 9: 364. 1845. *I. pilosa* (Roxb.) Sweet, Hort. Brit. (ed. 2) 372. 1830; non Houtt. 1777; C. B. Cl. in Hook. f. Fl. Brit. India 4: 213. 1883; Cooke, Fl. Pres. Bombay 2: 313. 1958 (Repr. ed.).

Herbaceous twiners; stems extensive, patently hairy. Leaves 6-10 × 4.0 cm, broadly ovate, acute, truncate or subcordate at base, apiculate at apex, margins entire or shallowly 3-lobed, hairy above, white-pilose beneath, petiolate. Flowers pink, in axillary, bracteate cymes. Capsules 0.6-1.0 cm across. subglobose. Seeds cottony hairy.

Fls. & Frts. : November-December.

Illus. : Wight. Ic. t. 837. 1845 (*Ipomoea pilosa*).

Distrib. : Borivli, H. Santapau, 18841-2 (BLAT). A. J. Randeria, 102 (BLAT).

Ipomoea cairica (L.) Sweet, Hort. Brit. 287. 1827; Ooststr. in Steenis, Fl. Males. 1, 4: 478. 1953; Sant. in Rec. Bot. Surv. India 16(1); 193. 1953. *Convolvulus cairicus* L. Syst. Nat. (ed. 10), 922. 1759. *Ipomoea palmata* Forssk. Fl. Aeg.-Arab. 43. 1775; C. B. Cl. in Hook. f.

Fl. Brit. India 4: 214. 1883; Cooke, Fl. Pres. Bombay 2: 319. 1958 (Repr. ed.). 'Gar-vel'.

Twiners, perennials; older stems semi-woody, lenticular. Leaves palmately 5-7-lobed, 4.5-10 × 4-10 cm; lobes cut almost to the base, oblanceolate, obtuse or subacute, mucronate; petioles ca. 1.5 cm long. Flowers light violet, in axillary, subumbellate cymes. Capsules 1.0-1.2 cm long, ovoid or subglobose. Seeds pubescent with marginal hairs.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 156. 1839. non Roth, 1821 (*Ipomoea pulchella*)

Distrib. : Common on hedges 107761. Native of America, now naturalised every where.

***Ipomoea carnea* Jacq. subsp. *fistulosa* (Mart. ex Choisy) Austin** in Taxon 26: 237, f. 2. 1977 and in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 322. 1980; Almeida, Fl. Mah. 3. 322. 2001. *I. fistulosa* Mart. ex Choisy in DC. Prodr. 9: 349. 1845; Ooststr. in Steenis, Fl. Males. 1, 4.485. 1953. *I. carnea* Jacq. Enum. Pl. Carib. 13: 1760; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr. ed.). 'Besharam'

Weak, erect shrubs; 1.0-2.5 m tall. Leaves 5-25 × 4-10 cm, ovate to ovate-oblong, cordate at base, acute to acuminate at apex, margins entire. Flowers pink, with dark purple throat, 8-12 cm across, in axillary and subterminal cymes, with stout peduncles 5.15 cm long. Capsules 1.5-2.0 cm long, ovoid, mucronate, 4-valved, 2-4-seeded. Seeds densely brown-villous.

Fls. & Frts. : Throughout the year.

Illus. : Austin *op. cit.*

Distrib. : Kandivli, Malad, Almeida (2001).

***Ipomoea coptica* (L.) Roth ex Roem. & Schult. in L. Syst. Veg. 4: 208. 1819; Ooststr. in Steenis, Fl. Males. 1, 4(4): 479. 1953; Naik, Fl. Marathwada 1: 587. 1998. *Convolvulus copticus* L. Mant. Pl. 2. App. 559. 1771. *Ipomoea dissecta* Willd. Phytogr. 5, t.2, f.3. 1794; C. B. Cl. in Hook. f. Fl. Brit. India 4: 200. 1883; Cooke, Fl. Pres. Bombay 2: 318. 1958 (Repr. ed.).**

Herbs; stems with numerous prostrate branches, 15-60 cm long, stems twining. Leaves digitate with 3-7, lanceolate segments, cuneate at base, acute at apex. margins serrate, lobes obovate, lateral lobes smaller. Flowers cream-coloured. pedicellate, solitary. Capsules 0.4-0.5 cm across, subglobose. Seeds 3, pubescent, oblong.

Fls. & Frts. : August–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 146. 1966.

Distrib. : Borivli, *Parulekar*, 10291 (8) (BLAT).

Ipomoea eriocarpa R. Br. *Prodr.* 484. 1810; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 204. 1883; Cooke, *Fl. Pres. Bombay* 2: 312. 1958 (Repr. ed.); Ooststr. in Steenis, *Fl. Males.* 1, 4: 462, f. 35. 1953.

Herbaceous twiners or trailers; stems appressed-hairy. Leaves 2.0–7.5 × 1.5–4.0 cm, ovate-oblong, cordate or hastate at base, gradually acute at apex, pubescent beneath. Flowers pink, in axillary, solitary or 3-flowered cymes. Capsules 0.5–0.6 cm across, globose, hairy. Seeds minutely pitted.

Fls. & Frts. : August–October.

Illus. Wight, *Ic. t.* 169. 1839 (*Ipomoea sessiliflora* Roth, *Nov. Fl. Sp.* 116. 1821); Ooststr. in Steenis, *op. cit.*

Distrib. : Borivli, *P. S. Herbert*; 2378 (BLAT).

Ipomoea hederifolia L. *Syst. Nat. ed.* 10, 925. 1759; Austin & Ghazanfar in Nasir & Ali, *Fl. W. Pakistan* 126: 43. 1979. *Ipomoea coccinea auct. non L.* 1753; C. B. Cl. in Hook. f. *Fl. Brit. India* 4. 199. 1883; Venkanna & S. K. Das Das in Singh *et al.* *Fl. Maharashtra* 2 : 463.2001. *Quamoclit coccinea* Moench. *Method.* 453. 1795; Cooke, *Fl. Pres. Bombay* 2: 330. 1958 (Repr. ed.).

Shrubs; stems scandent, weak. Leaves 2.5–5.0 × 2–5 cm, ovate cordate at base, acute at apex, margins entire or trilobed. Flowers in terminal, lax, umbellate cymes. Capsules 0.5–0.8 cm long, ovoid. Seeds ellipsoid, blackish, finely reticulate.

Fls. & Frts. : August–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2:t 481. 1982.

Distrib. : Occasional on bushes. 167772.

Ipomoea marginata (Desr.) H. Manitz in Feddes *Repert* 85 (9–10). 638. 1974; Verdc. in *Kew Bull.* 42: 658. 1987. *Convolvulus marginatus* Desr. in *Lam. Encycl.* 3: 558. 1792. *Ipomoea sepiaria* Koen. ex Roxb. *Fl. Ind.* 2: 90. 1824; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 209. 1883; Cooke, *Fl. Pres. Bombay* 2: 315. 1958. (Repr. ed.). *I. maxima sensu* Ooststr. and Hooggl. in Steenis, *Fl. Males.* 1, 4: 472. 1953. 'Anti-vel'.

Perennial, herbaceous, slender twiners. Leaves 2–8 × 2.2–5.5 cm, ovate, orbicular, cordate at base, gradually acute at apex. Flowers up to 4 cm long, creamy with purple throat, shortly pedicellate, in pedunculate, subumbellate cymes; peduncles up to 12 cm long. Capsules ca. 0.8 cm across, globose or ovoid, 2-seeded. Seeds pubescent.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 838. 1844–45 (*Ipomoea sepiaria*).

Distrib. : Borivli, V. M. Patel, 785–6 & P. S. Herbert. 986. (BLAT).

Ipomoea mauritiana Jacq. Coll. 4: 216. 1791; Verdc. in Fl. Trop. E. Africa 135. 1963; Ooststr. in Steenis, Fl. Males. 1, 4: 483, f. 55. 1953; Austin in Fl. Panama 62 (1): 202. 1975. *I. digitata auct. non* L. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 202. 1883; Cooke, Fl. Pres. Bombay 2: 318. 1958 (Repr. ed.).

Twiners; stems, stout, long, thick with tuberous roots. Leaves 10–15 cm long, broader than long, deeply palmately 5–7-lobed; lobes ovate-lanceolate, acute or acuminate; petioles 3–10 cm long. Flowers purple. in corymbose, paniculate cymes. Capsules 0.8–1.2 cm long, ovoid. Seeds with cottony hairs.

Fls. & Frts. : July–December.

Illus. : Ooststr. in Steenis, *op cit.*

Distrib. : Occasional on hedges. 187356, 167831.

Ipomoea nil (L.) Roth, Cat. Bot. 1: 36 1797; Ooststr. in Steenis, Fl. Males. 1, 4: 465. 1953; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 332. 1980. *Convolvulus nil* L. Sp. Pl. (ed. 2). 219. 1762. *Ipomoea hederacea auct. non* (L.) Jacq. 1786; C. B. Cl. in Hook f. Fl. Brit. India 4: 199. 1883; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr. ed.).

Herbaceous twiners. Leaves 3.5–9.0 × 2.9–8.5 cm, 3-lobed, rarely entire, broadly ovate, cordate at base, acute or acuminate at apex. Flowers pink-purple. solitary, axillary or a few, in peduncled cymes. Capsules 0.7–1.0 cm across, globose or ovoid. Seeds black, oblong, smooth.

Fls. & Frts. : August–November.

Illus. : Mahesh. Illus. Fl. Delhi f. 145. 1966.

Distrib. : Frequent on hedges. 168939.

Ipomoea obscura (L.) Ker.-Gawl. in Bot. Reg. 3, t. 239. 1817; C. B. Cl. in Hook. f. Fl. Brit. India 4: 207. 1883; Cooke, Fl. Pres. Bombay 2: 317. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1. 4: 471, f. 44. 1953. *Convolvulus obscurus* L. Sp. Pl. (ed. 2), 220. 1762. 'Pungali'.

Herbaceous twiners, glabrous or patently hairy. Leaves 2.5–8.0 × 2–7 cm, ovate to orbicular, cordate, acuminate at apex, chartaceous, puberulous on both sides, petioles up to 7 cm long. Flowers yellowish, solitary or a few in cymes. Capsules 0.8–1.7 cm long, ovoid, apiculate. Seeds oblong, brown, velvety.

Fls. & Frts. : Mostly throughout the year.

Illus. : Ooststr. in Steenis, *op cit.*

Distrib. : Common on bushes and hedges. 168912.

Ipomoea pallida Sant. & Patel in Trans. Bose Res. Inst. Calcutta 22: 38. 1958. *I. stipulacea* (Roxb.) Sweet, Hort. Brit. 289. 1827 & 372. 1850. *I. sepiaria* var. *stipulacea* C. B. Cl. in Hook. f. Fl. Brit. India 4: 209. 1883; Cooke, Fl. Pres. Bombay 2: 316. 1958 (Repr. ed.).

Perennials; stems twining, slender, glabrous or more or less hairy. Leaves 2.5–5.0 × 2.2–4.0 cm, ovate, acute, entire, usually glabrous, sagittate at base, with wide sinus, petioles 2.5–3.0 cm long, often with stipule like leaves in the axils. Flowers pure white or pale purple in pedunculate, subumbellate cymes; staminal filaments hairy at the base. Capsules ca. 0.8 cm long, ovoid,

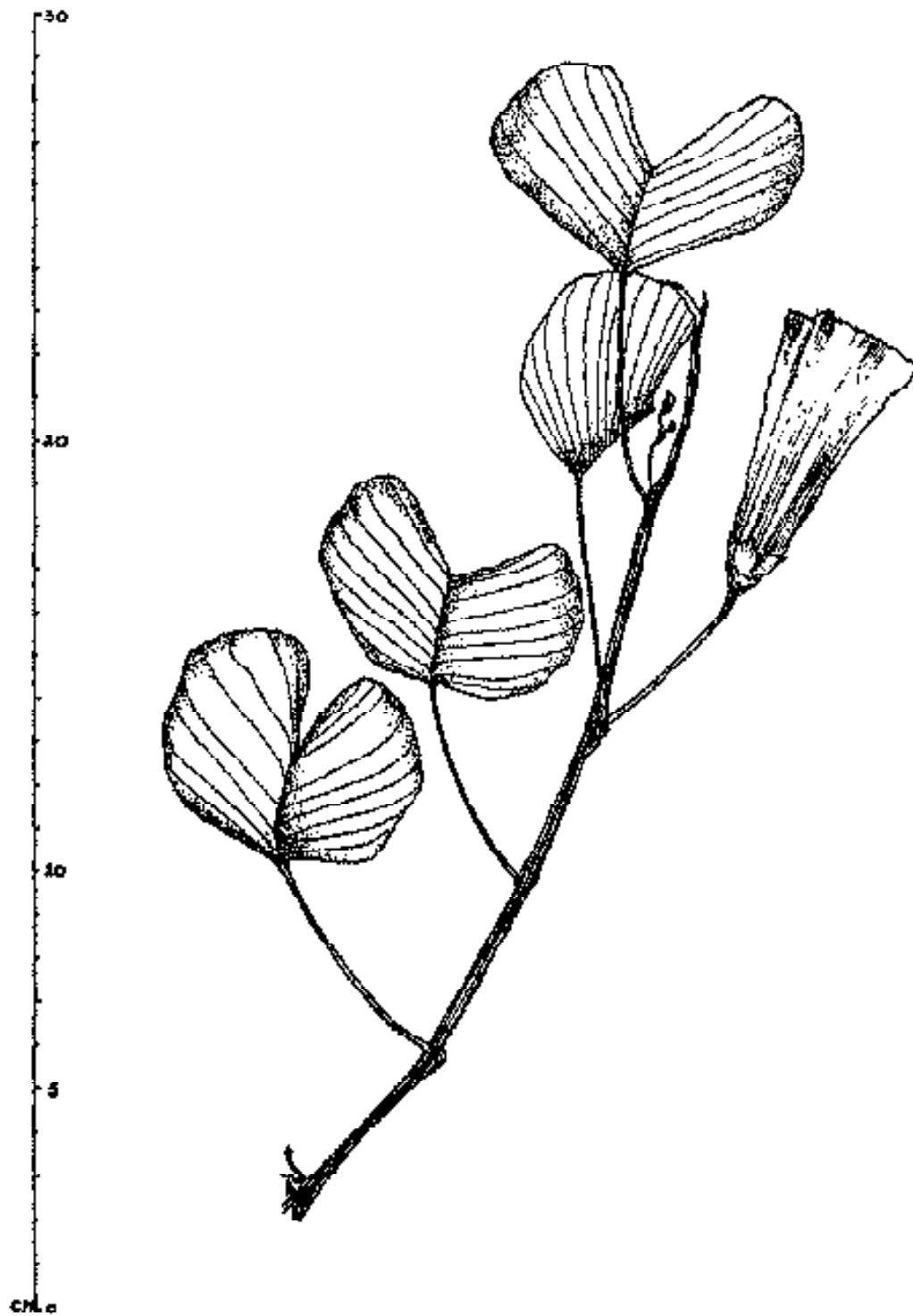
Fls. & Frts. : August–October.

Distrib. : Borivli, P. S. Herbert 964. (BLAT).

Ipomoea pes-caprae (L.) R. Br. in Tuckey, Narr. Exped. Congo App. 477. 1818; Ooststr. in Steenis, Fl. Males. 1, 4: 475. f. 49–50. 1953. *Convolvulus pes-caprae* L. Sp. Pl. 159. 1753. *Ipomoea biloba* Forssk. Fl. Aeg.-Arab. 44. 1775; C. B. Cl. in Hook. f. Fl. Brit. India 4: 212. 1883; Cooke, Fl. Pres. Bombay 2: 317. 1958 (Repr. ed.). 'Samudraphen'.

Herbs; stems extensive, prostrate, trailing and rooting at nodes. Leaves 3.0–6.0 × 5–7 cm, rounded, subcordate or truncate at base, deeply emarginate at apex, broader than long, fleshy. Flowers pink, usually solitary or 2–3 on peduncles. Capsules 1.2–1.5 cm across, ovoid, apiculate. Seeds hairy.

Fls. & Frts. : August–February.



f. 52. *Ipomoea pes-caprae* (L.) R. Br.

Illus. : Ooststr. in Steenis, *op. cit.*

Distrib. : Versova, H. Santapau, 138-38 (BLAT).

Ipomoea pes-tigridis L. Sp. Pl. 162. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 204. 1883; Cooke, Fl. Pres. Bombay 2. 320. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1: 4: 467, f. 40. 1953.

Herbaceous twiners; stems densely patentely hairy. Leaves palmately 5-9-lobed, divided from below; the middle lobe, 3-5 × 1.5-2.5 cm, obovate, sericeous on both the sides, shortly acuminate at apex, petioles up to 6 cm long. Flowers white to pink, ca. 2.5 cm long, subsessile, in capitate clusters; peduncles hairy, up to 8 cm long; bracts oblong. Capsules 0.5-0.6 cm across, globose or ovoid, covered by calyx; seeds pubescent.

Fls. & Frts. : August-November.

Illus. : Wight, Ic. t. 836. 1845; Mahesh. Illus. Fl. Delhi 143. 1966.

Distrib.: On hedges and bushes of coastal marshes at Ghodbundar. 107391.

Ipomoea salsettensis Sant. & Patel in Trans. Bose Res. Inst. Calcutta 22: 34, t. 2. 1958; Singh & Raghavan in J. Econ. Tax. Bot. 8: 32 1986; Venkanna & Das Das in Singh *et al.* Fl. Maharashtra 2: 487. 2001.

Woody, perennial twiners; stems furrowed and minutely warty. Leaves 3.0-15.5 × 3.5-15.0 cm, broadly ovate or orbicular, entire or more or less 3-5-lobed, cordate at base, narrowly acuminate or mucronate at apex, petioles 5-8 cm long, verrucose. Flowers white, in umbellate, peduncled, 3-6-flowered cymes, rarely uniflorate; peduncles ca. 17 cm long, pedicels 1.5 cm long; stamens subexserted, subequal, filaments pilose at base. Capsules 1.5-1.7 cm across, depressed-globose, 4-valved, 2-celled. Seeds 6-8, tomentose.

Fls. & Frts. : September-October.

Illus. : Sant. et Patel, *op cit.* Plate II.

Distrib. : Borivli, V. M. Patel, 921 (Type) 1509-10 (BLAT).

Ipomoea sinensis (Desv.) Choisy in Mem. Phys. Soc. Geneve 6: 459. 1834; Verdc. in Kew Bull. 13: 204. 1958; Almeida, Fl. Mah. 3.471. 2001. *Convolvulus chinensis* Desv. in Lam. Encycl. 3: 557. 1791. *Ipomoea calycina* C. B. Cl. in Hook. f. Fl. Brit. India 4: 201. 1883; Cooke, Fl. Pres. Bombay 2: 311. 1958 (Repr. ed.).

Perennial, twining herbs, hairy all over. Leaves 5–7 × 3.5–5.0 cm, ovate, cordate at base, sharply acute at apex, margins entire, petiolate. Flowers white, solitary or in few-flowered cymes. Capsules 0.6–0.8 cm long, ovoid, with accrescent calyx lobes hastate at base. Seeds villous with silky hairs.

Fls. & Frts. : October–December.

Illus. : Wight, Ic. t. 833. 1844–45 [*Aniseia calycina* (Roxb.) Choisy in Mem. Phys. Soc. Geneve 6.482. 1833.]

Distrib. : Goregaon, Borivli, Almeida (2001).

Ipomoea trichosperma Bl. Bijdr. 710. 1825; C. B. Cl. in Hook. f. Fl. Brit. India 4: 198. 1883; Almeida, Fl. Mah. 3: 471. 2001.

Twining with muricate stems. Leaves ovate, sometimes lobed, cordate at base, acute at apex, glabrous. Flowers 2.5 cm across, solitary, axillary on short, 1-flowered peduncle. Capsules 2.0–2.5 cm across, subglobose. Seeds softly villous

Fls. & Frts. : October–December.

Distrib. : Borivli, Bhandup, Almeida (2001).

Ipomoea triloba L. Sp. Pl. 161. 1753; Ooststr. in Blumea 3: 509. 1940 & in Steenis, Fl. Males. 1, 4: 468; f. 41. 1953; Fernandes et al. in J. Bombay Nat. Hist. Soc. 52. 661. 1954; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 341. 1980.

Herbs; stems twining or sometimes prostrate, 1–3 m long. Leaves 2.5–6.0 × 2–4 cm, broadly ovate to orbicular, cordate at base, margins entire to coarsely dentate, 3-lobed; lobes acute at apex. Flowers ca. 2 cm long; pink to purple, in axillary, pedunculate, few to many-flowered cymes. Capsules 0.5–0.6 cm long, subglobose, apiculate, 4-valved. Seeds 4 or less.

Fls. & Frts. : September–November.

Illus. : Ooststr. in Steenis, *op. cit.*

Distrib. : Common on hedges. 167297, 167740, 167757.

Ipomoea turbinata Lag. Gen. Sp. Pl. 10. 1816; Gunn in Brittonia 24: 163. f. 5. 1972; Verdc. in Kew Bull. 33: 167. 1978. *I. muricata* (L.) Jacq. Hort. Schoenbr. 3: 40, t. 323. 1798 (1803) non Cav. 1794; C. B. Cl. in Hook. f. Fl. Brit. India 4: 197. 1883; Ooststr. in Steenis, Fl. Males. 1, 4: 481. 1953. *Calonyction muricatum* (L.) G. Don, Gen. Syst. 4: 264. 1837; Cooke, Fl. Pres. Bombay 2: 322. 1958 (Repr. ed.). 'Gariva'.

Twiners; stems extensive, often muricate. Leaves 5–15 × 3–12 cm, broadly ovate, deeply cordate at base; acuminate at apex, petioles 6–13 cm long. Flowers rose-purple, 5–7 cm long, in axillary cymes; pedicels thickened upwards in fruits. Capsules 1.5–2.0 cm long, ovoid, apiculate. Seeds smooth, polished.

Fls. & Frts. : September–November.

Illus. : Gunn, *op. cit.*

Distrib. : Occasional on hedges and bushes. 167263.

Ipomoea violacea L. Sp. Pl. 161, 1753; Verdc. in Kew Bull. 33, 167, 1978. *I. longiflora* R. Br. Prodr. 1: 484, 1810 non Willd. 1809; Cooke, Fl. Pres. Bombay 2: 315, 1958 (Repr. ed.). *I. macrantha* Roem. & Schult. Syst. Veg. 4: 251, 1819; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 331, 1980. *I. tuba* (Schlecht.) G. Don, Gen. Hist. 4: 271, 1837; Ooststr. in Steenis, Fl. Males. 1, 4: 487, 1953. *I. grandiflora sensu* C. B. Cl. in Hook. f. Fl. Brit. India 4: 198, 1883 *p.p.* non Lam. 1791. non Roxb. 1832.

Twiners; stems stout, woody often longitudinally wrinkled, smooth or seldom muricated. Leaves 5–15 × 5–14 cm, orbicular or ovate-cordate at base, shortly acuminate at apex. Flowers white, with greenish bands, 6–9 cm long, in axillary, peduncled inflorescence. Capsules 2.0–2.5 cm across, globose, 4-valved. Seeds 4, black, densely shortly tomentose, hairy along edges.

Fls. & Frts. : September–December.

Illus. : Gunn in Brittonia 24: 158, f. 3, 1972 (*Ipomoea macrantha*).

Distrib. : Occasional. 167385, 167949.

JACQUEMONTIA Choisy

Jacquemontia paniculata (Burm. f.) Hall. f. in Engl. Jahrb. 16: 541, 1833; Cooke, Fl. Pres. Bombay 2: 303, 1958 (Repr. ed.); Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 345, 1980. *Ipomoea paniculata* Burm. f. Fl. Ind. 50, t. 21, f. 3, 1768. *Convolvulus parviflorus* Vahl, Symb. Bot. 3: 29, 1794; C. B. Cl. in Hook. f. Fl. Brit. India 4: 220, 1883.

Twiners, stems terete, slender, young parts pubescent. Leaves 3.5–7.0 × 2–5 cm, ovate, shallowly cordate at base, acuminate at apex, petiolate. Flowers white, in many-flowered, peduncled, umbellate-cymes. Capsules ca. 0.4 cm across, globose, glabrous; seeds trigonous, minutely verrucose on back.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 834. 1845 (*Batatas pentaphylla*).

Distrib. : Salsette, *Shah* (1969).

MERREMIA Dennst.

- | | | |
|--|-----|------------------------|
| 1. Stems filiform, wiry, rooting at nodes | ... | <i>M. gangetica</i> |
| 1. Stems twining, not filiform, not rooting at nodes : | | |
| 2. Leaves digitately or palmately 5–7-lobed : | | |
| 3. Corolla up to 2.5 cm long; infundibuliform : | | |
| 4. Calyx glabrous | ... | <i>M. quinquefolia</i> |
| 4. Calyx hairy | ... | <i>M. aegyptia</i> |
| 3. Corolla 2.5–5.0 cm long; subcampanulate | ... | <i>M. vitifolia</i> |
| 2. Leaves entire or 3-lobed : | | |
| 5. Corolla ca. 0.8 cm long | ... | <i>M. hederacea</i> |
| 5. Corolla 3.0–3.5 cm long | ... | <i>M. umbellata</i> |

Merremia aegyptia (L.) Urban, Symb. Antill. 4: 505. 1910; Ooststr. in Blumea 3: 327. 1939 & in Steenis, Fl. Males. 1, 4: 448. 1953; Almeida, Fl. Mah. 3: 338. 2001. *Ipomoea aegyptia* L. Sp. Pl. 162. 1753. *I. pentaphylla* (L.) Jacq. Coll. Bot. 2: 297. 1788; C. B. Cl. in Hook. f. Fl. Brit. India 4: 202. 1883. *Merremia pentaphylla* (L.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 308. 1958 (Repr. ed.).

Annual twining herbs. glandular-hairy. Leaves petiolate, digitate; leaflets 5, 5–10 × 4.5 cm, broadly lanceolate, acute at base, acuminate at apex. Flowers white, ca. 2.5 cm long, in few-flowered, lax cymes. Capsules 0.8–1.2 cm long, ovoid, glabrous with accrescent, hairy calyx. Seeds glabrous, shining.

Fls. & Frts. : July–October.

Illus. : Mahesh. Illus. Fl. Delhi. f. 144. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 483. 1982.

Distrib. : G. L. *Shah* (1969), Malad, Almeida (2001).

Merremia gangetica (L.) Cufod. in Bull. Jard. Bot. Brux. Suppl. 31. 743. 1961; Almeida, Fl. Mah. 3: 340. 2001. *Convolvulus gangeticus* L. in Torner, Cent. Pl. 2: 9. 1756. *Ipomoea reniformis* Choisy in Mem. Soc. Phys. Geneve 6: 446. 1833; C. B. Cl. in Hook. f. Fl. Brit. India 4: 206. 1883. *Merremia emarginata* (Burm. f.) Hall. f. in Bot. Jahrb. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 305. 1958 (Repr. ed.). ‘*Undirkani*’.

Creeping herbs, covered with soft hairs. Leaves 1.2–2.5 cm broad, usually broader than long, reniform or ovate-cordate, obtuse at apex, petioles 0.6–2.3 cm long. Flowers solitary, axillary or few on peduncles, yellow ca. 0.6 cm long. Capsules 0.4–0.5 cm across, subglobose. Seeds glabrous.

Fls. & Frts. : August–December.

Distrib. : G. L. Shah, (1969), Malad, Almeida (2001).

Merremia hederacea (Burm. f.) Hall. f. Bot. Jahrb. Syst. 18: 118. 1894; Ooststr. in Steenis Fl. Males. 1, 4: 441. 1953; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 350. 1979 (1980). *Convolvulus hederaceus* Burm. f. Fl. Ind. 77, t. 30, f. 2. 1768. *Ipomoea chryseides* Ker.–Gawl. Bot. Reg. t. 270. 1818; C. B. Cl. in Hook. f. Fl. Brit. India 4: 206. 1883. *Merremia chryseides* (Ker.–Gawl.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 307. 1958 (Repr. ed.).

Herbaceous, slender twiners; stems much branched; branchlets puberulous. Leaves 3.5–5.0 × 2.5–4.0 cm, ovate, acute, apiculate, 3-lobed, margins entire or crenate; petioles up to 4 cm long. Flowers yellow, small, ca. 1.5 cm across, numerous, in axillary racemose-cymes. Capsules ca. 0.6 cm long, broadly ovoid, 4-angled, pubescent. or glabrous.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 157. 1839 (*Ipomoea chryseides*).

Distrib. : Occasional on bushes and hedges. 168945.

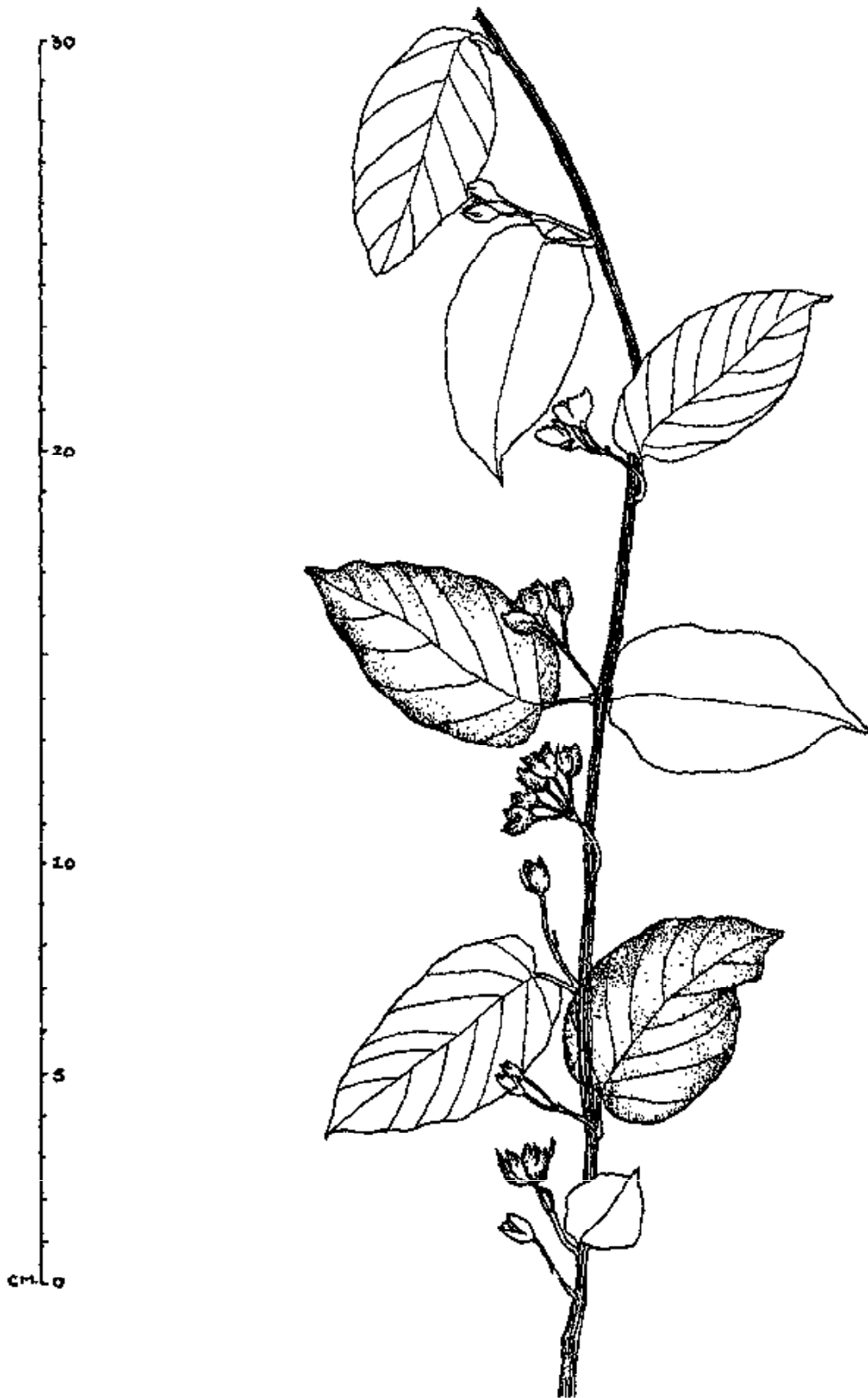
Merremia quinquefolia (L.) Hall. f. in Engl. Bot. Jahrb. 16: 552. 1893; Almeida, Fl. Mah. 3: 341. 2001. *Ipomoea quinquefolia* L. Sp. Pl. 162. 1753.

Twining herbs; stems slender. Leaves petiolate, digitate; leaflets 5, 2–5 × 0.5–1.5 cm, elliptic-oblong to lanceolate, attenuate at base, obtuse, acute to subacuminate at apex, margins entire or coarsely dentate. Flowers creamy-yellow, in axillary, 1–5-flowered cymes; corolla funnel-shaped. Capsules ca. 1 cm across, globose; Seeds hairy, ovoid.

Fls. & Frts. : October–January.

Distrib. : Malad, Shah (1969), Almeida (2001).

Merremia umbellata (L.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 305. 1958 (Repr. ed.); Ooststr. in



f.53. *Merremia umbellata* (L.) Hall. f.

Steenis, Fl. Males. 1, 4: 449. f. 24. a-b. 1953. *Convolvulus umbellatus* L. Sp. Pl. 155. 1753. *Ipomoea cymosa* (Desr.) Roem. & Schult. Syst. Nat. 4: 241. 1819; C. B. Cl. in Hook. f. Fl. Brit. India 4: 211. 1883.

Herbaceous, perennial twiners; stems up to 10 m long, scandent. Leaves 4-6 × 1-5 cm, elliptic to ovate, subcordate at base, shortly acuminate at apex, margins entire, petioles ca. 2 cm long. Flowers 2.5-3.5 cm long, white, in axillary, corymbose-umbellate cymes. Capsules ca. 1 cm across, globose or ovoid. Seeds hairy.

Fls. & Frts. : January-April.

Illus. : Ooststr. *op. cit.*

Distrib. : On hedges and bushes, frequent. 168988.

Merremia vitifolia (Burm. f.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 307. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1, 4. 448. 1953. *Convolvulus vitifolius* Burm. f. Fl. Ind. 45, t. 18, f. 1. 1758. 'Navli'.

Herbaceous, perennial twiners; stems long, stout, branched. Leaves 5-15 cm across, palmately 3-5-7-lobed, about 1/3 way down or little more, cordate at base, margins serrate-dentate, lobes triangular acuminate. Flowers golden yellow, 1-7, in peduncled cymes; corolla 2.5-5.0 cm long, subcampanulate. Capsules ca. 1.2 cm across, subglobose; seeds glabrous.

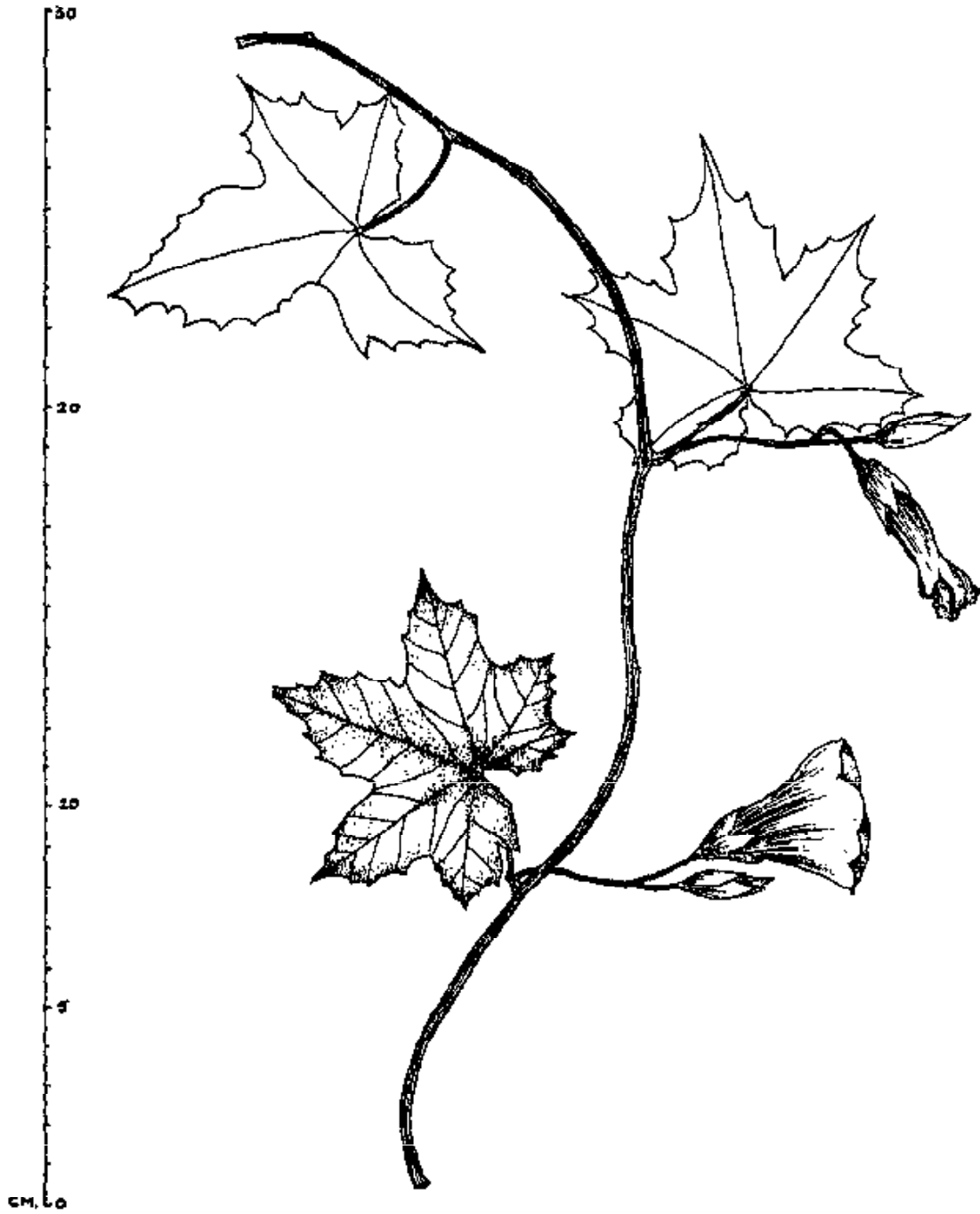
Fls. & Frts. : November-April.

Distrib. : Common on hedges and bushes. 168933.

OPERCULINA Manso

Operculina turpethum (L.) Manso, Enum. Subst. Bras. 16. 1836; Cooke, Fl. Pres. Bombay 2: 309. 1958 (Repr. ed.); Ooststr. in Blumea 3: 362. 1939 & in Steenis, Fl. Males. 1, 4: 456, f. 32. 1953. *Convolvulus turpethum* L. Sp. Pl. 155. 1753. *Ipomoea turpethum* (L.) R. Br. Prodr. 485. 1810; C. B. Cl. in Hook. f. Fl. Brit. India 4: 212. 1883. 'Dudh-Kalmi'.

Herbaceous, perennial twiners; branchlets 3-5-winged. Leaves 5-12 × 2.5-1.0 cm, ovate or oblong, rarely slightly lobed, truncate or cordate at base, subacute, mucronate at apex, petioles up to 6 cm long. Flowers white, 3.5-5.0 cm long, in few-flowered, ca. 6 cm long lax, corymbose cymes; bracts 3.0 × 1.5 cm, oblong; pedicels up to 3 cm long. Capsules 1.5-1.6 cm across, globose, enclosed in persistent, imbricating calyx lobes. Seed solitary.



f.54. *Merremia vitifolia* (Burm. f.) Hall. f.

Fls. & Frts. : September–April.

Illus. : Ooststr. *op. cit*; Matthew, *Illus. Fl. Tamilnadu, Carnatic* 2: t. 484, 1982.

Distrib. : Common along hedges and on other bushes. 167734, 167800, 168440.

RIVEA Choisy

Rivea hypocrateriformis (Desr.) Choisy *Convol. Orient.* in *Mem. Soc. Phys. Geneve* 6: 408. 1834; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 184. 1883; Cooke, *Fl. Pres. Bombay* 2: 323. 1958 (Repr. ed.). *Convolvulus hypocrateriformis* Desr. in *Lam. Encycl.* 3: 561. 1792. 'Phanji'.

Twiners up to 8 m long; stems terete, pubescent. Leaves 3–6 × 3.0–6.5 cm, as broad as long or broader than long, orbicular, cordate at base, obtuse at apex, glabrous above, silky beneath; petioles 1.0–2.5 cm long. Flowers 6–7 cm long, and ca. 5 cm across, pink, axillary, solitary; pedicels up to 4 cm long; bracts oblong, acute, caducous. Capsules ca. 1.3 cm across, globose, indehiscent, mucronate.

Fls. & Frts. : August–November.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 137. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 485. 1982.

Distrib. : Occasional. 167769.

VOLVULOPSIS Roberty

Volvulopsis nummularia (L.) Roberty in *Candollea* 14: 28. 1952; Raiz. in *Indian Forester* 4: 453. 1968. *Convolvulus nummularius* L. *Sp. Pl.* 157. 1753. *Evolvulus nummularius* (L.) L. *Sp. Pl.* (ed. 2), 391. 1762; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 734. 1883.

Perennial herbs; stems 15–30 cm long, prostrate, rooting at nodes, filiform, radially spreading. Leaves 0.3–1.0 cm broad, nearly orbicular, subcordate or rounded at base, obtuse to emarginate at apex. Flower solitary, axillary, creamy, 5–7 cm across. Capsules ca. 0.4 cm across, nearly globose.

Fls. & Frts. : July–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 480. 1982. (*Evolvulus nummularius*).

Distrib. : Common on moist grounds in open areas. 168492, 167936.

XENOSTEGIA Austin & Staples

Xenostegia tridentata (L.) Austin & Staples in Brittonia 32: 533. 1980; Venkann. & S. Das Das in Singh et al. Fl. Maharashtra 2: 483. 2001. *Convolvulus tridentatus* L. Sp. Pl. 157. 1753. *Ipomoea tridentata* (L.) Roth in Roem. Arch. Bot. 1, 2: 38. 1798; C. B. Cl. in Hook. f. Fl. Brit. India 4: 205. 1883. *Merremia tridentata* (L.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 306. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1, 4: 445. 1953. 'Morga'

Herbs with woody rootstock; stems prostrate, slender. Leaves 1.3–3.0 × 0.2–0.6 cm, linear-oblong, obovate-oblong, truncate, hastate or auriculate at base, acute or obtuse, often toothed at apex. Flowers creamy to yellowish, with purple throat, solitary, axillary or seldom few in cymes. Capsules 0.5–0.6 cm across, ovoid or globose. Seeds trigonous.

Fls. & Frts. : August–October.

Distrib. : Vihar lake, H. Santapau 18933–5 (BLAT).

CULTIVATED SPECIES :

Convolvulus pennatus Desr. in Lam. Encycl. 3: 577. 1792; Almeida, Fl. Mah. 3: 313. 2001.

Annual, twining herbs. Leaves ovate, oblong, deeply pinnatisect; segments linear or filiform. Flowers scarlet red, 2.5–3.5 cm long and 2.5 cm across, showy, solitary or few, in cymes. Capsules globose to ovoid.

Fls. & Frts. : August–October.

Distrib. : Vihar lake, Almeida, (2001). Native of Tropical America; grown as ornamental plants in gardens.

Ipomoea quamoclit L. Sp. Pl. 159. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 199. 1883; Ooststr. in Steenis, Fl. Males. 1, 4: 482. 1953. *Quamoclit vulgaris* Choisy in Mem. Soc. Phys. Hist. Nat. Geneve 6: 434. 1833; Cooke, Fl. Pres. Bombay 2: 331. 1958 (Repr. ed.). 'Ganeshpushpa', 'Ganesh-vel'.

Herbaceous, slender twiners. Leaves pinnatisect; segments narrowly linear or filiform. Flowers bright red, axillary or few in cymes. Capsules ovoid, subglobose. Seeds silky hairy, oblong.

Fls. & Frts. : Throughout the year.

Distrib. : Vihar lake, V. M. Patel, 719 (BLAT) (ornamental).
Native of Mexico, cultivated in gardens.

Jacquemontia pentantha (Jacq.) G. Don, Gen. Syst. 4: 283. 1838; Ooststr. in Blumea 3: 278. 1939; Almeida, Fl. Mah. 3: 337. 2001. *Convolvulus pentanthus* Jacq. Coll. 4: 210. 1790.

Twining herbs. Leaves ovate, truncate to cordate at base. Flowers blue or white, in few to many-flowered, axillary or terminal umbellate, pedunculate cymes.

Fls. & Frts. : Throughout the year.

Distrib. : Malad, Almeida (2001).

Porana paniculata Roxb. Pl. Cor. 3: 31. t. 235, 1819; C. B. Cl. in Hook. f. Fl. Brit. India 4: 222. 1883; Cooke, Fl. Pres. Bombay 2: 295. 1958. (Repr. ed.); Naik, Fl. Marathwada 1: 601. 1998.

Woody twiners, young stems greyish-tomentose. Leaves ovate, cordate at base, acute to acuminate and shortly cuspidate at apex, margins entire, pubescent. Flowers white or pale yellow, in axillary and terminal, paniculate-cymes. Capsules ovoid, glabrous.

Fls. & Frts. : October-December.

Distrib. : Randeria, 161 (BLAT). Native of Northrn India and Upper Burma, grown in gardens.

Porana volubilis Burm. f. Fl. Ind. 51, t. 21. f. 1. 1768; C. B. Cl. in Hook. f. Fl. Brit. India 4: 222. 1883; Ooststr. in Blumea 3: 87. 1938.

Woody twiners. Leaves ovate, subcordate at base, shortly acuminate at apex, glabrous and shining above. Flowers white, in panicles. Capsules ovoid to globose, mucronate, glabrous.

Fls. & Frts. : October-February.

Distrib. : Salsette, Shah (1984)

Rivea laotica Ooststr. in Blumea 8: 525. f. 1. 1957; Naik, Fl. Marathwada 1: 602. 1998. *R. ornata sensu* C. B. Cl. in Hook. f. Fl. Brit. India 4: 183. 1883 non (Roxb.) Choisy 1834; Cooke, Fl. Pres. Bombay 2: 323. 1958 (Repr. ed.).

Stems stout, scandent, Leaves 10-12 × 6-10 cm. usually broader than long, orbicular or reniform, cordate at base, obtuse, apiculate or

acuminate at apex, glabrous above, white-pubescent below. Flowers whitish or creamy in pedunculate, 1-7-flowered cymes. Capsules subglobose, mucronate.

Fls. & Frts. : July-September.

Illus. : Wight, Ic. t. 1356. 1848 (*Rivea ornata*).

Distrib. : Borivli, A. J. Randeria, 157. Borivli, N. A. Irani, 1: 1283 (BLAT) (cultivated).

CUSCUTACEAE

CUSCUTA L.

Cuscuta reflexa Roxb. Pl. Cor. t. 104. 1798 & Fl. Ind. 1: 446. 1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 225. 1883; Cooke, Fl. Pres. Bombay 2: 292. 1958 (Repr. ed.); Ooststr. in Steenis, Fl. Males. 1, 4: 393. 1953; Sant. & Patel in Bombay nat. Hist. Soc. 54 (3) : 712. f. A, 1-7 1957. 'Amar-vel'.

Herbaceous, leafless twiners; stems greenish-yellow, wiry, branched, fleshy with haustorial connections. Flowers white or creamy white, solitary or 2-4, in cymes or in short racemes; pedicels short, bracts ovate-oblong, obtuse, fleshy. Capsules 0.2-0.25 cm across, depressed-globose, circumscissile near base. Seeds 2-4.

Fls. & Frts. : June-August.

Illus. : Sant. & Patel, *op. cit.*

Distrib. : Koppikar (1974); Randeria, 235 (BLAT); Borivli, Vihar lake and Ghodbundar, Almeida (2001).

SOLANACEAE

- | | | |
|---|-----|--------------|
| 1. Flowers ca. 15 cm long; fruits capsular | ... | DATURA |
| 1. Flowers not more than 5 cm long; fruit a berry : | | |
| 2. Berries enveloped in bladder like calyx | ... | PHYSALIS |
| 2. Berries not enveloped in calyx : | | |
| 3. Anthers dehiscent by pores or by short slits | ... | SOLANUM |
| 3. Anthers dehiscent by longitudinal slits | ... | LYCOPERSICON |

DATURA L.

Datura innoxia Mill. Gard. Dict. ed. 8, no. 5. 1768; Avery *et al.* in Blakeslee, Genus *Datura* 28: f. 10. 1959; Deb in J. Econ. Tax. Bot. 1: 37. 1980. *D. metel auct. non L.* 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 243. 1883; Cooke, Fl. Pres. Bombay 2: 344. 1958 (Repr. ed.).

Undershrubs, 45–80 cm tall. Leaves 15–18 × 8–12 cm, elliptic or ovate-triangular, unequally truncate at base, margins entire or shallowly lobed, petioles ca. 10 cm long. Flowers white, or purplish, axillary, solitary, ca. 7 cm across. Capsules ca. 4 cm across, drooping, spines on capsules ca. 0.7 cm long, weak. Seeds nearly orbicular, flat.

Fls. & Frts. : July–March.

Illus. : Avery, *et al.* in Blakeslee, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 488. 1982.

Distrib. : Koppikar (1974); Malad, Almeida (2001).

LYCOPERSICON P. Mill.

Lycopersicon lycopersicum (L.) Karsten. Deutsch. Fl. 966. 1855; Deb in J. Econ. Tax. Bot. 1: 4. 1980. *Solanum lycopersicum* L. Sp. Pl. 185. 1753. *Lycopersicon esculentum* Mill. Gard. Dict. (ed. 8), n. 2. 1768; C. B. Cl. in Hook. f. Fl. Brit. India 4: 237. 1883; Cooke, Fl. Bombay 2: 345. 1958 (Repr. ed.). 'Tomato'.

Annual herbs up to 75 cm tall, stems glandular-pubescent. Leaves 5–10 cm long, pinnatisect. lobes ovate-lanceolate. Flowers deep yellow, drooping, solitary, axillary, pedicellate. Berries 3–5 cm across, depressed-globose, irregularly 4–6-lobbed, red when ripe. Seeds discoid.

Fls. & Frts. : Throughout the year.

Illus. : Bailey, *Man. Cult. Pl* ed 2: 866, f. 178, B–Ba–Bd. 1949 (*Lycopersicon esculentum*).

Distrib. : Rare, growing as an escape on Kanheri hill. 167435.

PHYSALIS L.

1. Plants glabrescent :

- | | | |
|--|-----|----------------------|
| 2. Leaf margins subentire or irregularly serrate | ... | <i>P. longifolia</i> |
| 2. Leaf margins toothed with long sharp teeth | ... | <i>P. joe-diasii</i> |

1. Plants pubescent :

3. Stems herbaceous; leaves cuneate at base ... *P. minima*
 3. Stems woody, stout; leaves cordate, oblique at base ... *P. pubescens*

Physalis joe-diasii M.R. Almeida & S. M. Almeida. Fl. Mah. 3: 369. f. 238. Pl. 134. 2001.

Herbs; stems branched. Leaves simple, ovate, oblique at base, acuminate at apex, long-petioled, margins dentate with deep indentation. Flowers yellowish, axillary; calyx campanulate with broad, acuminate lobes; staminal filaments compressed with fleshy anther lobes. Berries shortly stalked with prominent, persistent and accrescent calyx. Seeds reniform, many, compact, light orange or brown, glabrous.

Fls. & Frts. : June–November.

Illus. : M. R. Almeida & S. M. Almeida, *op. cit.*

Distrib. : Borivli, Vihar lake, Malad, Almeida (2001).

Physalis longifolia Nutt. in Trans. Amer. Phil. Soc. 5: 93. 1837; Sant. *et al.* in J. Bombay nat. Hist. Soc. 58. 550. 1961; K. M. Rao in Singh *et al.* Fl. Maharashtra 2: 499. 2001.

Perennial, erect herbs, 90–120 cm tall; stems 2.0–2.5 cm across near the base, dichotomously branched, deeply furrowed, glabrescent with maturity. Leaves 2.0–11.5 × 1.8–6.0 cm, ovate or oblong-ovate, cuneate or rounded or oblique at base, acute or shortly acuminate at apex, glabrous above, minutely puberulous beneath; petioles 2.5–7.5 cm long, glabrous, Flower solitary, axillary or in the forks of branches, pedicels filiform; calyx lobes acuminate, corolla pale to lemon yellow with 5 purple or brown spots on the inside at the base, 0.5–1.2 cm long, 0.8–1.5 cm across. Berries ca. 1 cm across, subglobose, enclosed in accrescent calyx. Seeds minutely tubercled.

Fls. & Frts. : August–September.

Distrib. : Salsette, Shah (1962).

Physalis minima L. Sp. Pl. 183. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 238. 1883; Cooke, Fl. Pres. Bombay 2: 340. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 43. 1980. '*Chirboti*'.

Herbs, 20–75 cm tall. Leaves 3.0–6.5 × 1.5–5.0 cm, elliptic-ovate, or elliptic or elliptic-oblong, obliquely rounded or acute at base, acute at apex, margins coarsely toothed. Flowers yellow, axillary, solitary. Berries 1.0–2.5 cm across, globose with accrescent calyx. Seeds discoid, muriculate.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 490. 1982.

Distrib. : Occasional in open areas. 168920.

***Physalis pubescens* L.** Sp. Pl. 183. 1753; Almeida, *Fl. Mah.* 3: 371. 2001.

Suffruticose herbs, stems branched, grooved, softly white-hairy. Leaves broad-ovate, oblique at base, petioled, margins distantly serrate, white-appressed hairy. Flower solitary, axillary and terminal, pedicellate. Berries with accrescent calyx. Seeds many, cordiform, light orange in colour.

Fls. & Frts. : August–March.

Distirb. : Goregaon, Almeida (2001).

SOLANUM L.

1. Plants armed :

2. Prickles slightly recurved, dull in colour ... *S. anguivi*

2. Prickles straight, shining yellow ... *S. virginianum*

1. Plants unarmed ... *S. nigrum*

***Solanum anguivi* Lam.** *Encycl.* 2: 23. 1794; Hepper in *Bot. J. Linn. Soc.* 76: 290. 1978. *S. indicum auct. non L.* 1753 p.p.; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 234. 1883; Cooke, *Fl. Pres. Bombay* 2: 336. 1958 (Repr. ed.); Deb in *J. Econ. Tax. Bot.* 1: 47. 1980. 'Mothi-ringani'.

Prickly undershrubs, 0.4–1.5 m tall. Leaves 5–15 × 2.5–8.0 cm, broadly elliptic to elliptic-oblong, obliquely truncate at base, subacute at apex. Flowers bluish-purple, in 8–10-flowered, extra axillary racemes. Berries ca. 0.8 cm across, globose. Seeds spherical, flat, minutely pitted.

Fls. & Frts. : August–October.

Illus. : Wight, *Ic.* t. 346. 1840; Mahesh. *Illus. Fl. Delhi* f. 151. 1966 (*Solanum indicum*).

Distrib. : Occasional undershrubs. 167305, 167857.

***Solanum nigrum* L.** Sp. Pl. 186. 1753; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 229. 1883; Cooke, *Fl. Pres. Bombay* 2: 332. 1958 (Repr. ed.); Deb. in *J. Econ. Tax. Bot.* 1: 49. 1980. 'Kangani'.

Annual herbs, 30–40 cm tall. Leaves 2.5–9.0 × 2–5 cm, broadly ovate–elliptic or ovate–lanceolate, rounded or decurrent at base, acute at apex, margins bluntly toothed. Flowers white, in extra axillary, subumbellate cymes. Berries ca. 0.5 cm across, globose, purplish–black or sometimes red or yellow when ripe. Seeds discoid, minutely pitted.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 344. 1840.

Distrib. : Occasional bushes. 167928.

Solanum virginianum L. Sp. Pl. 187. 1753; Hepper & Jacq. in Kew Bull. 41: 433. 1986. *S. surattense* Burm. f. Fl. Ind. 57. 1768; Deb in J. Econ. Tax. Bot. 1: 51. 1980. *S. xanthocarpum* Schrad. & Wendl. Sert. Hanov. 1: 8, t. 2. 1795; C. B. Cl. in Hook. f. Fl. Brit. India 4: 236. 1883; Cooke, Fl. Pres. Bombay 2: 335. 1958 (Repr. ed.). '*Kate-ringani*'.

Herbs, Stems prickly, diffuse, prickles up to 2 cm long, straight. Leaves 4–10 × 2.5–6.0 cm, lacerate, attenuate at base, acute at apex, prickly. Flowers light to deep purple, in extra–axillary, pedunculate racemes. Berries 1.0–1.5 cm across, globose, yellow or orange–red when ripe. Seeds subspherical or spherical, compressed, minutely rugose.

Fls. & Frts. : November–June.

Illus. : Mahesh. Illus. Fl. Delhi f. 150. 1966.

Distrib. : Common in waste lands and open areas. 168478.

CULTIVATED SPECIES :

Cestrum diurnum L. Sp. Pl. 191. 1753; Bailey, Man. Cult. Pl. ed. 2, 874. 1949; Deb in J. Econ. Tax. Bot. 1: 37. 1980; Almeida, Fl. Mah. 3: 357. 2001.

Shrubs, 2.5–4.0 m tall. Leaves elliptic–oblong or elliptic–lanceolate, rounded or acute at base, acute at apex, petiolate, thinly hairy beneath. Flowers white, ca. 0.8 cm across, 1.5 cm long, in terminal panicles. Berries deep–purple.

Fls. & Frts. : Almost throughout the year.

Distrib. : Malad; Almeida (2001). Native of West Indies.

Cestrum nocturnum L. Sp. Pl. 191. 1753; Bailey Man. Cult. Pl. ed. 2, 874. 1949; Bor & Raizada, Beaut. Ind. Clim. & Shrubs. 119, tt. 45 & 46 f. 76. 1954; Naik, Fl. Marathwada 606. 1998. '*Raat-rani*'.

Erect shrubs, 2–3 m tall. Leaves alternate, exstipulate, narrowly ovate-lanceolate to elliptic, acuminate at apex. Flowers greenish-yellow, fragrant during night, in axillary and terminal cymose panicles. Berries ovoid. Seeds many, flattened.

Fls. & Frts. : Throughout the year.

Distrib. : Goregaon, Malad, Almeida (2001).

Cestrum parqui L. Herit. Strip. Nov. 73. 1788; Bailey, Man. Cult. Pl. ed. 2; 874. 1949; Naik, Fl. Marathwada 606. 1998; Almeida Fl. Mah. 3: 357. 2001.

Evergreen shrubs, 2.5–2.0 m tall; stems erect, branched; branchlets lenticellate, velvety pubescent. Leaves elliptic-lanceolate, narrowed at base, acute at apex, margins entire. Flowers greenish-yellow, sessile in cymes or panicles.

Fls. & Frts. : More or less throughout the year.

Illus. : Bor & Raizada Beautiful Indian Climbers and Shrubs 120. 1954.

Distrib. : Goregaon, Almeida (2001). Native of Chili (S. America).

Petunia hybrida Vilm. Fl. Pl. Terr. 1: 615. 1875; Bailey, Man. Cult. Pl. ed. 2, 879. 1949; Naik, Fl. Osmanabad 233. 1979; *P. integrifolia* (Lodd.) Schinz. & Thell. Vierteljahrschr Nat. Ges. Zurich 60. 361. 1915; Almeida Fl. Mah. 3: 367. 2001.

Annual, glandular-pubescent herbs; stems erect, 30–45 cm tall. Leaves ovate-oblong; upper sessile, lower petioled. Flowers white to deep purple, ca. 10 cm across, 5–7 cm long, sometimes with fringed or sometimes with double corolla, solitary, axillary. Capsules ovoid.

Fls. & Frts. : Throughout the year.

Distrib. : Versova, Almeida (2001). Native of Argentina.

Petunia minima L. Sp. Pl. 183. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 238. 1883; Deb in J. Econ. Tax. Bot. 1: 43. 1980. *P. nyctaginiflora* Juss. Ann. Mus. Paris 2: 216, t. 47, f. 2. 1803; Cooke, Fl. Pres. Bombay 2: 346. 1958 (Repr. ed.); Sant. in Rec. Bot. Surv. India 16 (1) ed. 3, 175. 1961.

Herbs, 30–60 cm tall; stems erect, stout. Leaves subcoriaceous, ovate-oblong; upper ones sessile or subsessile, lower ones narrowed into a distinct petiole. Flowers 5–6 cm long, dull white, fragrant at evening.

Fls. & Frts. : March–April.

Distrib. : Borivli, V. M. Patel, 1302–3; Borivli, A. J. Randeria, 542 (BLAT) (ornamental).

Physalis angulata L. Sp. Pl. 183. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 238. 1883; Babu, Herb. Fl. Dehra Dun 337. 1977; Hepper in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 6: 394. 1988. *P. minima* L. var. *indica* (Lam.) C. B. Cl. in Hook. f. Fl. Brit. India 4: 238. 1883. *P. longifolia auct. non* Nutt. 1837; Sant. et al. in J. Bombay. nat. Hist. Soc. 58: 551. 1961.

Herbs; stems erect, grooved. Leaves simple, linear–lanceolate, acute at base, acute to acuminate at apex. margins entire, petiolate; veins whitish. Flowers axillary solitary, pedicellate. Fruits decorated with white–vein reticulation. Seeds many, rounded, compressed.

Fls. & Frts. : August–November.

Distrib. : Borivli, Goregaon, Almeida 2001. Native of America & West Indies.

Physalis peruviana L. Sp. Pl. ed. 2. 1670. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 238. 1833; Cooke, Fl. Pres. Bombay 2: 340. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 44. 1980. 'Popati'.

Shrubs, 1.0–1.5 m tall. branches viscid–pubescent. Leaves ovate, oblique at base, margins entire or toothed. Flowers yellow with five purple blotches inside, axillary, solitary with slender pedicels. Berries subglobose, yellowish when ripe. Seeds many, yellow, compressed.

Fls. & Frts. : August–December.

Illus. : Fyson, Fl. Nilgiri & Puleeny hill top 3: 437. 1975.

Distrib. : Vihar lake, V. M. Patel, 716; Borivli, V. M. Patel, 775–86 (BLAT). Native of Lima, Tropical America.

Solandra longiflora Tussac. Fl. Antill. 2: 49, t. 12. 1827; Almeida, Fl. Mah. 3: 372. 2001.

Woody herbs. Leaves obovate with purplish petioles. Flowers white.

Distrib. : Goregaon, Almeida (2001).

Solanum melongena L. Sp. Pl. 186. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 235. 1883; Cooke, Fl. Pres. Bombay 2: 339. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 48. 1980. 'Vangi'.

Annual herbs, stems and branches armed with prickles, covered with grey stellate-tomentum. Leaves ovate-oblong, sinuately pinnately lobed, stellate-pubescent. Flowers purple in short, few-flowered, extra-axillary racemose-cymes. Berries obovoid, or oblong, fleshy, streaked with violet lines.

Fls. & Frts. : Throughout the year.

Distrib. : Malad, Almeida (2001). Native of East Indies, cultivated for fruits.

Solanum seforthianum Andrews, Bot. Rep. 8, t. 504. 1808; Bor & Raizada, Beaut. Ind. Climbers & Shrubs 127. 1954; Bailey, Man. Cult. Pl. ed. 2, 869. 1949; Deb in J. Econ. Tax. Bot. 1: 50. 1980.

Shrubby trailers. Leaves alternate; the uppermost simple, elliptic-lanceolate, acute at apex; the lower trifoliate or pinnatisect, lobes elliptic-ovate, oblique at base, acute at apex, margins entire or undulate. Flowers white or light rose-coloured, in terminal corymbose-cymes. Berries ca. 0.7 cm across, globose, stellately hairy.

Fls. & Frts. : July-September.

Illus. : Bor & Raiz. *op. cit.*

Distrib. : Jogeshwari, Almeida (2001). Native of W. Indies.

Solanum torvum Swartz, Prodr. 47. 1788; Wight, Ic. t. 345. 1840; C. B. Cl. in Hook. f. Fl. Brit. India 4: 234. 1883; Cooke, Fl. Pres. Bombay 2. 339. 1958 (Repr. ed.).

Shrubs, 1.5-2.5 m tall, armed with prickles. Leaves ovate, obliquely subcordate or truncate at base, acute at apex, margins sinuate or lobed, stellately tomentose beneath. Flowers white, in extra axillary corymbs. Berries globose.

Fls. & Frts. : July-August.

Distrib. : Goregaon, Almeida (2001). Native of Jamaica, Hispaniola & Bermuda.

SCROPHULARIACEAE

- | | | | |
|-----|--|-----|--------------|
| 1. | Plants aquatic with heterophyllous leaves | ... | LIMNOPHILA |
| 1. | Plants mostly terrestrial; leaves never heterophyllous : | | |
| 2. | Leaves pinnatisect, segments filiform : | | |
| 3. | Corolla tube short, dilated above; capsules not beaked | ... | SOPUBIA |
| 3. | Corolla tube long, slender, narrow, not dilated above; capsules obliquely beaked | ... | RAMPHICARPA |
| 2. | Leaves not pinnatisect : | | |
| 4. | Leaves all alternate | ... | VERBASCUM |
| 4. | Leaves at least lower ones opposite : | | |
| 5. | Bracteoles present : | | |
| 6. | Calyx spathaceous | ... | CENTRANTHERA |
| 6. | Calyx not spathaceous : | | |
| 7. | Calyx tubular, nerved or ribbed : | | |
| 8. | Corolla 2-lipped | ... | STRIGA |
| 8. | Corolla subequally 5-lobed | ... | BUCHNERA |
| 7. | Calyx neither tubular nor nerved, nor ribbed : | | |
| 9. | Calyx glabrous | ... | BACOPA |
| 9. | Calyx glandular-hairy | ... | STEMODIA |
| 5. | Bracteoles absent : | | |
| 10. | Corolla throat and lip with palate : | | |
| 11. | Capsules glabrous; seeds rugose | ... | MAZUS |
| 11. | Capsules hairy above; seeds smooth | ... | LINDENBERGIA |
| 10. | Corolla throat and lip without palate : | | |
| 12. | Corolla 2-lipped : | | |
| 13. | Calyx winged or ribbed | ... | TORENIA |
| 13. | Calyx neither winged nor ribbed : | | |
| 14. | Stamens 2, anther cells parallel | ... | DOPATRIUM |
| 14. | Stamens 2 or 4, anther cells divergent | ... | LINDERNIA |
| 12. | Corolla not 2-lipped : | | |
| 15. | Plants erect | ... | SCOPARIA |
| 15. | Plants prostrate | ... | PEPLIDIUM |

BACOPA Auble (*nom. cons.*)

Bacopa monnieri (L.) Penn. Proc. Acad. Nat. Sci. Philadelphia 98 : 94.1946; Sant. in J. Bombay nat. Hist. Soc. 49 : 30.1950; Philcox in Kew Bull. 33 : 679.1979. *Lysimachia monnieri* L. in Torner Cent. Pl. II: t. 9.1756. *Moniera cuneifolia* Michx. Fl. Bor. Amer. 2: 22.1803; Cooke, Fl. Pres. Bombay 2 : 356.1958 (Repr. ed.). *Herpestis monniera* H. B. & K. Nov. Gen. & Sp. Pl. 2: 366.1817; Hook. f. Fl. Brit. India 4: 272.1884. 'Nir-brahmi'.

Herbs; stems prostrate, succulent, creeping, rooting at nodes. Leaves 0.4–2.5 × 0.3–0.7 cm, obovate-oblong or spatulate, obtuse at apex, nigropunctate, subsessile, margins entire. Flowers white to pale blue, axillary, solitary. Capsules 0.5–0.6 × 0.25–0.3 cm, septicidal. Seeds minute, cuneate or ellipsoid-oblong, striate.

Fls. & Frts. : Almost throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 494.1982.

Distrib. : Common in fields and open areas.

BUCHNERA L.

Buchnera hispida Buch.-Ham. ex D. Don, Prodr. Fl. Nepal 91.1825; Hook. f. Fl. Brit. India 4: 298.1884; Cooke, Fl. Pres. Bombay 2: 373.1958 (Repr. ed.); Sant. in J. Bombay. nat. Hist. Soc. 49 : 42.1950.

Herbs, 15–40 cm tall; stems erect, slender, hairy. Lower leaves 2–5 × 0.8–2.5 cm, obovate or oblong, upper narrower, linear-lanceolate. Flowers pale purple, sessile, bracteate, in terminal spikes. Capsules 0.5–0.6 cm long, oblong, shorter than calyx. Seeds cuneate-oblong, minute.

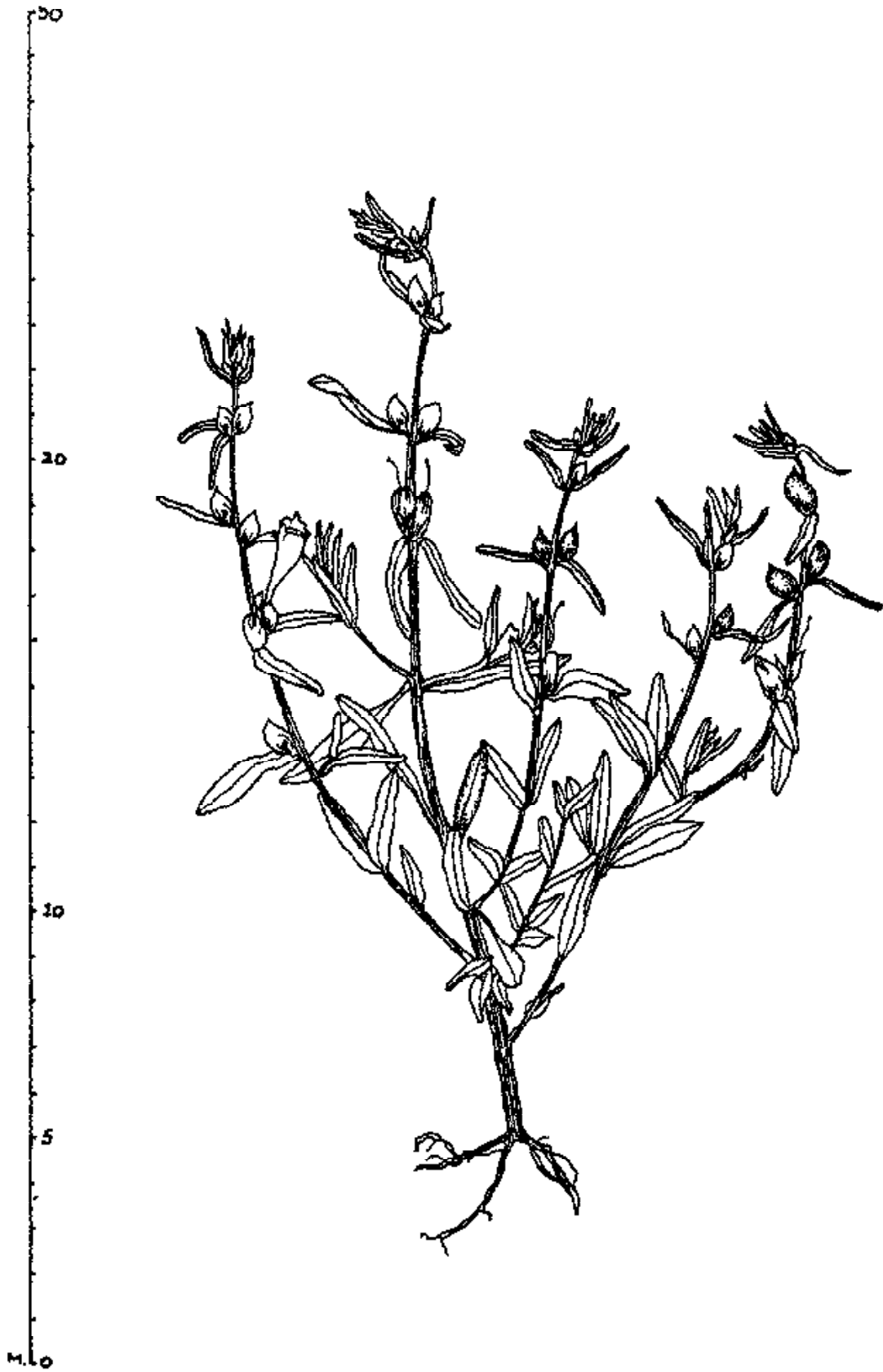
Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 1413.1849.

Distrib. : Frequent on open grounds. 167371, 168910.

CENTRANTHERA R. Br.

Centranthera indica (L.) Gamble, Fl. Pres. Madras 2: 971.1924 & [2: 683.1957 (Repr. ed.)]; Sant. in Rec. Bot. Surv. India 16(1): 184.1967 (3rd. Rev. ed.). *Rhinacanthus indica* L. Sp. Pl. 603.1753. *Centranthera hispida* R. Br. Prodr. 438. 1810; Hook. f. Fl. Brit. India 4: 301.1884; Cooke, Fl. Pres. Bombay 2 : 381.1958 (Repr. ed.).



f.55. *Centranthera indica* (L.) Gamble

Herbs, 8–30 cm tall; stems erect, scabrid, hispid. Leaves 1–3 × 0.2–0.8 cm, lower oblong or obovate, upper linear. Flowers rosy or white, subsessile, in bracteate spikes. Capsules 0.6–0.8 cm long, ovoid, rugose, hairy. Seeds oblong–cuneate or conical, striate.

Fls. & Frts. : September–October.

Distrib. : Vihar lake, Goregaon, Malad, Borivli, Bhandup, *Almeida* (2001).

DOPATRIUM Buch. –Ham.

Dopatrium junceum (Roxb.) Buch.–Ham. ex Bth. Scroph. Ind. 31.1835; Hook. f. Fl. Brit. India 4: 274.1884; Cooke, Fl. Pres. Bombay 2: 363.1958 (Repr. ed.); Sant. in J. Bombay nat. Hist. Soc. 49: 35.1950. *Gratiola juncea* Roxb. Pl. Cor. 2: 16, t. 129.1798 & Fl. Ind. 1: 142.1832.

Herbs, 15–20 cm tall; stems slender, erect, somewhat fleshy, branched at base. Leaves 1.0–2.4 × 0.5 cm, lower oblong–elliptic or obovate, obtuse at apex; upper distant, smaller. Flowers pink to blue or purple, axillary, in decussate pairs; lower ones subsessile, upper ones pedicellate. Capsules ca. 0.25 cm across, globose.

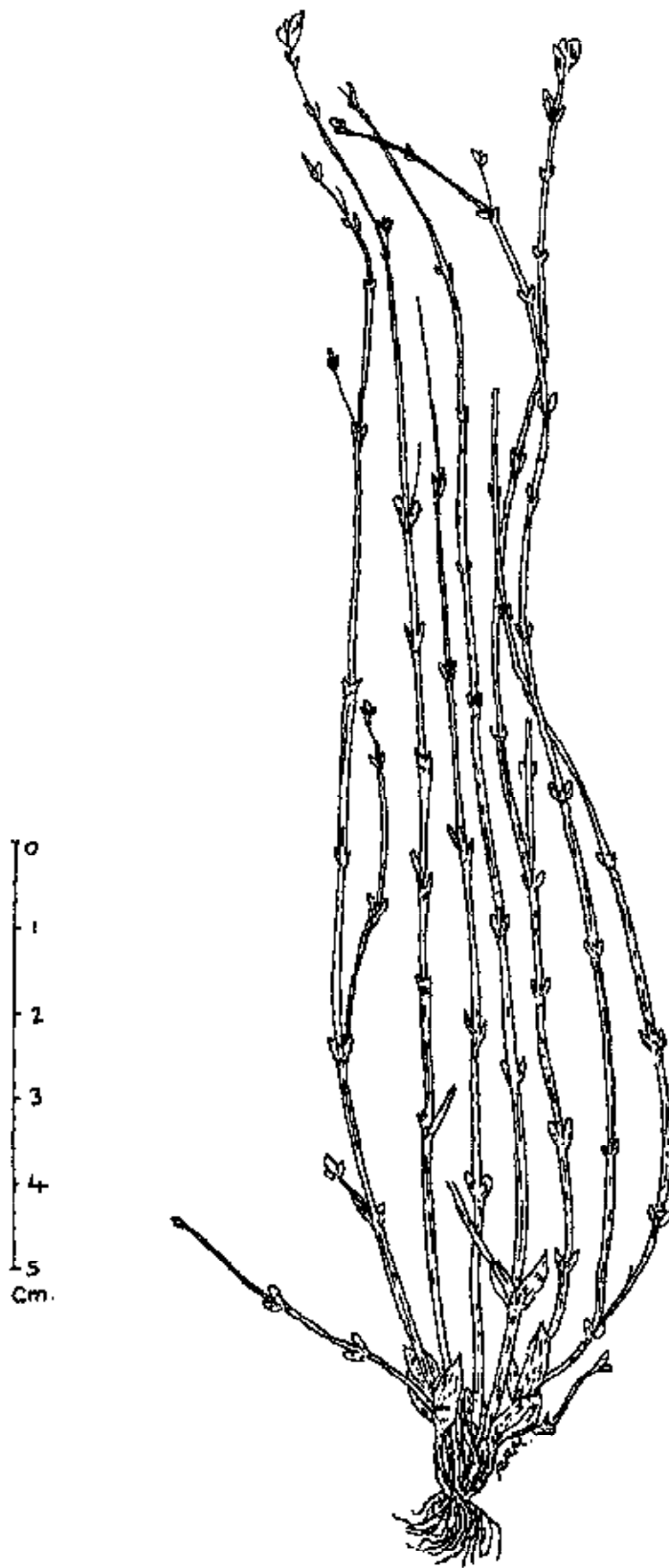
Fls. & Frts. : July–October.

Distrib. : Frequent in open & wet places. Kanheri hills. 167887.

LIMNOPHILA R. Br. (*nom. cons.*)

1. Submerged leaves finely divided :
 2. Flowers sessile :
 3. Flowers white, in branched spikes ... *L. polystachya*
 3. Flowers pink, solitary, axillary ... *L. heterophylla*
 2. Flowers pedicelled :
 4. Bracteoles rarely 0.15 cm long, commonly less than 0.15 cm long ... *L. sessiliflora*
 4. Bracteoles 0.15–0.4 cm long. ... *L. indica*
1. Submerged leaves not finely divided :
 5. Bracteoles present ... *L. indica*
 5. Bracteoles absent ... *L. sessiliflora*

Limnophila heterophylla (Roxb.) Bth. Scroph. Ind. 25.1835; Hook. f. Fl. Brit. India 4: 270.1884; Philcox in Kew Bull. 24: 124.1970. *Columnnea heterophylla* Roxb. Fl. Ind. 3: 97.1832.



f.56. *Dopatrium junceum* (Roxb.) Buch.-Ham. ex Bth.

Aquatic herbs. Submerged leaves 1.5–4.0 × 0.2–1.0 cm, whorled, capillaceo-multifid; upper leaves opposite or verticillate, linear to lanceolate. Flowers sessile or subsessile, pinkish-white, solitary, axillary, bracteate. Capsules dehiscent, ca. 0.3 cm. across, subglobose.

Fls. & Frts. : October–December.

Distrib. : Common in Park lakes, 168947.

Limnophila indica (L.) Druce in Rep. Bot. Exch. Club. Brit. Isles 3: 420.1914; Philcox in Kew Bull. 24: 115.1970. *Hottonia indica* L. Syst. Nat. ed. 10, 919. 1759 & 2: 208. 1762. *Limnophila gratiolooides* R. Br. Prodr. 442.1810; Hook. f. Fl. Brit. India 4: 271.1884; Cooke, Fl. Pres. Bombay 2: 362.1958 (Repr. ed.). 'Turti'.

Herbs, 15–20 cm long; stems subquadrangular, branched. Leaves 0.5–2.0 × 0.1–0.3 cm, decussate to whorled; outside leaves linear-oblong to linear-lanceolate; submerged leaves multifid with linear segments, margins serrate. Flowers creamy-yellow with purple spots, in decussate pairs. Capsules ca. 0.4 cm long, broadly ovoid.

Fls. & Frts. : October–March.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill tops 3: 444.1975 (*Limnophila gratiolooides*).

Distrib. : Frequent in park lakes. 167488.

Limnophila polystachya Bth. Scroph. Ind. 26, 1835; Hook. f. Fl. Brit. India 4: 269.1884; Cooke, Fl. Pres. Bombay 2: 361.1958 (Repr. ed.).

Submerged and floating herbs; stems erect or ascending from the floating part. Leaves: aerial ones opposite or 3–4 in a whorl, 2.0–3.5 × 0.25–0.9 cm, linear-oblong or lanceolate, sessile, margins crenulate. Flowers white, bracteolate, in terminal and axillary spikes 5–7 cm long. Capsules 0.25–0.3 cm long, subglobose.

Fls. & Frts. : October–December.

Illus. : Wight, Ic. t. 860.1843.

Distrib. : Bhandup, Borivli, Goregaon, Vihar lake, Almeida (2001).

Limnophila sessiliflora (Vahl) Bl. Bijdr. 749.1826; Bth. Scroph. Ind. 25.1835; Hook. f. Fl. Brit. India 4: 270.1884; Cooke, Fl. Pres. Bombay 2: 362.1958 (Repr. ed.); Philcox in Kew Bull. 24: 112.1970. *Hottonia sessiliflora* Vahl, Symb. Bot. 2: 36.1791.

Aquatic herbs; stems glabrous or pubescent. Leaves sessile; upper lanceolate, acute at apex, margins serrate-dentate; lower pinnatisect, segments narrow, numerous. Flowers pink, ca. 2 cm across, axillary, solitary or in short terminal racemes. Capsules ca. 0.5 cm long, subglobose. Seeds truncate at ends.

Fls. & Frts. : October–November.

Distrib. : *Randeria*, 72, (*BLAT*); *Koppikar* (1974).

LINDENBERGIA Lehm.

Lindenbergia muraria (Roxb. ex D. Don) P. Bruhl, in *J. Dept. Sci. Calcutta Univ.* 2(Bot.) 27.1920; Prijanto in *Reinwardtia* 7: 548.1969. *Stemodia muraria* Roxb. ex D. Don, *Prodr. Fl. Nepal* 89.1825. *Lindenbergia urticaefolia* Lehm. in *Link & Otto, Ic. Pl. Rar. put bractrel as shown Hort. Berol* 95, t. 48.1828 (*'urticaefolia'*); Hook. f. *Fl. Brit. India* 4: 261.1884; Cooke, *Fl. Pres. Bombay* 2: 379.1958 (Repr. ed.).

Herbs, 10–30 cm tall. Stems glandular-villous or glabrate. Leaves 1.5–5.0 × 1–3 cm, ovate, subacute at apex, margins crenate-serrate, glandular-hairy on both surfaces. Flowers yellow, solitary or in pairs, axillary or in axillary and terminal racemes. Capsules ca. 0.5 cm long, oblong, apically hairy. Seeds ellipsoid-oblong.

Fls. & Frts. : September–November.

Distrib. : *Koppikar* (1974).

LINDERNIA All.

1. Capsules linear or linear-oblong, much longer than calyx :
 2. Stems prostrate or decumbent, rooting at nodes :
 3. Stamens 2 :
 4. Staminodes present ... *L. antipoda*
 4. Staminodes absent ... *L. quinqueioba*
 3. Stamens 4, didynamous ... *L. anagallis*
 2. Stems erect, not rooting at nodes :
 5. Leaves 3–5 cm long :
 6. Leaf margins spinous-dentate ... *L. ciliata*
 6. Leaf margins slightly serrate ... *L. oppositifolia*
 5. Leaves 15 cm or more long ... *L. estaminodiosa*
1. Capsules globose, ovoid or ellipsoid, equalling or shorter than calyx:

1. Capsules globose, ovoid or ellipsoid, equalling or shorter than calyx:
- 7. Perfect stamens 2 ... *L. parviflora*
 - 7. Perfect stamens 4 :
 - 8. Calyx shortly toothed ... *L. crustacea*
 - 8. Calyx deeply lobed :
 - 9. Plants glabrous :
 - 10. Flowers in racemose-corymbs ... *L. multiflora*
 - 10. Flowers solitary, axillary ... *L. procumbens*
 - 9. Plants pubescent :
 - 11. Flowers usually solitary axillary or in pairs or 3 in axils ... *L. caespitosa*
 - 11. Flowers many in lax racemes ... *L. viscosa*

Lindernia anagallis (Burm. f.) Penn. in J. Arnold Arbor. 24: 252.1943; S. K. Mukerjee in J. Indian Bot. Soc. 24: 133.1945; Philcox in Kew Bull.17: 484.1964 & 22: 45.1968 f. 10(1-7); Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80. 139.1983. *Ruellia anagallis* Burm. f. Fl. Ind. 135.1768. *Vandellia pedunculata* Bth. Scroph. Ind. 37.1835; Hook. f. Fl. Brit. India 4: 282.1884; Cooke, Fl. Pres. Bombay 2: 367.1958 (Repr. ed.).

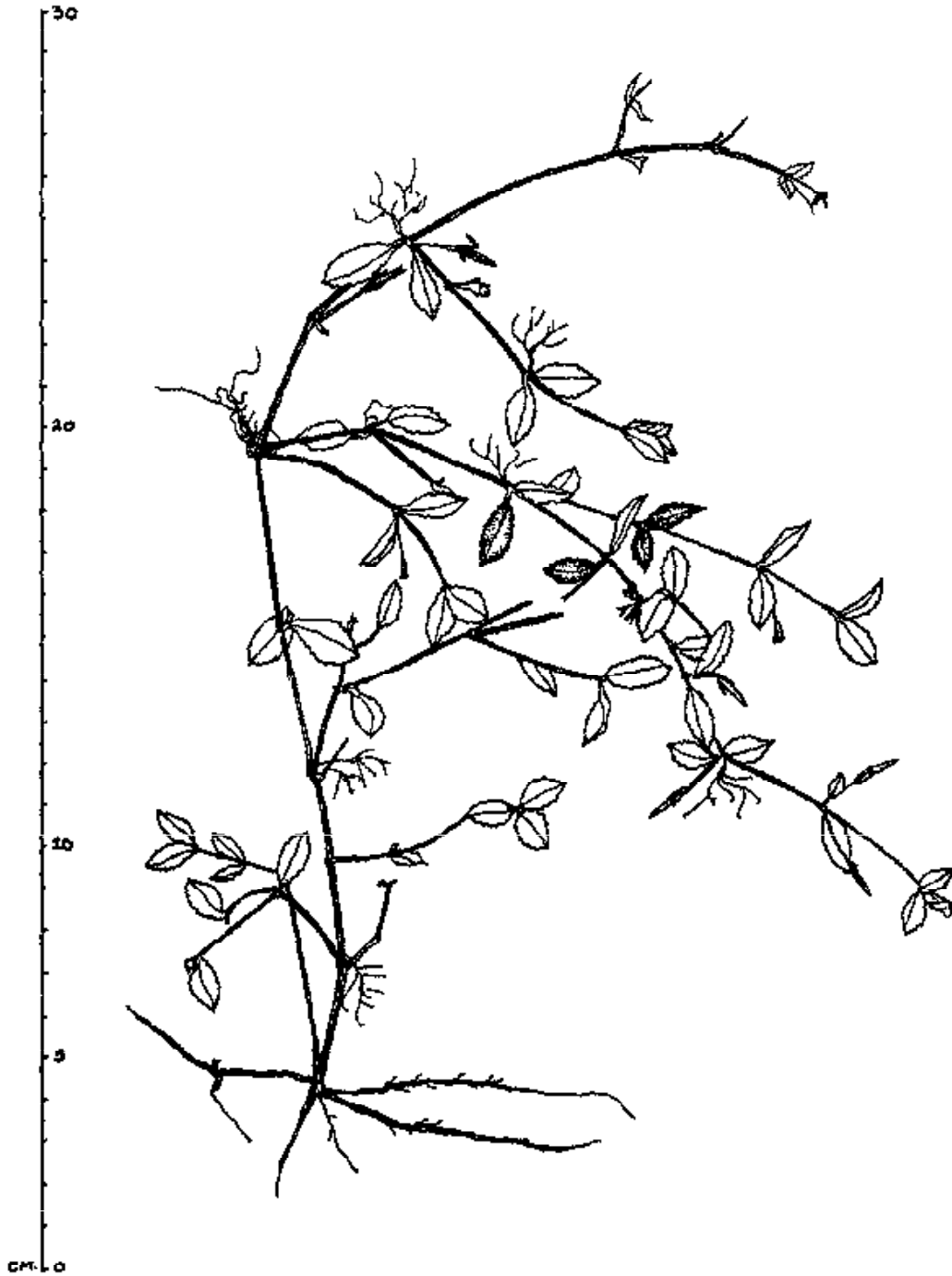
Herbs; stems branched, diffuse, sometimes creeping and rooting at nodes. Leaves 1.5-5.0 × 1.2-2.5 cm, elliptic-deltoid, ovate, truncate at base, subacute at apex, margins shallowly serrate. Flowers 1 or occasionally 2 per node, violet in colour, ca. 1 cm long. Capsules 1.0 × 0.2 cm, lanceolate, beaked; seeds truncate, rugose.

Fls. & Frts. : August-February.

Distrib. : Frequent in open areas. 167960.

Lindernia antipoda (L.) Alst. in Trim. Handb. Fl. Ceylon 6, (Suppl.) : 214.1931; Philcox in Kew Bull.17: 484.1964 & 22: 57.1968; Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80 : 133.1983. *Ruellia antipoda* L. Sp. Pl. 635.1753. *Bonnaya veronicaefolia* (Retz.) Spr. Syst. Veg. 1: 41.1824 (1925); Hook. f. Fl. Brit. India 4: 285.1884; Cooke, Fl. Pres. Bombay 2: 369.1958 (Repr. ed.). *Bonnaya veronicaefolia* (Retz.) Spr. var. *grandiflora* (Retz.) Hook. f. *op. cit.*; Cooke, *op. cit.*; 370 'Shewal'.

Annual herbs; stems prostrate or ascending. Leaves 1.3-5.0 × 0.5-1.2 cm, elliptic-obovate, or elliptic-oblong, cuneate at base, margins shallowly serrate. Flowers blue, axillary, or in lax terminal racemes. Capsules 0.8-1.2 × 0.2 cm, linear-lanceolate. Seeds rugose, numerous.



f. 57. *Lindernia anagallis* (Burm. f.) Penn.

Fls. & Frts. : August–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 498.1982.

Distrib. : Borivli, A. J. *Randeria*, 79, 95 (BLAT).

Lindernia caespitosa (Bl.) Panigr. in *Taxon* 33 (2) : 320.1984; Almeida, *Fl. Mah.* 3: 401. 2001. *Diceros caespitosus* Bl. *Bijdr.* 753.1826. *Lindernia pusilla* (Willd.) Bold. *Zakfl. Landb. Java* 165.1916; Philcox in *Kew. Bull.* 22: 41, f. 9. (6–9).1968. *Vandellia scabra* Bth. *Scroph. Ind.* 36.1835; Hook. f. *Fl. Brit. India* 4: 281.1884. *Lindernia hirta* (Cham. & Schlecht.) Pennell in *J. Arnold Arbor.* 24: 250.1943; Mukerjee in *J. Indian Bot. Soc.* 24: 131.1945.

Annual herbs; stems erect or branched, pubescent with long patent hairs. Leaves 0.5–1.5 × 0.3–1.2 cm, suborbicular to broadly ovate, pinnately nerved, margins crenate–dentate, subsessile, Flowers mostly white or with light shade of violet to purple, solitary, axillary or terminal or in pairs or in clusters of 3. Capsules subglobose; seeds cylindric, aveolate, yellow.

Fls. & Frts. : August–February.

Illus. : Philcox, *op. cit.*

Distrib. : Ghodbundar, Almeida (2001).

Lindernia ciliata (Colsm.) Penn. in *Brittonia* 2: 182.1936; S. K. Mukerjee in *J. Indian Bot. Soc.* 24: 133.1945; Philcox in *Kew Bull.* 22: 51. f. 10/12–15.1968; Sivar. & Mathew in *J. Bombay nat. Hist. Soc.* 80:133.1983. *Gratiola ciliata* Colsm. *Prodr. Descr. Gratiol.* 14.1793. *Bonnaya brachiata* Link & Otto. *Icon. Pl. Select.* 25, t. 11.1820; Hook. f. *Fl. Brit. India* 4: 284.1884; Cooke, *Fl. Pres. Bombay* 2: 369.1958 (Repr. ed.).

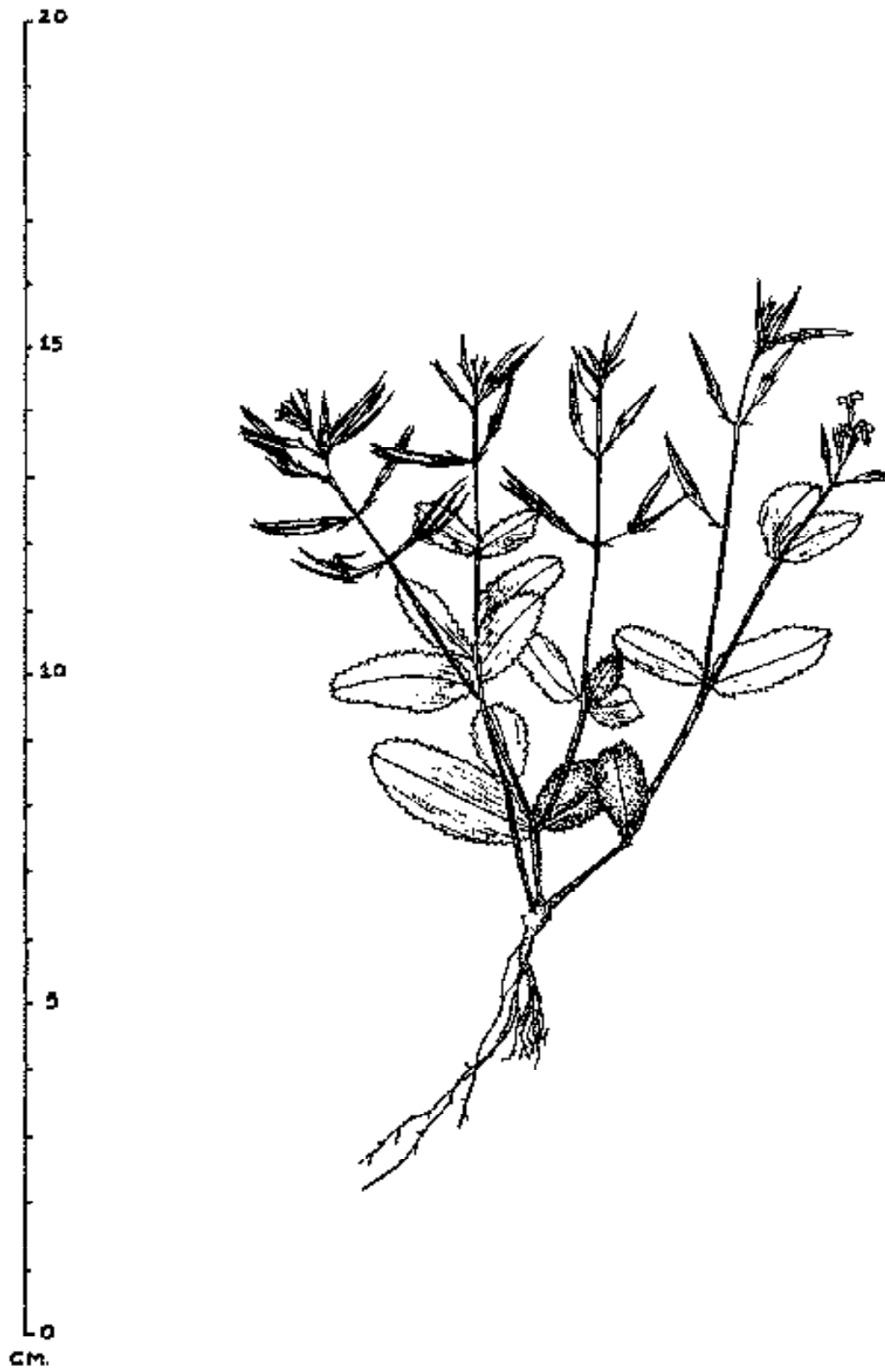
Annual herbs, 5–20 cm tall, erect. Leaves 1.5–3.5 × 0.5–1.2 cm, elliptic–obovate or oblong, cuneate at base, obtuse or subacute at apex. Flowers white with pink throat, in lax, terminal, ca. 10 cm long racemes. Capsules ca. 1.2 cm long, oblong, acute. Seeds truncate, rugose.

Fls. & Frts. : August–October.

Illus. : Philcox, *op. cit.* f. 101.

Distrib. : Common in moist open areas and fields. 167817.

Lindernia crustacea (L.) F. V. Muell. *Syst. Census Austral. Pl.* 1: 97.1882; Sant. in *J. Bombay nat. Hist. Soc.* 49. 37.1950; Philcox in



f. 58. *Lindernia ciliata* (Colsm.) Penn.

Kew Bull. 22 : 17. f-1/9-12.1968. *Capraria crustacea* L. Mant. Pl. 87.1767. *Vandellia crustacea* (L.) Bth. Scroph. Ind. 35.1835; Hook. f. Fl. Brit. India 4: 279.1884; Cooke, Fl. Pres. Bombay 2: 366.1958 (Repr. ed.).

Annual herbs, 10-30 cm tall; stems erect, occasionally rooting at lower nodes. Leaves 1-2 × 0.5-1.5 cm, ovate, truncate at base, acute at apex, margins serrate. Flowers rose to purple, two per node, in lax, terminal racemes. Capsules 0.4-0.5 × 0.3 cm, obovoid. Seeds subquadrate or subglobose, rugose.

Fls. & Frts. : August-November.

Illus. : Philcox, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 499.1982.

Distrib. : Frequent in open areas and cultivated fields. 167223, 167737, 167823.

Lindernia estaminodiosa (Blatt. & Hallb.) S.K. Mukerjee in J. Indian Bot. Soc. 24: 133.1945; Sant. in J. Bombay nat. Hist. Soc. 49: 40.1950; Siver. & Mathew in J. Bombay nat. Hist. Soc. 80 : 134.1983. *Bonnaya estaminodiosa* Blatt. & Hallb. in J. Bombay nat. Hist. Soc. 25: 3, 416.1918.

Annual herbs ca. 6 cm high; stems erect, stout, quadrangular. Leaves 3.0-0.5 cm, linear, sessile, erect, margins distantly and shallowly serrate, opposite except the upper most, Flowers white, bracteate, pedicelled, in lax, terminal and lateral racemes. Capsules ca. 1 cm long. Seeds ovoid-globose, rugose, with numerous circular depressions in rows.

Fls. & Frts. : September-November.

Distrib. : Borivli, H. Santapau, 2385 (BLAT); Goregaon, Borivli, Almeida (2001).

Lindernia multiflora (Roxb.) S. K. Mukerjee in J. Indian. Bot. Soc. 24: 131.1945; Sant. *et al.* in J. Bombay nat. Hist. Soc. 55. 482, t. 2.1958; Philcox in Kew Bull. 22: 36, f. 8/8-12.1968; Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80: 137.1983. *Torenia multiflora* Roxb. Fl. Ind. (ed. Carry) 3: 96.1832. *Vandellia multiflora* (Roxb.) G. Don, Gen. Syst. 4: 549.1838; Hook. f. Fl. Brit. India 4: 280.1884.

Annual herbs ca. 15 cm high; stems erect. Leaves 1.3-5.0 × 0.8-2.0 cm, opposite, obovate-oblong, sessile or subsessile. Flowers white or bluish-purple, axillary, solitary or in terminal racemes. Capsules 0.3-0.4 cm across, subglobose, apiculate; Seeds oblong, granulate.

Fls. & Frts. : August–November.

Illus : Sant. *et. al. op. cit.*

Distrib. : Borivli, P. S. Herbert, 793 (BLAT).

Lindernia oppositifolia (L.) S. K. Mukerjee in J. Indian Bot. Soc. 24: 134.1945; Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80. 134.1983. *Gratiola oppositifolia* L. Sp. Pl. (ed. Willd. 1 : 105.1797. *Bonnaya oppositifolia* Spr. in L. Syst. Veg. (ed. 16), 1: 41.1825; Hook. f. Fl. Brit. India 4: 286.1884; Cooke, Fl. Pres. Bombay 2: 370.1958 (Repr. ed.).

Annual herbs, 12–20 cm tall, erect. Leaves 1.5–3.5 × 0.3–0.6 cm, oblong–lanceolate, cuneate at base, acute at apex, margins crenate–serrate. Flowers bluish or white, axillary or leaf–opposed, solitary or in racemes. Capsules 0.7–1.0 cm long, lanceolate. Seeds numerous, rugose.

Fls. & Frts. : August–October.

Distrib. : Occasional in open areas. 167218.

Lindernia parviflora (Roxb.) Haines, Bot. Bihar & Orissa 2: 635.1922 & 2: 665.1961 (Repr. ed.); S. K. Mukerjee in J. Indian Bot. Soc. 24: 132.1945; Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80. 135.1983. *Gratiola parviflora* Roxb. Pl. Cor. 3: 3, t. 204.1819 & Fl. Ind. 1: 140.1820. *Ilysanthes parviflora* (Roxb.) Bth. in DC. Prodr. 10 : 419.1846; Hook. f. Fl. Brit. India 4: 283.1884; Cooke, Fl. Pres. Bombay 2: 368.1958 (Repr. ed.).

Herbs, 13–20 cm tall; stems erect, decumbent or ascending. Leaves 1.0–1.5 × 0.5 cm, oblong–elliptic or ovate–oblong, rounded at base, acute at apex, upper leaves smaller with serrate margins. Flowers pinkish–white with two yellow dots in throat, usually solitary, occasionally 2 per node. Capsules 0.4–0.5 cm, oblong, long. Seeds oblong, granular.

Fls. & Frts. : August–May.

Illus : Wight, Ic. t. 857.1846 non Bth.1831. (*Bonnaya hyssopioides*).

Distrib. : Frequent in open areas. 169112, 167996.

Lindernia procumbens (Krock.) Philcox in Taxon 14: 30 f. 5/8.1965. & Kew Bull. 22: 29.1968; Sivar. & Mathew in J. Bombay nat. Hist. Soc. 80. 138.1980. *Anagaloides procumbens* Krock. Fl. Siles. 2(1) :

398, t. 26.1790. *Vandellia erecta* Bth. Scroph. Ind. 36.1835. p.p; Hook. f. Fl. Brit. India 4: 281.1884.

Annual herbs up to 25 cm tall; stems erect, branched, glabrous. Leaves 1.0–2.5 × 0.4–1.0 cm, elliptic to ovate-elliptic, margins entire to subcrenate, palmi-nerved. Flowers solitary, axillary, white, pedicelled; pedicel, ca. 2 cm long, glabrous. Capsules ellipsoid, equal to or slightly longer than calyx. Seeds yellow, cylindric, flattened, smooth.

Fls. & Frts. : May–June.

Illus. : Philcox, *op. cit.*

Distrib. : Malad, Almeida (2001).

Lindernia quinqueloba (Blatt. & Hallb.) S. K. Mukerjee in J. Indian Bot. Soc. 24: 133.1945; Sant. in J. Bombay nat. Hist. Soc. 49. 40.1950; Almeida, Fl. Mah. 3: 407. 2001. *Bonnaya quinqueloba* Blatt. & Hallb. in J. Bombay nat. Hist. Soc. 25 (3) 417.1918.

Herbs up to 6.5 cm tall; stems erect, sparingly branched. Leaves ca. 3.0 × 0.5 cm, linear, pinnately nerved, margins distantly shallowly serrate, lowest leaves subentire. Flowers ca. 0.6 cm long, in lateral and terminal racemes. the lowest flower axillary. Capsules ca. 0.9 × 0.12 cm, linear-lanceolate, with tapering ends. Seeds roughly ellipsoid, rugose.

Fls. & Frts. : November–December.

Distrib. : (Bhandup, Blatter 1518), Almeida (2001).

Lindernia viscosa (Hornem.) Boldingh, Zakfl. Landbouwstr. Java. 165. 1916; Philcox in Kew Bull. 22: 38. f. 9(1–5) 1968. *Gratiola viscosa* Hornem. Enum. Pl. Hort. Hafn. 19.1807. *Vandellia hirsuta* Bth. Scroph. Ind. 36, 1835; Hook. f. Fl. Brit. India 4: 280.1984; Cooke, Fl. Pres. Bombay 2: 367.1958 (Repr. ed.).

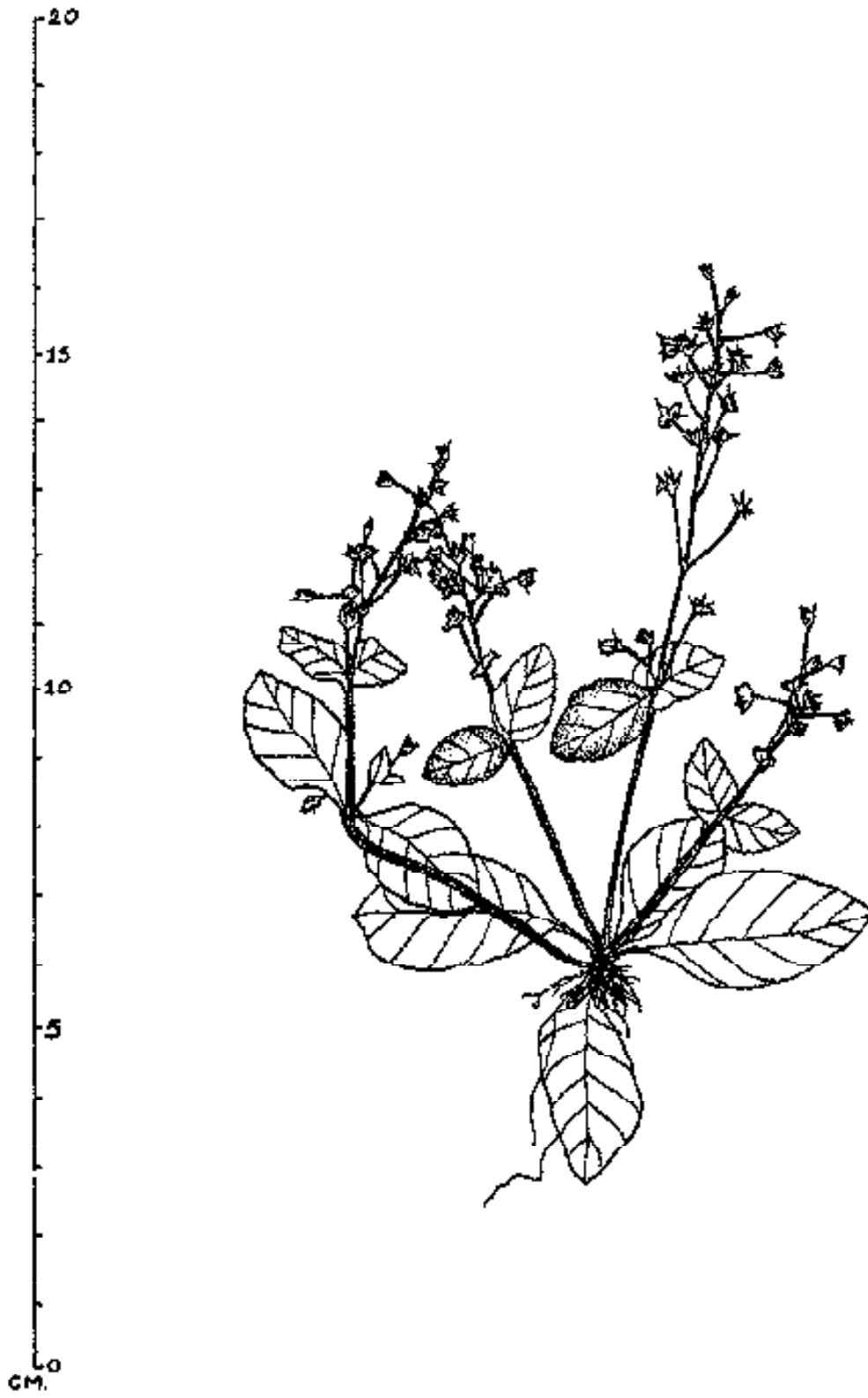
Annual herbs, 10–15 cm tall; stems erect, branched from the base, hairy. Leaves 2–5 × 1.0–2.5 cm, elliptic, subacute at apex, margins crenate-dentate, upper leaves sessile, lower leaves petiolate. Flowers light-violet, in lax, axillary and terminal racemes. Capsules ca. 0.25 cm across, subglabrous. Seeds truncate at both ends.

Fls. & Frts. : August–October.

Distrib. : Frequent. 167984, 169110.

MAZUS Lour.

Mazus pumilus (Burm. f.) Steenis in Nova Guinea n. s. 9: 31.1958; Sant. in Rec. Bot. Surv. India 16(1) : 185.1967 (3rd. Rev. ed.)



f. 69. *Lindernia viscosa* (Hornem.) Merr.

Lobelia pumila Burm. f. Fl. Ind. 185, t. 60, f. 3. 1768. *Mazus rugosus* Lour. Fl. Cochinch. 385. 1790; Hook. f. Fl. Brit. India 4: 259. 1884.; Cooke, Fl. Pres. Bombay 2: 383. 1958 (Repr. ed.).

Annual herbs, 6–10 cm tall; stems erect or ascending, slender. Leaves 2–3 × 0.6–1.5 cm, obovate–spathulate or oblong. Flowers whitish, in axillary and terminal racemes. Capsules 0.4–0.6 cm long, subglobose or ovoid. Seeds minute, cuneate, rugose.

Fls. & Frts. : August–November.

Distrib. : Rare, grows as weed in the nursery. 169113.

PEPLIDIUM Delile

Peplidium maritimum (L. f.) Asch. in Schweinf. Beitr. Fl. Aethiop. 1306. 1867; Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 435. 1981. *Hedyotis maritima* L.f. Suppl. Pl. 119. 1781. *Peplidium humifusum* Del. Descr. Egypte. Hist. nat. 148, t. 4. 1812; Hook. f. Fl. Brit. India 4: 287. 1884; Cooke, Fl. Pres. Bombay 2: 371. 1958 (Repr. ed.).

Annual herbs; stems 10–20 cm long, rooting at nodes, sometimes aquatic, branched. Leaves 0.6–1.3 × 0.3–0.6 cm, obovate or orbicular, decurrent at base, obtuse at apex, subsucculent. Flowers cream-coloured, ca. 0.2 cm across, solitary, axillary. Capsules ca. 0.3 cm across, globose, dehiscent irregularly. Seeds oblong, truncate.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 503. 1982.

Distrib. : Salsette, G. L. Shah (1962).

RAMPHICARPA Bth.

Ramphicarpa longiflora (Arn.) Bth. in Comp. Bot. Mag. 1: 368. 1836; Hook. f. Fl. Brit. India 4: 300. 1884; Cooke, Fl. Pres. Bombay 2: 377. 1958 (Repr. ed.). *Buchnera longiflora* Arn. in Nov. Act. Nat. Curr. 18: 356. 1936.

Annual herbs, 10–40 cm tall; stems erect, much branched. Leaves 2.5–4.0 cm long, pinnatisect, segments filiform. Flowers white, axillary, solitary. Corolla tube narrow, 2.5–3.0 cm long. Capsules ca. 1.2 cm long, ovoid, oblique, black when dry, pointed. Seeds minute, many, oblong.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 1415. 1849.

Distrib. : Frequent among grasses and in wet places. 167877.

SCOPARIA L.

Scoparia dulcis L. Sp. Pl. 116.1753; Hook. f. Fl. Brit. India 4: 289.1884; Cooke, Fl. Pres. Bombay 2: 383.1958 (Repr. ed.).

Herbs, 30–45 cm tall. Leaves opposite, 3-nately whorled, 1.0–1.5 × 0.5 cm, broadly elliptic–lanceolate or spatulate, cuneate at base, acute at apex, margins serrate. Flowers white, axillary, 2–3, in fascicles pedicellate. Capsules 0.3–0.4 cm across, ellipsoid–globose, septicidal. Seeds truncate, 4-angled, reticulate.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 504.1982.

Distrib. : Frequent in open areas and in cultivated fields. 167339, 167924, 168455.

SOPUBIA Buch.–Ham. ex D. Don

Sopubia delphinifolia (L.) G. Don, Gen. Syst. 4: 560.1837; Hook. Fl. Brit. India 4: 302.1884; Cooke, Fl. Pres. Bombay 2: 378.1958 (Repr. ed.). *Gerardia delphinifolia* L. in Juslenius Cent. Pl. 2: 21.1756. 'Dudhali'.

Herbs up to 45 cm tall, erect, branched. Leaves 2–4 cm long, pinnatisect, segments 3-fid, linear to filiform. Flowers pinkish–purple, axillary, solitary or in terminal racemes; corolla tube dilated, broad. Capsules 0.6–0.7 × 0.3 cm, oblong, 2–4-valved. Seeds truncate, longitudinally striate, many.

Fls. & Frts. : July–January.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill tops 2: 199.1915 [1974 (Repr. ed.)].

Distrib. : Frequent among grasses. 167308.

STEMODIA L. (*nom. cons.*)

- | | | |
|--|-----|-------------------|
| 1. Corolla more or less equalling calyx in length;
flowers subsessile | ... | <i>S. serrata</i> |
| 1. Corolla twice as long as calyx; flowers pedicelled | ... | <i>S. viscosa</i> |

Stemodia serrata Bth. in DC. Prodr. 10 : 381.1846; Hook. f. Fl. Brit. India 4: 265.1884; Cooke, Fl. Pres. Bombay 2: 359.1958 (Repr. ed.).

Herbs, 10–30 cm tall; stems robust, erect, viscid–pubescent, obtusely 4-angled. Leaves 1.2–3.5 × 0.3–1.2 cm, narrowly obovate–oblong, narrowed and amplexicaul at base, acute at apex,

margins serrulate above, entire below. Flowers axillary, solitary, shortly pedicelled, bracteolate. Capsules linear-oblong. Seeds oblong, ellipsoid.

Fls. & Frts. : November–February.

Distrib. : Vihar lake, Y. A. Merchant 769 (BLAT).

Stemodia viscosa Roxb. Pl. Cor. 2: 33, t. 163.1802 & Fl. Ind. 3: 94.1832; Hook. f. Fl. Brit. India 4: 265.1884; Cooke, Fl. Pres. Bombay 2: 359.1958 (Repr. ed.).

Herbs, 15–40 cm high; stems diffuse or suberect, glandular-hairy. Leaves 1.3–3.5 × 0.5–1.5 cm, elliptic-oblong or obovate, auriculate at base, acute at apex, margins serrate. Flowers blue to violet, axillary, 1–3 at each node forming terminal racemes. Capsules 0.5–0.6 cm long, oblong-globose, 2-valved, bifid. Seeds oblong, terete.

Fls. & Frts. : November–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 506.1982.

Distrib. : Frequent in cultivated fields. 167477.

STRIGA Lour.

- | | | |
|---|-----|------------------------|
| 1. Stems reddish-purple | ... | <i>S. gesnerioides</i> |
| 1. Stems not as above : | | |
| 2. Calyx 4–5-ribbed | ... | <i>S. densiflora</i> |
| 2. Calyx 10–15-ribbed : | | |
| 3. Secondary ribs of calyx terminating into sinus;
flowers yellow | ... | <i>S. asiatica</i> |
| 3. Secondary ribs of calyx not terminating into sinus;
flowers white | ... | <i>S. angustifolia</i> |

Striga angustifolia (D. Don) Sald. in Bull. Bot. Surv. India 5: 70. (1963) 1964; Sant. in Rec. Bot. Surv. India 16(1) : 184.1967 (3rd Rev. ed.). *Buchnera angustifolia* D. Don, Prodr. Fl. Nepal 91.1825. *Striga euphrasioides* Bth. in Hook. Comp. Bot. Mag. 1: 364.1836; Hook. f. Fl. Brit. India 4: 299.1884; Cooke, Fl. Pres. Bombay 2: 376.1958 (Repr. ed.).

Herbs, 15–40 cm tall; stems slender, erect, scabrous-hairy. Leaves 1.5–3.5 × 0.3–0.5 cm, narrowly linear or linear-lanceolate, sessile. Flowers white, axillary, solitary and in terminal spikes. Capsules 0.5–0.6 × 0.5 cm, ellipsoid-oblong, cuneate, longitudinally striate.

Fls. & Frts. : August–January.

Illus. : Wight, Ic. t. 855.1844–45 (*Striga euphrasioides*).

Distrib. : Borivli, P. S. Herbert, 2580 (BLAT).

Striga asiatica (L.) O. Ktze, Rev. Gen. Pl. 1: 466.1891; Sant. in Rec. Bot. Surv. India (ed. 3.) 16 (1) : 183. 1967. *Buchnera asiatica* L. Sp. Pl. 630.1753. *Striga lutea* Lour. Fl. Cochinch. 22.1790; Hook. f. Fl. Brit. India 4: 299.1884; Cooke, Fl. Pres. Bombay 2: 375.1958 (Repr. ed.); Sald. in Bull. Bot. Surv. India 5: 69 (1968) 1964.

Herbs 10–25 cm tall, erect, strigose. Leaves 1.0–3.5 × 0.3 cm, linear–oblong, sessile, subacute at apex. Flowers white or yellow, axillary, solitary and in short terminal, lax, racemose–spikes. Capsules 0.4–0.6 cm long, oblong or ellipsoid. Seeds oblong, minute, numerous.

Fls. & Frts. : July–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 507.1982.

Distrib. : Koppikar (1974); Goregaon, Borivli, Almeida (2001).

Striga densiflora (Bth.) Bth. in Hook. Comp. Bot. Mag. 1: 363.1836; Hook. f. Fl. Brit. India 4: 299.1884; Cooke, Fl. Pres. Bombay 2: 375.1958 (Repr. ed.); Sald. in Bull. Bot. Surv. India 5: 69 (1963) 1964. *Buchnera densiflora* Bth. Scroph. Ind. 41.1835.

Herbs 15–45 cm tall, stems erect, strigose. Leaves 1–3 × 0.3–0.4 cm, linear–oblong, acute at apex, margins entire to sparingly serrate, recurved. Flowers white, in dense, terminal spikes. Capsules 0.4–0.6 cm long, oblong. Seeds oblong, reticulate.

Fls. & Frts. : August–January.

Distrib. : Frequent among grasses. 167815.

Striga gesnerioides (Willd.) Vatke in Oest. Bot. Zeitschr. 11.1875; Sant. in J. Bombay nat. Hist. Soc. 49: 42.1950; Sald. in Bull. Bot. Surv. India 5: 68. (1963) 1964. *Buchnera gesnerioides* Willd. Sp. Pl. 3: 338.1800. *Striga orobanchioides* (R. Br. ex Endl.) Bth. in Hook. Comp. Bot. Mag. 1: 361. t.19.1835; Hook. f. Fl. Brit. India 4: 299.1884; Cooke, Fl. Pres. Bombay 2: 374.1958 (Repr. ed.).

Herbs 15–30 cm tall; stems glabrous or puberulous, parasitic on roots of other plants, branched, dark reddish–purple. Leaves scaly, minute, ovate–oblong, acute at apex, passing into floral branch upward. Flowers numerous, pink, spotted with white, in terminal spikes.

Capsules *ca.* 0.6 cm long, oblong-ellipsoid with persistent style base.
Seed, oblong.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 1414.1848 (*S. orobanchioides*).

Distrib. : Goregaon, Borivli, Almeida (2001).

TORENIA L.

- | | | |
|-----------------|-----|--------------------|
| 1. Calyx winged | ... | <i>T. indica</i> |
| 1. Calyx ribbed | ... | <i>T. asiatica</i> |

Torenia asiatica L. Sp. Pl. 619.1753; Hook. f. Fl. Brit. India 4: 277.1884; Cooke, Fl. Pres. Bombay 2: 365.1958 (Repr. ed.).

Herbs, 15–20 cm tall; stems diffusely branched. Leaves 1.5–5.0 × 0.6–3.5 cm, ovate-elliptic or elliptic-lanceolate, subcordate at base, margins serrate. Flowers deep blue with yellow throat, axillary, solitary and in short terminal racemes. Capsules 0.5–0.8 cm long, ellipsoid. Seeds numerous, reddish-brown.

Fls. & Frts. : August–October.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill tops 3: 442.1975 (Repr. ed.).

Distrib. : Indigenous to Nilgiri, ornamental, growing as an escape. 167991.

Torenia indica Sald. in Bull. Bot. Surv. India 8: 126, t. 1. (1966) 1967. *T. cordifolia* Hook. in Bot. Reg. t. 3715.1839 non Roxb.1802; Hook. f. Fl. Brit. India 4: 276.1884; Cooke, Fl. Pres. Bombay 2: 364.1958 (Repr. ed.).

Herbs, 7–20 cm tall; stems erect or suberect, branched, sparsely hairy. Leaves 1.3–3.3 × 0.9–1.5 cm, ovate or ovate-lanceolate. Flowers bluish-purple, solitary, axillary or fascicled in upper axils. Capsules oblong, acute at both ends. Seeds minute, numerous.

Fls. & Frts. : August–October.

Illus. : Sald. *op. cit.*

Distrib. : Borivli, A. J. Randeria, 568 & H. Santapau, 2349 (BLAT).

VERBASCUM L.

Verbascum chinense (L.) Sant. Fl. Purandhar 90.1958 & in Rec. Bot. Surv. India 16: 177. ed. 3, 1967. *Scrophularia chinensis* L. Mant. Pl. 250.1771. *Celsia coromandeliana* Vahl, Symb. Bot. 3: 79.1794; Hook, f. Fl. Brit. India 4: 240.1884; Cooke, Fl. Pres. Bombay 2: 352.1958 (Repr. ed.). 'Kutaki'.

Herbs, 50–90 cm tall; stems erect, glandular-hairy. Leaves radical and cauline; radical leaves 10–20 cm long, lyrate, cauline leaves 2–10 × 1–4 cm, elliptic-oblong to ovate-oblong, pinnatifid, sessile. Flowers yellow, in terminal, ca. 30 cm long racemes. Capsules 0.5–0.8 × 0.5 cm across, ovoid or subglobose. Seeds oblong, rugose.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t. 1406.1849 (*Celsia coromandeliana*).

Distrib. : Borivli, A. J. Randeria, 607 (BLAT).

CULTIVATED SPECIES :

Angelonia biflora Bth. in DC. Prodr. 10:254.1846; Matthew, Illus. Fl. Tamilnadu Carnatic t. 493.1982; Almeida, Fl. Mah. 3: 384. 2001.

Herbs up to 60 cm tall; ; stems erect. Lower leaves opposite, upper leaves alternate, lanceolate, acute at apex, margins entire or serrate, pinnately nerved. Flowers 1–2, axillary, pedicellate, bluish-violet, ca. 2 cm long. Capsules globose to ellipsoid, loculicidally 4–2-valved.

Fls. & Frts. : December–February.

Illus. : Matthew, *op. cit.*

Distrib. : Goregaon, Almeida (2001) Cultivated in gardens.

Russelia equisetiformis Schlecht. & Cham. in Linnaea 6: 377.1831; Sant. in J. Bombay nat. Hist. Soc. 49: 47.1950; Naik, Fl. Marathwada 2: 629.1998. *R. juncea* Zucc. in Flora 15(2) : 99.1832; Cooke, Fl. Pres. Bombay 2: 382.1958 (Repr. ed.).

Much branched shrubs with weak green branches, 60–120 cm tall. Leaves opposite or whorled. Flowers scarlet-red, in axillary or terminal long-peduncled cymes. Capsules ovoid-globose, many-seeded.

Fls. & Frts. : Mostly throughout the year.

Distrib. : Goregaon, Almeida (2001). Native of Mexico and Tropical America, commonly grown in gardens as ornamental plant.

Torenia fournieri Lind. ex Fourn. in *Illus. Hort.* 23: 129, t. 249.1876; Cooke, *Fl. Pres. Bombay* 2: 365.1958 (Repr. ed.); Cramer in *Dassan. & Fosb. Rev. Handb. Fl. Ceylon* 3: 445.1981.

Herbs up to 30 cm tall; stems usually erect, some times rooting at lower nodes, strigose on angles. Leaves ovate, truncate, rounded or subcordate at base, acute at apex, margins serrate, scabrid on mid-nerve below, petiolate. Flowers pale-blue above and orange-yellow at base, in terminal and axillary racemes. Capsules narrowly ovoid, mucronate. Seeds orbicular-oblong, foveolate.

Fls. & Frts. : March-June.

Distrib. : Borivli, G. L. Shah, 4962 (BLAT), (ornamental).

OROBANCHACEAE

- | | | |
|--|-----|--------------|
| 1. Anther lobes villous | ... | CISTACHE |
| 1. Anther lobes not villous : | | |
| 2. Calyx spathaceous, split in front nearly to the base; stigmas peltate | ... | AEGINETIA |
| 2. Calyx tubular, 5-toothed or 5-lobed; stigmas 2-lobed, lobes unequal | ... | CHRISTISONIA |

AEGINETIA L.

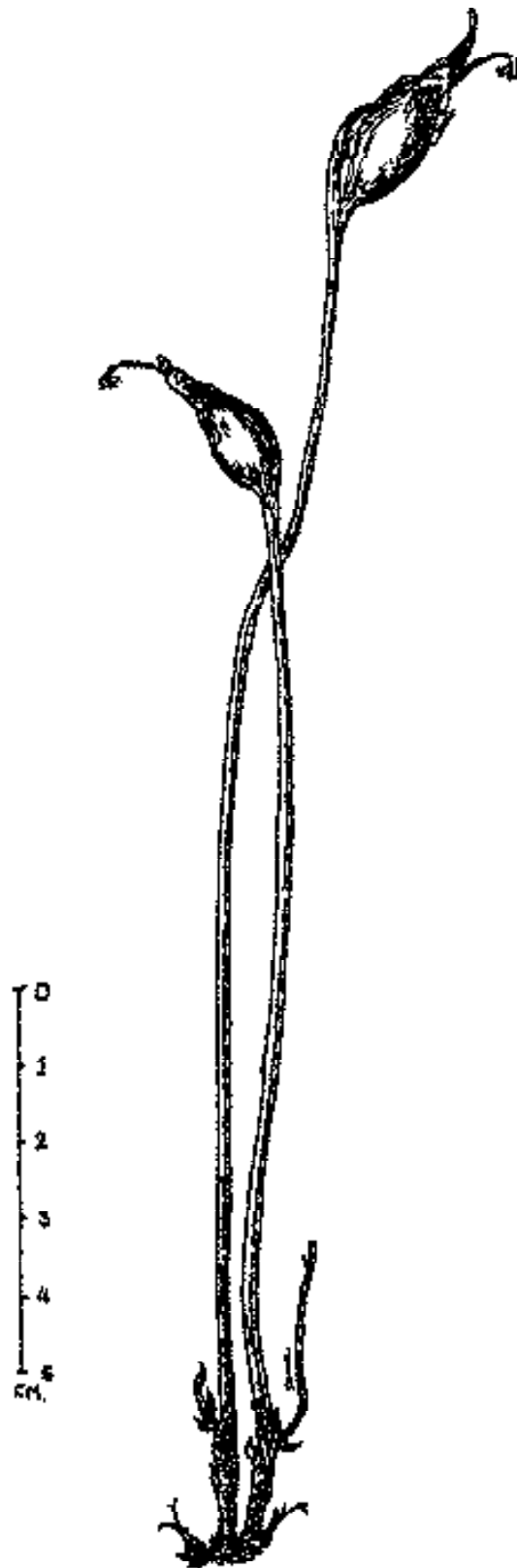
Aeginetia indica L. *Sp. Pl.* 632.1753; Hook. f. *Fl. Brit. India* 4: 320.1884; Cooke, *Fl. Pres. Bombay* 2: 384.1958 (Repr. ed.); Londhe in *Singh et al. Fl. Maharashtra* 2: 558. 2001.

Parasitic herbs up to 30 cm tall; stems rhizomatous, leafless, purplish, bearing coral like roots. Scapes one or several from rhizomes, 15-30 cm tall, erect, slender. Flower solitary, purple, nodding on the scape. Capsules ca. 2 cm long, ovoid, beaked, enclosed in persistent calyx and corolla. Seeds numerous, reticulate.

Fls. & Frts. : August-October.

Illus. : Wight, *Ic. t.* 895.1844-45; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 508.1982.

Distrib. : Frequent as undergrowth in shady places of the forest. 167830.



f. 60. *Aeginetia indica* L.

CHRISTISONIA Gardn.

1. Pedicels up to ca. 1.3 cm long ... *C. lawii*
 1. Pedicels ca. 5 cm long or more ... *C. calcarata*

Christisonia calcarata Wight, Ic. t. 1426.1849; Hook. f. Fl. Brit. India 4: 322.1884; Cooke, Fl. Pres. Bombay 2: 385.1958 (Repr. ed.); Sant. in Rec. Bot. Surv. India 16 (1): 187.1967 (3rd. Repr. ed.).

Herbs; stems simple from rootstock, stout, fleshy, scales ovate, obtuse, concave. Flowers white to pale-blue, long-pedicellate, 2-lipped, in racemes; stamens with pubescent filament; stigma 2-lobed. Capsules 0.6–0.9 cm across, globose, with persistent calyx. Seeds minute, subglobose, ovoid, reticulate.

Fls. & Frts. : July–August.

Illus. : Wight, *op. cit.*

Distrib. : Salsette, Dalzell & Gibson (1861).

Christisonia lawii Wight, Ic. t. 1427.1849; Hook. f. Fl. Brit. India 4: 322.1884; Cooke, Fl. Pres. Bombay 2: 385.1958 (Repr. ed.); Sant. in Rec. Bot. Surv. India 16(1): 187.1967 (3rd. Rev. ed.).

Parasitic herbs; stems several, tufted from rootstock, stout, covered with closely imbricating, dark-brown scales, 2–7 cm high. Flowers bluish-purple with dull white tube from upper scales. Stamens didynamous, ca. 5 cm long, filaments pubescent; ovary 1-celled, glabrous, stigmas with 2-rounded lobes.

Fls. & Frts. : July–August.

Illus. : Wight, *op. cit.*

Distrib. : Salsette, Dalzell & Gibson (1861).

CISTACHNE Hoffm. & Link

Cistachne tubulosa (Schrenk) Wight, Ic. t. 1420 bis 1850; Hook. f. Fl. Brit. India 4: 324.1884; Cooke, Fl. Pres. Bombay 2: 386.1958 (Repr. ed.); Bole in J. Bombay nat. Hist. Soc. 61: 473.1964; G. L. Shah, Fl. Gujarat 1: 511: 1978; B. V. Shetty & V. Singh, Fl. Rajasthan 2: 615.1991; A. N. Londhe in Singh et al. Fl. Maharashtra 2: 560. 2001. *Philipaea tubulosa* Schrenk, Pl. Aeg.–Arab. Sp. 23.1841.

Scapigerous herbs, 25–50 cm high, stems unbranched, fleshy. Spikes 5–7 cm wide, fleshy, covered with triangular scales. Flowers

yellow, bracteate and bracteolate; bracts lanceolate with membranous margins, bracteoles linear-lanceolate with membranous margins; calyx tubular-campanulate, 1.2-1.8 cm long, lobes subequal, rounded, ca. 1/3 as long as the tube; corolla yellow, 3.5-5.0 cm long, tube dilated above with 5 subequal obtuse lobes, tube hairy at the base within. Stamens 4, subexserted; anther lobes equal, villous; ovary 1-celled, stigma rounded, T-shaped, broad. Capsules ovoid, compressed. Seeds subglobose, minute, pitted, numerous.

Fls. & Frts. : Flowering was observed in the month of April so also fruiting. Cooke, in his Flora of Bombay Presidency mentioned it to be December.

Note : The plants were growing scattered as parasites in halophytic and mangrove association probably on *Avicennia marina*, *Salvadora persica*, *Acanthus ilicifolius* and *Thespesia populnea* etc. at Gorai beach Borivli after crossing first creek on a way to Essel World, Pradhan, Diwakar & K. M. Rao 176332, (April 2002) Salsette.

LENTIBULARIACEAE

UTRICULARIA L.

1. Leaves pinnately dissected :
 2. Peduncles with floats ... *U. stellaris*
 2. Peduncles without floats :
 3. Leaves not exceeding 0.6 cm in length; spur as long as or slightly longer than lower lip; seeds with corky wings ... *U. exoleta*
 3. Leaves 3.5-7.0 cm long; spur shorter than lower lip; seeds without corky wings ... *U. aurea*
1. Leaves entire, not dissected :
 4. Leaves orbicular to reniform; seeds glochidiate ... *U. striatula*
 4. Leaves linear-oblong; seeds reticulate ... *U. reticulata*

Utricularia aurea Lour. Fl. Cochinch. 1: 26.1790; Taylor in Steenis, Fl. Males. 1, 8, 296.1977; Janarthanam & Henry, Bladderworts of India 30, f. 5.1992. *U. flexuosa* Vahl, Enum. Pl. 1: 198.1804; C. B. Cl. in Hook. f. Fl. Brit. India 4: 329.1884; Cooke, Fl. Pres. Bombay 2: 390.1958 (Repr. ed.).

Aquatic herbs; stems, slender, stoloniferous. Leaves 3-6 cm long, semi-verticillate, repeatedly branched, segments filiform. Traps suborbicular, lateral or in between the forked segments. Flowers in

5-7-flowered, erect racemes; corolla yellow, spurred. Capsules ca. 0.4 cm across, globose, beaked. Seeds discoid, triangular in cross section, irregularly angled.

Fls. & Frts. : November-December.

Illus. : Wight, Ic. t. 1568.1850 (*Utricularia fasciculata* Roxb. Fl. Ind. 1: 143.1820). Janarthanam & Henry, *op cit.*

Distrib. : Salsette, H. Santapau, 151.6 (BLAT).

Utricularia exoleta R. Br. Prodr. 430.1810; C. B. Cl. in Hook. f. Fl. Brit. India 4: 329.1884; Cooke, Fl. Pres. Bombay 2: 390.1958 (Repr. ed.); Janarthanam & Henry, Bladderworts of India 49, f. 11.1992.

Floating, aquatic, stoloniferous herbs, branches fascicled, slender. Leaves variable, dissected with capillary segments and with bladders. Scapes 2-3-flowered, 3.5-7.5 cm long. Flowers yellow, minute, bracteate; corolla with upper lip ovate or suborbicular, lower lip subquadrate, 2-lobbed, spurred. Capsules 0.3-0.4 cm across, globose; seeds orbicular, flat. with corky wings.

Fls. & Frts. : September-February.

Illus. : Janarthanam & Henry, *op. cit.*

Distrib. : Salsette, G. L. Shah (1969).

Utricularia reticulata Sm. Exot. Bot. 2: t. 119.1805; C. B. Cl. in Hook. f. Fl. Brit. India 4: 331.1884; Cooke, Fl. Pres. Bombay 2: 393.1958 (Repr. ed.); Janarthanam & Henry, Bladderworts of India 91, f. 27.1992.

Herbs. Leaves numerous, 1.0-1.5 cm long, linear-oblong, obtuse, deciduous, with many small bladders. Scapes up to 20 cm long, slender. Flowers bluish-purple, distant, in racemes; bracts ovate-acute; calyx segment ovate-acuminate, enlarged covering the fruit; corolla large upper lip obovate, lower lip suborbicular, spurred. Capsules ca. 0.6 cm, long, ellipsoid. Seeds minute, ovoid, reticulate.

Fls. & Frts. : August-November.

Illus : Janarthanam & Henry, *op. cit.*

Distrib. : Salsette, G. L. Shah (1969).

Utricularia stillaris L. f. Suppl. Pl. 86.1781; C. B. Cl. in Hook. f. Fl. Brit. India 4: 328.1884; Cooke, Fl. Pres. Bombay 2: 389.1958 (Repr. ed.); Sant. in J. Bombay nat. Hist. Soc. 49: 212.1950; Janarthanam &

Henry, Bladderworts of India 102.1992. *U. inflexa* Forssk. var. *stellaris* (L. f.) Taylor in Mitt. Bot. Staass. Munchen 4: 96.1961 & Kew Bull.18.189.1964.

Aquatic herbs, floating, stoloniferous. Leaves verticillate, 1.2–3.5 cm long, forked; traps suborbicular to round, lateral or basal on the filiform leaves. Flowers yellow, racemes on 6–12-flowered scape with floats. Capsules ca. 0.6 cm across, globose, with thick persistent calyx. Seeds 5-gonous, winged.

Fls. & Frts. : October–November.

Illus. : Wight, Ic. t. 1567.1850; Subram. Aquat. Ang. 135, t. 23.1962; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 510.1982.

Distrib. : Borivli, H. Santapau, 151.8 & A. J. Randeria, 548 (BLAT).

Utricularia striatula J. E. Sm. in Rees, Cyclop. 37, no.17.1819; Cooke, Fl. Pres. Bombay 2: 393.1958 (Repr. ed.); Taylor in Kew Bull.18 : 91, 92, f. 3.1964 & in Steenis, Fl. Males. 1, 8: 289.1977; Janarthanam & Henry, Bladderworts of India 106, f. 32.1992. *U. orbiculata* Wall. ex DC. in DC. Prodr. 8: 18.1844, C. B. Cl. in Hook. f. Fl. Brit. India 4: 334.1884.

Herbs up to 10 cm long; stolons filiform, creeping. Leaves 0.2–0.4 × 1.4–3.5 cm, alternate, on stolons, obtuse at apex, pseudopetiolate. Traps obliquely ovoid from stolons. Flowers violet, on 1–5-flowered scapes; corolla spurred. Capsules 0.2–0.15 cm, subglobose with persistent calyx. Seeds oblong to ovoid, glochidiate.

Fls. & Frts. : August–September.

Illus. : Tayler, *op. cit.*; Janarthanam & Henry, *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 286.1982.

Distrib. : Frequent on moist rocks amidst mosses. 167975.

GESNERIACEAE

CULTIVATED SPECIES :

Sinningia speciosa Hiern, in Koeb. Vidensk. Meddel. 91.1877–78; Cooke, Fl. Pres. Bombay 2: 400.1958 (Repr. ed.). *Gloxinia speciosa* Ker. ex Lodd. Bot. Cab. 1: t. 28.1818; Graham Cat. Bombay Pl. 146.1839; Dalz. & Gibs. Bombay Fl. Suppl. 65.1865.

A short stemmed plant. Leaves oblong or oblong-ovate, petiolate, margins crenate. Flowers showy, violet or purplish, 8 cm or more long.

Distrib : Malad, Almeida (2001). Native of Brazil, grown in gardens as ornamental plant.

BIGNONIACEAE

1. Leaves 1-pinnate:
 2. Calyx pubescent; corolla ca. 5 cm long ... HETEROPHRAGMA
 2. Calyx glabrous; corolla ca. 2 cm long ... STEREOSPERMUM
1. Leaves 2-3 pinnate :
 3. Calyx glabrous, leathery; capsules flat, not warty ... OROXYLUM
 3. Calyx pubescent, not leathery; capsules terete, warty ... RADERMACHERA

HETEROPHRAGMA DC.

Heterophragma quadriloculare (Roxb.) K. Schum. in Engl. & Prantl, Pflanzenf. 4(3b) : 243.1895; Sant. in Rec. Bot. Surv. India 16(1) : 191.1967 (3rd Rev. ed.). *Bignonia quadrilocularis* Roxb. Pl. Cor. 2: 24, t. 145.1800. *Heterophragma roxburghii* A. DC. in DC. Prodr. 9: 210.1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 381.1884; Cooke, Fl. Pres. Bombay 2: 404.1958 (Repr. ed.). 'Varas'.

Trees, 5-15 m tall; bark greyish-white, scaly. Leaves 30-50 cm long, pinnately compound; leaflets 3-5 pairs and an odd one, 4-10 × 3-5 cm, elliptic-oblong, oblique at base, obtuse at apex. Flowers white, fragrant, in terminal, many-flowered, fulvous-tomentose panicles. Capsules 20-30 × 3-5 cm, linear, pointed, tomentose when young, becoming glabrous with age.

Fls. & Frts. : February-April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 311, f. 437.1911 (*Heterophragma roxburghii*).

Distrib. : Frequent. 168972.

OROXYLUM Vent.

Oroxylum indicum (L.) Vent. Dec. Gen. Nov. 8: 1808; C. B. Cl. in Hook. f. Fl. Brit. India 4: 378.1884; Cooke, Fl. Pres. Bombay 2: 401.1958 (Repr. ed.). *Bignonia indica* L. Sp. Pl. 625.1753. 'Shivan', 'Tetu'.

Trees, 8-12 m tall, deciduous. Leaves 1.0-1.5 m long, large, 2-3-pinnate; pinnae opposite; leaflets 2-4 pairs, 6-12 × 3-9 cm, ovate-elliptic, rounded or cordate at base, acuminate at apex. Flowers purplish, many, in erect, 30-60 cm long racemes. Capsules 30-80 × 5-8

cm, compressed, woody, suddenly tapering at both ends. Seeds winged; wings membranous.

Fls. & Frts. : May–July.

Illus : Wight, Ic. tt. 1337 & 1338. 1848 (*Calosanthos indica* Bl.)

Distrib. : Scattered. 167908.

RADERMACHERA Zoll. et Moritz.

Radermachera xylocarpa (Roxb.) K. Schum. in Engl. & Prantl, Pflanzent. 4, (36) : 243.1895; Cooke, Fl. Pres. Bombay 2: 407.1958 (Repr. ed.). *Bignonia xylocarpa* Roxb. Fl. Ind. 3: 108.1832; *Stereospermum xylocarpum* Bth. & Hook. f. ex C. B. Cl. in Hook. f. Fl. Brit. India 4: 383.1884. 'Kharshing'.

Trees, 10–15 m tall, deciduous. Leaves 2–3-pinnate, 60–90 cm long; leaflets 5–10 × 3–6 cm, elliptic-oblong, rounded or oblique to truncate at base, shortly acuminate at apex. Flowers yellowish-white, ca. 6 cm long, in axillary, corymbose panicles. Capsules 30–90 cm long, terete, woody, curved, tubercled. Seeds compressed, winged.

Fls. & Frts. : April–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 513. 1982.

Distrib. : Vihar lake, H. Santapau, 17553–4; Borivli, P. S. Herbert, 2510 (BLAT).

STEREOSPERMUM Cham.

1. Calyx glabrous; corolla ca. 1.8 cm long, yellow, streaked with reddish-purple ... *S. colais*

1. Calyx viscid-pubescent; corolla 2.5–3.5 cm long, dull-purple ... *S. chelonoides*

Stereospermum chelonoides (L. f.) DC. Bibi Univ. Genve II.17: 125.1838 et Prodr. 9: 210.1845 p.p; Santisuk in Kew Bull. 28: 176.1973. *Bignonia chelonoides* L. f. Suppl. 282.1781 p.p. *Stereospermum suaveolens* (Roxb.) DC. Prodr. 9: 211.1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 382.1884; Cooke, Fl. Pres. Bombay 2: 406.1958 (Repr. ed.). 'Parul'.

Deciduous trees, 12–20 m tall; young parts viscid-pubescent. Leaves pinnate, 30–60 cm long; leaflets 3–4 pairs with an odd one, 7–15 × 5–7.5 cm, broadly elliptic, oblique and rounded at base. acuminate at apex, margins often serrulate. Flowers fragrant, dull purple, in lax, trichotomous, viscid-pubescent panicles; calyx campanulate, corolla 2.5–3.5 cm long, infundibuliform, 2-lipped. Capsules 30–60 × ca. 1.5 cm,

straight, cylindric, faintly ribbed, covered with whitish specks. Seeds 2.5–3.0 cm long, furrowed in the middle.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t. 1342.1848.

Distrib. : Borivli, Almeida (2001).

Stereospermum colais (Buch.–Ham. ex Dillw.) Mabb. in *Taxon* 27: 553.1978. *Bignonia colais* Buch.–Ham. ex Dillw. *Rev. Ref. Hort. Mal.* 28.1839. *Stereospermum personatum* (Hassk.) Chatterjee in *Bull. Bot. Soc. Bengal* 2: 70.1948; Santisuk in *Kew Bull.* 28: 178.1973. *S. chelonoides auct. non* (L. f.) DC.1845; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 382.1885; Cooke, *Fl. Pres. Bombay* 2: 405.1958 (Repr. ed.). 'Padal'.

Trees, 15–20 m tall, deciduous. Leaves 1-pinnate; leaflets 7–9, 6.5–14 × 3–6 cm, obovate to lanceolate, acute at base, acuminate at apex. Flowers yellow, in axillary corymbs. Capsules 25–60 × 1 cm, terete, or 4-gonous, twisted, speckled white or creamy-yellow. Seeds compressed, trigonous, winged.

Fls. & Frts. : April–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 514.1982.

Distrib. : Borivli, A. Randeria, 316 (BLAT).

CULTIVATED SPECIES :

Clytostoma callistegioides (Cham.) Bur. & Schum. in *Adans.* 8: 353.1868; Bailey, *Man. Cult. Pl.* 903.1949. *Bignonia speciosa* Graham, *Bot. Mag.* t. 3888.1841; Bor. & Raizada, *Beaut. Ind. Climbers & Shrubs* 34.1954.

Evergreen climbers with tendrils. Leaves opposite, compound; leaflets elliptic-oblong or ovate with undulate margins, subcordate at base, acuminate at apex. Flowers large, showy, yellowish or pale rose-purple in colour, in pairs, on terminal peduncles.

Fls. & Frts. : March–April.

Distrib. : Malad. Shah–1669 (BLAT.) Native of South Brazil and Argentina.

Crescentia cujete L. *Sp. Pl.* 626.1753; Bailey, *Man. Cult. Pl.* 904.1949; Cooke, *Fl. Pres. Bombay* 2: 411.1958 (Repr. ed.); Naik, *Fl. Marathwada* 2: 643.1998. 'Calabashtree'.

Small trees. Leaves oblanceolate. Flowers yellowish-purple; *ca.* 1.5 cm long, constricted below middle. Fruits 10–30 cm across, globose, with hard rind, many-seeded.

Fls. & Frts. : March–July.

Distrib. : Borivli, Almeida (2001). Native of Tropical Africa.

Millingtonia hortensis L. f. Suppl. 291.1781; C. B. Cl. in Hook. f. Fl. Brit. India 4: 377.1884; Cooke, Fl. Pres. Bombay 2: 409.1958 (Repr. ed.). 'Akash-neem', 'Booch'.

Tall trees *ca.* 20 m or more; bark corky. Leaves compound, 2–3-pinnate; leaflets elliptic-ovate, often oblique. Flowers white, fragrant, in axillary and terminal corymbs; corolla caducous, 5-lobed with a slender narrow tube.

Fls. & Frts. : September–December.

Distrib. : Malad, Almeida (2001). Native of Burma and Malay Archipelago, extensively planted as avenue trees.

Pyrostegia venusta (Ker-Gawl.) Presl, Bot. Bemerk. 93.1845. *Bignonia venusta* Ker-Gawl. in Bot. Reg. 3: t. 249.1818. *Pyrostegia ignea* (Vell.) Presl, Bot. Bemerk. 93.1845; Cooke, Fl. Pres. Bombay 2: 410.1958 (Repr. ed.). 'Golden shower'.

Scandent shrubs; stems angled. Leaves 3-foliolately compound, opposite; leaflets: lateral ones ovate-oblong, terminal one transformed into branched tendrils. Flowers *ca.* 5 cm long, crimson-bright orange, in corymbose clusters or racemes.

Fls. & Frts. : December–March.

Distrib. : Malad, Almeida (2001).

Spathodea campanulata P. Beauv. Fl. Oware Benin 1: 47, t. 27.1805; Cooke, Fl. Pres. Bombay 2: 410.1958 (Repr. ed.); Bailey, Man. Cult. Pl. 907.1949.

Trees, 10–15 m tall, evergreen. Leaves compound; leaflets sessile or subsessile, elliptic-oblong, acute at apex. Flowers large, showy, orange red, 7–9 cm across, bell-shaped, in terminal racemes. Capsules up to 20 cm long, lanceolate. Seeds winged.

Fls. & Frts. : November–May.

Distrib. : Borivli, A. Randeria, 611 (BLAT) (cultivated).

Tecoma stans (L.) H. B. & K, Nov. Gen. Pl. Sp. 3: 144.1819; Bor & Raiz. Beautif. Ind. Climbers & Shrubs 37.1954. *Bignonia stans* L. Sp. Pl. (ed. 2) : 871.1763. *Stenolobium stans* (L.) Seem. Ann. Mac. Nat. Hist. (Ser. 3), 10 : 30.1862; Cooke, Fl. Pres. Bombay 2: 410.1958 (Repr. ed.).

Shrubs, 1.5–4.0 m tall. Leaves ovate–lanceolate to ovate–oblong. Flowers bright yellow, in racemes; calyx campanulate, corolla 2-lipped. Capsules linear, beaked. Seeds winged.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 320, f. 442.1911.

Distrib. : Borivli, A. Randeria, 487, (BLAT) (cultivated).

Tecoma stans (L.) H. B. K. var. **incisa** G. Don, Gen. Syst. 4: 224.1838; Maheshwari in Bull. Bot. Surv. India 3: 357.1961.

This variety differs from typical variety in having feathery leaves.

Fls. & Frts. : January–February.

Distrib. : Borivli Almeida (2001).

PEDALIACEAE

- | | | |
|---|-----|----------|
| 1. Fruits drupaceous, armed with 4–spines | ... | PEDALIUM |
| 1. Fruits capsular, unarmed | ... | SESAMUM |

PEDALIUM L.

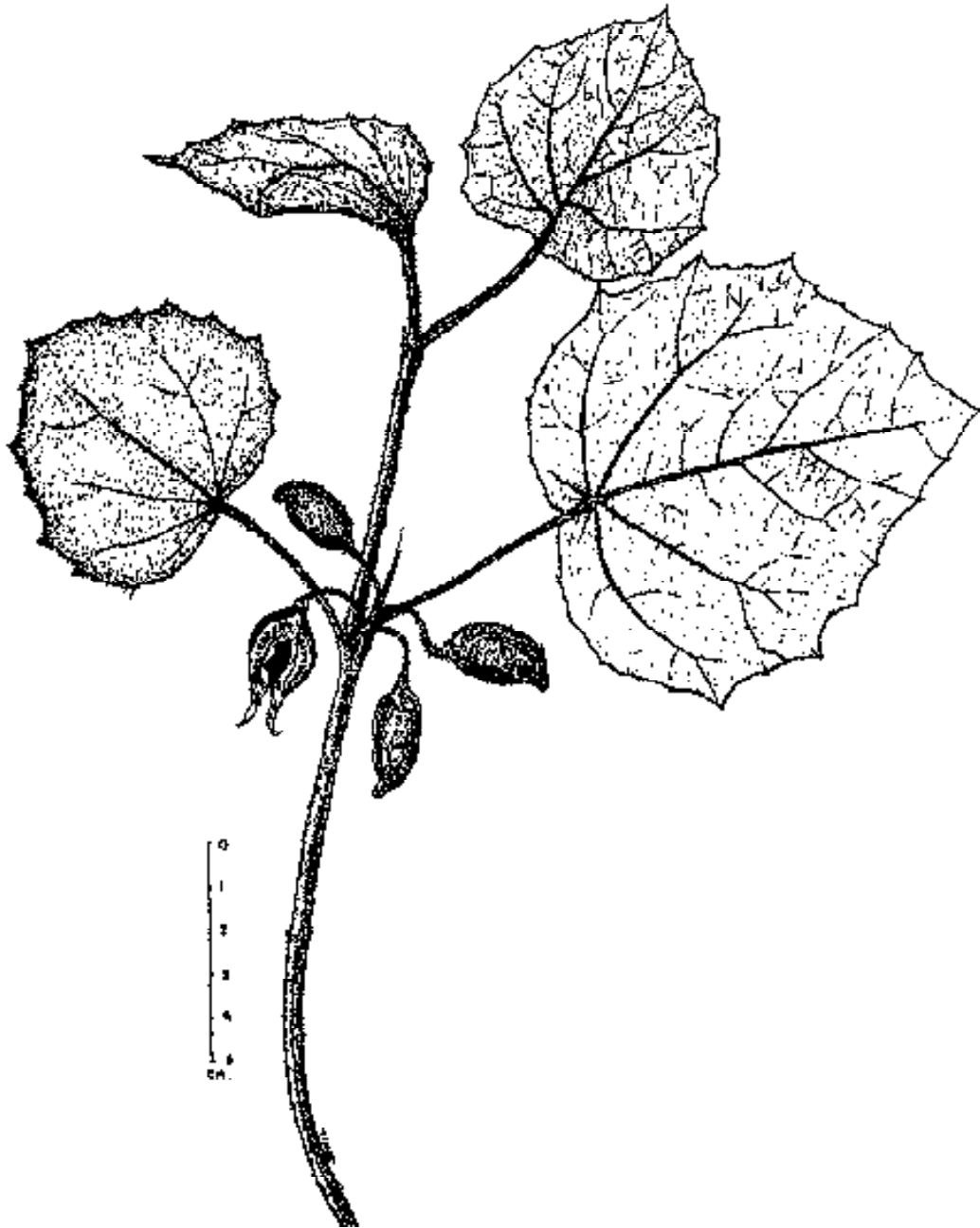
Pedaliium murex L. Syst. Nat. (ed. 10), 1123.1759; C. B. Cl. in Hook. f. Fl. Brit. India 4: 386.1884; Cooke, Fl. Pres. Bombay 2: 412.1958 (Repr. ed.). 'Mothe-gokhru'.

Herbs, 15–30 cm tall. Leaves 2–4 × 1.5–3.0 cm, broadly ovate–oblong, acute at base, truncate or obtuse at apex, margins crenate–serrate or sublobate, opposite, succulent. Flowers yellow, 1–2 cm long. Fruits pyramidal–ovoid, spiny at angles.

Fls. & Frts. : September–January.

Illus. : Wight, Ic. t. 1615.1850; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 516.1982.

Distrib. : Versova, H. Santapau, 1498 & C. Saldanha 1342 (BLAT).



f.61. *Martynia annua* L.

SESAMUM L.

Sesamum orientale L. Sp. Pl. 634.1753; Babu, Herb. Fl. Dehra Dun 372.1977. *S. indicum* L. Sp. Pl. 634.1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 387.1884; Cooke, Fl. Pres. Bombay 2: 413.1958 (Repr. ed.). *S. mulayanum* Nair in Bull. Bot. Surv. India 5: 251.1963. 'Rantil', 'Til'.

Annual herbs, 50–130 cm tall, glandular-pubescent. Leaves 3–18 × 2.4–8.0 cm, upper ones lanceolate or elliptic-lanceolate, margins entire or serrate, lower ones trifoliolate, appressed-hairy. Flowers white or pale purple, axillary, solitary or 2–3-fascicled. Capsules 1.3–2.5 × 0.5–0.7 cm, oblong or ovoid, tetragonous, apiculate, appressed-hairy. Seeds brown or white, reticulate.

Fls. & Frts. : August–December.

Illus. : Mahesh, Illus. Fl. Delhi f. 161.1966. (*Sesamum indicum*).

Distrib. : Frequent in grass lands and waste places. 167262.

MARTYNIACEAE

MARTYNIA L.

Martynia annua L. Sp. Pl. 618.1753; Backer in Steenis, Fl. Males. 1, 4: 221.1951. *Martynia diandra* Glox. Obs. Bot. 14, t. 1.1785; C. B. Cl. in Hook. f. Fl. Brit. India 4: 386.1884; Cooke, Fl. Pres. Bombay 2: 414.1958 (Repr. ed.). 'Waghnakhi', 'Vinchvi'.

Annual herbs, 50–90 cm tall, viscidly pubescent. Leaves 5–15 × 3.5–15.0 cm, broadly ovate or suborbicular, cordate, sinuately lobed, minutely dentate, silky viscid-pubescent. Flowers rosy-purple, in 5–12 cm long, peduncled, lax racemes. Drupes 2–3 cm long, pubescent, beaked with 2 black, woody, ribbed hooks.

Fls. & Frts. : July–December.

Illus. : Mahesh, Illus. Fl. Delhi f. 162.1966. Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 515.1982.

Distrib. : Frequent as weed in waste places. 167395.

ACANTHACEAE

1. Fertile stamens 4 (except *Hygrophila polysperma* where fertile stamens are 2) :
2. Seeds glabrous :

- 3. Calyx 2-partite ... Asystasia
- 3. Calyx 4-partite ... Acanthus
- 2. Seeds hairy :
 - 4. Bracts aristate or spine-tipped :
 - 5. Filaments thick, rigid :
 - 6. Leaves in pseudo-whorls of 3-4; flowers never in axils of vegetative leaves, bracts not 3-fid ... BLEPHARIS
 - 6. Leaves opposite; flowers solitary or paired, in the axils of vegetative leaves; inner bracts 3-fid ... CYNAROSPERMUM
 - 5. Filaments not as above ... LEPIDAGATHIS
 - 4. Bracts not aristate or spine-tipped :
 - 7. Calyx 2-partite ... NEURACANTHUS
 - 7. Calyx 5-partite :
 - 8. Filaments glabrous :
 - 9. Capsules clavate, seed bearing upwards ... DIPTERACANTHUS
 - 9. Capsules linear-oblong, seed bearing throughout :
 - 10. Corolla distinctly 2-lipped ... HYGROPHILA
 - 10. Corolla subequally 5-lobed ... RUELLIA
 - 8. Filaments hairy :
 - 11. Bark readily peeling off; flowers white; anther cells spurred ... PETALIDIUM
 - 11. Characters not as above :
 - 12. Flowers in capitate heads :
 - 13. Herbs, densely bristly, upper part of longer filaments glabrous; capsules glabrous ... GANTELBOA
 - 13. Herbs, not bristly, upper part of longer filament bearded; capsules pubescent ... HEMIGRAPHIS
 - 12. Flowers in spikes :
 - 14. Leaves sessile or nearly so ... PLEOCAULIS
 - 14. Leaves distinctly petioled :
- 15. Bracteoles present :
 - 16. Petioles winged and auriculate ... MACKENZIEA

- | | | |
|--|-----|---------------|
| 16. Petioles neither winged nor auriculate | ... | THELEPAEPALE |
| 15. Bracteoles absent | ... | CARVIA |
| 1. Fertile stamens 1 or 2 : | | |
| 17. Fertile stamens 2 : | | |
| 18. Lower anther cell appendaged : | | |
| 19. Flowering spikes secund; placentas separating elastically | ... | RUNGIA |
| 19. Flowering spikes not secund; placentas not separating elastically : | | |
| 20. Calyx 5-partite, lobes equal or subequal | ... | JUSTICIA |
| 20. Calyx 4-partite or if 5, then the posterior one much smaller than others | ... | ROSTELLULARIA |
| 18. Lower anther cell not appendaged, muticous at the most : | | |
| 21. Flowers in large, lax trichotomous panicles : | | |
| 22. Capsules glabrous, ovules 3-6 in each cell of ovary | ... | ANDROGRAPHIS |
| 22. Capsules pubescent, ovules 2 in each cell of ovary: | | |
| 23. Corolla 2.5-3.0 cm long | ... | RHINACANTHUS |
| 23. Corolla ca. 1.2 cm long | ... | PERISTROPHE |
| 21. Flowers solitary, axillary or in spikes or fascicled : | | |
| 24. Flowers surrounded by reduced spine like branches | ... | HAPLANTHODES |
| 24. Flowers without such spine like branches : | | |
| 25. Procumbent or subscaudent herbs : | | |
| 26. Flowers in axillary and terminal umbellate clusters | ... | DICLIPTERA |
| 26. Flowers in terminal spikes | ... | HYGROPHILA |
| 25. Erect shrubs or herbs : | | |
| 27. Spikes linear : | | |
| 28. Ovary glabrous | ... | ERANTHEMUM |
| 28. Ovary pubescent | ... | ECBOLIUM |
| 27. Spikes not linear | ... | BARLERIA |
| 17. Fertile stamen 1 | ... | SYNEMA |

ACANTHUS L.

Acanthus ilicifolius L. Sp. Pl. 639.1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 481.1884; Cooke, Fl. Pres. Bombay 2: 427.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 16.1952. 'Marandi'.

Subshrubs up to 1.5 m tall, armed with spines. Leaves 6–12 × 4.5 cm, pinnatifid, coriaceous, attenuate at base, acuminate at apex; margins spiny. Flowers bluish-purple, in terminal or pseudo-axillary spikes; bracts spiny. Capsules ca. 2.5 cm long, pointed, 4-seeded. Seeds orbicular or suborbicular, wrinkled.

Fls. & Frts. : February–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 88a & 518.1982.

Distrib. : Common along marshy creeks. 167384.

ANDROGRAPHIS Wall. ex Nees

Andrographis paniculata (Burm. f.) Wall. ex Nees in Wall. *Pl. Asiat. Rar.* 3: 116.1832; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 501.1884; Cooke, *Fl. Pres. Bombay* 2: 451.1958 (Repr. ed.); Sant. in *Univ. Bombay Bot. Mem.* 2: 50.1952. *Justicia paniculata* Burm. f. *Fl. Ind.* 9.1768. '*Kalameti*'.

Annual herbs up to 1 m tall; stems erect, branched with quadrangular branches, often winged in the upper portion. Leaves 4–6 × 1.0–2.5 cm, lanceolate, tapering at base, acute at apex, margins slightly undulating, sessile or subsessile. Flowers rose-coloured, in solitary, distant, spreading, axillary or terminal racemes or panicles; pedicellate with glandular-pubescent pedicels. Capsules ca. 2.0 × 0.3 cm, linear-oblong, acute at both ends. Seeds subquadrate, rugosely pitted, glabrous.

Fls. & Frts. : December–April.

Illus. : Wight, *Ic. t.* 518.1842; Matthew, *Illus. Fl. Tamilnadu Carnatic* 4: t. 438.1988.

Distrib. : G. L. Shah (1969).

ASYSTASIA Bl.

Asystasia dalzelliana Sant. in *Kew Bull.* 3: 276.1948 & in *Univ. Bombay Bot. Mem.* 2: 68.1952. *A. violacea* Dalz. ex C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 494.1884, non Dalz. 1850; Cooke, *Fl. Pres. Bombay* 2: 467.1958 (Repr. ed.).

Herbs, 50–90 cm tall, suffruticose. Leaves 5–15 × 3–6 cm, ovate to elliptic, attenuate at base, subacute to acute at apex, long-petiolate. Flowers pale-violet or lilac, bracteate, in lax, terminal or subterminal,

unilateral spike like racemes. Capsules 2.5–3.5 cm long, oblong, 4-seeded. Seeds ovoid-oblong, tuberculate, glabrous.

Fls. & Frts. : November–March.

Distrib. Occasional. 169118.

BARLERIA L.

- | | | |
|--|-----|----------------------|
| 1. Plants armed with sharp spines | ... | <i>B. prionitis</i> |
| 1. Plants unarmed : | | |
| 2. Flowers white; seeds silky hairy | ... | <i>B. lawii</i> |
| 2. Flowers bright blue; seeds glabrous | ... | <i>B. prattensis</i> |

Barleria lawii T. Anders. in J. Linn. Soc. 9: 492.1867; C. B. Cl. in Hook. f. Fl. Brit. India 4: 486.1884; Cooke, Fl. Pres. Bombay 2: 460.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 59.1952.

Shrubs, 1.0–1.5 m tall; stems erect, appressed-hairy. Leaves 7–12 × 3.6–5.0 cm, elliptic, tapering at base, acuminate at apex. Flowers axillary, solitary or few, in terminal racemose-cymes. Capsules 1.5–2.5 × 0.6–0.8 cm, obovoid, compressed, narrowed at base, with pointed apex.

Fls. & Frts. : October–March..

Illus. : Bedd. Ic. Pl Ind. Or. 62, t. 258.1874. (*B. beddomei* T. Anders. ex Bedd.).

Distrib. : Borivli, *H. Santapau*, 152, 64. & *A. Randeria*, 555 (BLAT).

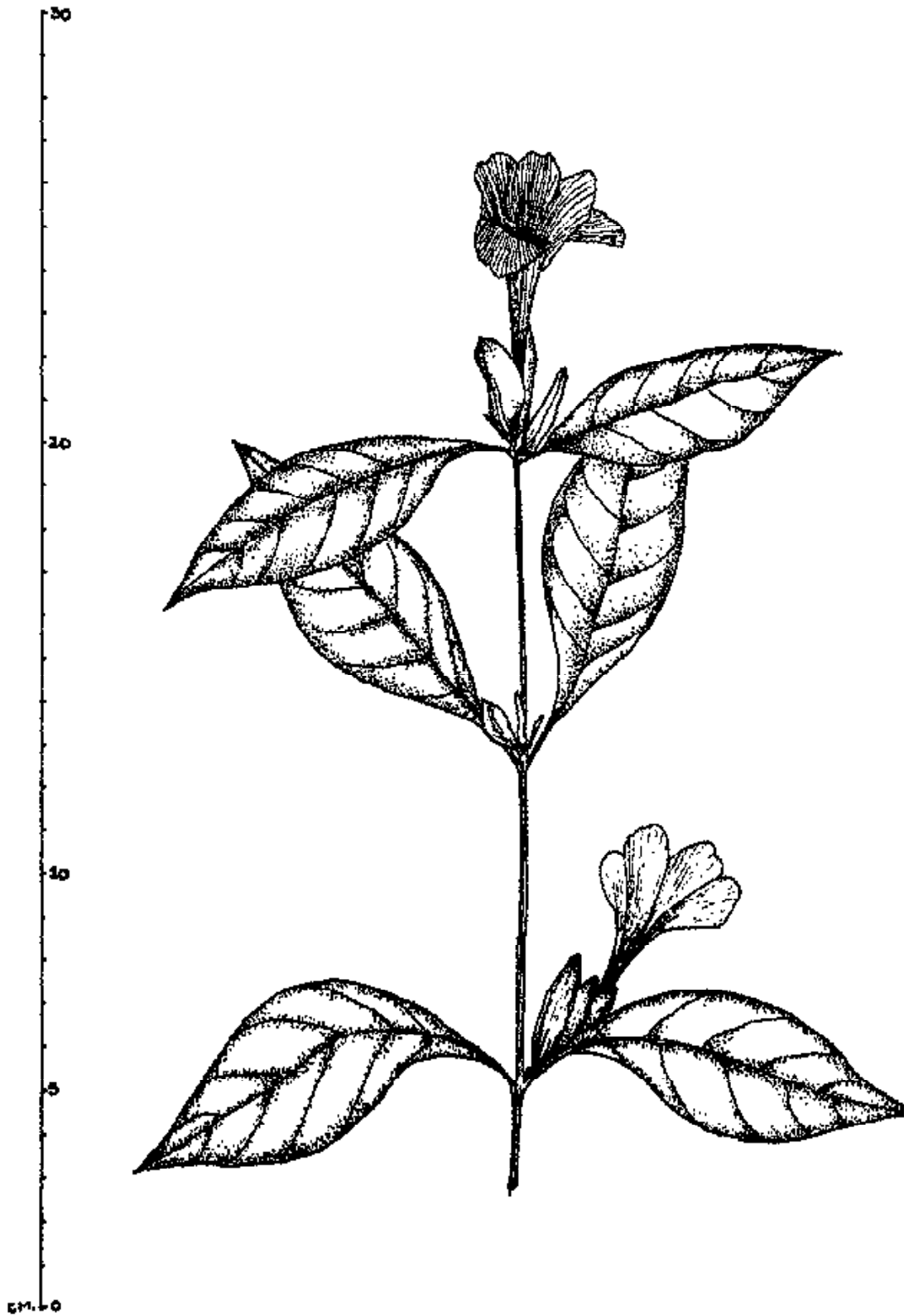
Barleria prattensis Sant. in Kew Bull. 3: 487.1949 & Univ. Bombay Bot. Mem. 2: 62.1952 & Rec. Bot. Surv. India (ed. 3) 16: 202.1967.

Undershrubs, 50–90 cm tall, subscaudent. Leaves 5–12 × 3–5 cm, elliptic or ovate-elliptic, decurrent at base, apiculate at apex. Flowers rosy-purple, solitary, axillary or few, in terminal cymes. Capsules 1.5–2.0 × 0.5 cm, beaked, 4-seeded. Seeds orbicular, compressed.

Fls. & Frts. : September–March.

Illus. : Sant. *op. cit.* (opp. page 64.)

Distrib. : Scattered. 167228.



f. 62. *Barleria prattensis* Sant.

Barleria prionitis L. Sp. Pl. 636.1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 482.1884; Cooke, Fl. Pres. Bombay 2: 457.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 57.1952; Wood *et al.* in Kew Bull. 38: 436.1982. '*Pivali Koranti*'.

Shrubs up to 1.5 m high, Leaves 4–10 × 2–5 cm, elliptic, tapering at base and apex, bristle-tipped, glabrous above, sparsely hirsute beneath. Flowers yellow, sessile or subsessile in cymes, clusters becoming spicate above, bracts foliaceous, spine-tipped. Capsules ca. 1.5 × 0.8 cm, ovoid, beaked, 2-seeded. Seeds suborbicular, silky appressed-hairy.

Fls. & Frts. : October–March.

Illus. : Wight, Ic. t. 452.1841; Mahesh. Illus. Fl. Delhi f.170.1966.

Distrib. : Koppikar (1974); *Randeria*, 476. (BLAT).

BLEPHARIS A. L. Juss.

- | | |
|--|-------------------------------|
| 1. Leaves membranous, acute; flowers 8-bracteolate | ... <i>B. maderaspatensis</i> |
| 1. Leaves fleshy, obtuse; flowers 10-bracteolate | ... <i>B. repens</i> |

Blepharis maderaspatensis (L.) Heyne ex Roth, Nov. Pl. Sp. 320.1821; Sant. in Univ. Bombay Bot. Mem. 2: 15.1952. *Acanthus maderaspatensis* L. Sp. Pl. 639.1753. *Blepharis boerhavifolia* Pres. Syn. Pl. 2: 180.1806; C. B. Cl. in Hook. f. Fl. Brit. India 4: 478.1884; Cooke, Fl. Pres. Bombay 2: 424.1958 (Repr. ed.).

Prostrate herbs, 15–50 cm long; stems wiry, rooting at nodes, pubescent. Leaves in whorls of 4, unequal, 2.5–5.0 × 1–3 cm, elliptic to slightly obovate, acute to finely apiculate, margins entire or with a few coarse serratures, appressedly pubescent above, glabrous except on nerves below. Flowers pale blue with yellow spot on lower lip, axillary, solitary or 2–3 together, bracteate and bracteolate; bracteoles retrorsely bristly hairy on upper surface. Capsules 0.6–0.8 cm long, ovoid, usually 2-seeded. Seeds echinate with blunt spines.

Fls. & Frts. : October–January.

Illus. : Wight, Ic. t. 458.1841 (*Blepharis boerhaviaefolia*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 449.1988.

Distrib. : G. L. Shah, (1969).

Blepharis repens (Vahl) Roth, Nov. Pl. Sp. 321.1821. *Acanthus repens* Vahl, Symb. Bot. 2: 76.1791. *Blepharis molluginifolia* Pers. Syn.

Pl. 2: 180.1806; C. B. Cl. in Hook. f. Fl. Brit. India 4: 479.1884; Cooke, Fl. Pres. Bombay 2: 425.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 16.1952. 'Kate-maka'.

Herbs; stems prostrate, hispid. Leaves subsessile, in whorls of 4, 0-2.5 × 0.5-0.8 cm, oblong to oblanceolate, obtuse at apex, mucronate. Flowers blue, sessile, bracteate, solitary, axillary. Capsules 0.5-0.6 cm × 0.4 cm, ellipsoid, compressed, glabrous, 2-seeded, enclosed in persistent calyx. Seeds ca. 0.4 cm long, broadly ellipsoid, compressed, hairy.

Fls. & Frts. : September-March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 523.1982. (*Blepharis molluginifolia*).

Distrib. : Versova, H. Santapau, 8182 (BLAT).

CARVIA Bremek.

Carvia callosa (Wall.) Bremek. in Verh. Nederl. Acad. Wet. 2, 40: 187.1944; Sant. in Univ. Bombay Bot. Mem. 2: 46.1952; *Ruellia callosa* Wall. Cat. 2359.1830. *Strobilanthes callosus* Nees in Wall. Fl. As. Rar. 3: 85.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 451.1884; Cooke, Fl. Pres. Bombay 2: 444.1958 (Repr. ed.). 'Karvi'.

Shrubs, 2-6 m tall; stems warted. Leaves 10-20 × 3-8 cm, elliptic-lanceolate, tapering at base, acute to acuminate at apex, margins crenate, upper surface lineolate. Flowers purple, in ovoid, branched, pedunculate, axillary spikes; bracts broadly elliptic or obovate. Capsules ca. 2 × 0.6 cm, acute, narrowed at base, 2-seeded. Seeds ovate-acute, hairy.

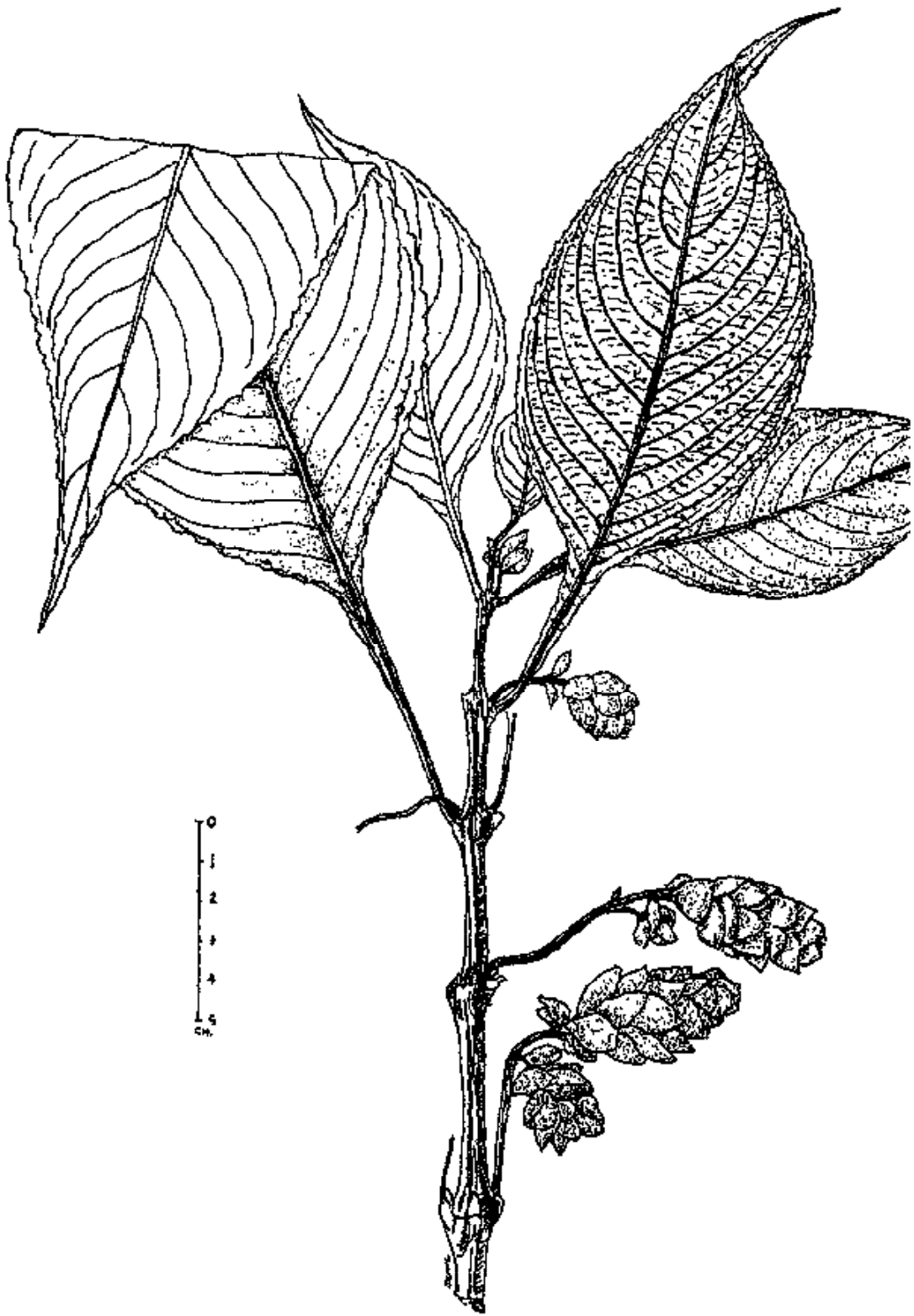
Fls. & Frts. : September-October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind. 2: 311, f. 446.1911 (*Strobilanthes callosus*).

Distrib. : Common in ghat regions on hill slopes and hill tops. 167883.

CYNAROSPERMUM Vollesen

Cynarospermum asperrimum (Nees) Vollesen in Kew Bull. 54(1) : 173.1998. *Blepharis asperrima* Nees in DC. Prodr. 11: 267.1847; C. B. Cl. in Hook. f. Fl. Brit. India 4: 478.1884; Cooke, Fl. Pres. Bombay 2: 424.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 14.1952. 'Akada'.



f. 63. *Carvia callosa* (Wall.) Bremek.

Herbs; stems prostrate with ascending branches, hairy; rooting at nodes. Leaves opposite, 3–6 × 2–3 cm, ovate-lanceolate, tapering at base, acute or acuminate, finely apiculate at apex, margins crenulate or entire, hairy. Flowers blue or white, solitary, sessile, axillary or in terminal spikes; bracteoles 6, in pairs. Capsules ca. 1 cm long, oblong, apiculate, 2-seeded. Seeds ovoid, compressed. echinate with soft spines.

Fls. & Frts. : October–March.

Illus. : Wight, Ic. t. 1534.1850; (*Blepharis asperrima*); Vollesen, *op. cit.*; 174. f.

Distrib. : Common in shades, 167341, 168426, 167988.

DICLIPTERA A. L. Juss. (*nom. cons.*)

- | | | |
|---|-----|------------------------|
| 1. Flowers ca. 0.5 cm long; capsules pubescent at tip | ... | <i>D. verticillata</i> |
| 1. Flowers ca. 1.8 cm long; capsules pubescent all over | ... | <i>D. foetida</i> |

Dicliptera foetida (Forssk.) Blatt. in Rec. Bot. Surv. India 8: 361, 1921; Wood *et al.* in Kew Bull. 38: 453.1983. *Justicia foetida* Forssk. Fl. Aeg.–Arab. 5.1775. *Dicliptera zeylanica* Nees in DC. Prodr. 11: 474.1847; C. B. Cl. in Hook. f. Fl. Brit. India 4: 552.1885; Cooke, Fl. Pres. Bombay 2: 482.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 79.1952.

Herbs; stems prostrate with ascending branches, glabrous or hairy, angled. Leaves 3–10 × 1.5–5.0 cm, ovate or elliptic, acute at base, acuminate at apex, scabrid above. Flowers rosy, in cymes; peduncles up to 2.5 cm long; bracts in pairs, enclosing 1–3, sessile flowers. Capsules ca. 0.6 cm long, obovoid, compressed, truncate, mucronate, pubescent. Seeds compressed with echinulate margins.

Fls. & Frts. : December–March.

Illus. : Wight, Ic. t. 1551.1849.1850 (*Dicliptera bivalvis* Ness).

Distrib. : Koppikar (1974).

Dicliptera verticillata (Forssk.) C. Chr. in Dansk. Bot. Ark. 4(3) : 11.1923; Wood *et al.* in Kew Bull. 38: 450.1983; Moorthy in Singh *et al.* Fl. Maharashtra 2: 616. 2001. *Dianthera verticillata* Forssk. Fl. Aeg.–Arab. Deser. Pl. 9.1775. *Dicliptera micranthes* Nees in Wall. Pl. Asiat. Rar. 3: 112.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 553.1885; Cooke, Fl. Pres. Bombay 2: 481.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 79.1952. 'Amphutavani'.

Erect, branched herbs, 15–40 cm high; branches angular. Leaves 4.0–8.5 × 1.8–4.0 cm, ovate or elliptic, rounded or acute at base, acuminate at apex, lineolate, petiolate. Flowers bracteate, purplish, in axillary clusters of usually 3–5 or in umbel like cymes. Capsules ca. 0.4 × 0.15 cm, ellipsoid, compressed, subacute, shortly stipitate. Seeds 4, less than 0.1 cm across, orbicular, echinulate with small tubercles with stellately radiating tips.

Fls. & Frts. : October–April.

Distrib. : Salsette, *Shah* (1969).

DIPTERACANTHUS Nees emend. Bremek.

- | | | |
|--|-----|----------------------|
| 1. Stems prostrate or climbing; ovary and capsules pubescent | ... | <i>D. prostratus</i> |
| 1. Stems suberect to erect; ovary and capsules glabrous | ... | <i>D. patulus</i> |

Dipteracanthus patulus (Jacq.) Nees in Wall. Pl. Asiat. Rar. 3: 82.1832; Sant. in Univ. Bombay Bot. Mem. 2: 24.1952. *Ruellia patula* Jacq. Misc. Bot. 2: 358.1781; C. B. Cl. in Hook. f. Fl. Brit. India 4: 412.1884; Cooke, Fl. Pres. Bombay 2: 432.1958 (Repr. ed.). 'Katmora'.

Herbs, 30–40 cm tall; stems diffuse. Leaves 1.0–3.5 × 0.8–2.5 cm, ovate, ovate-elliptic or obovate, rounded or narrowed at base, subacute to obtuse at apex. Flowers blue to violet, solitary, axillary. Capsules 1.3–2.0 × 0.5–0.6 cm, clavate; seeds almost spherical, hairy on margins.

Fls. & Frts. : June–November.

Illus. : Wight, Ic. t. 1505.1850; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4:t.450.1988.

Distrib. : Borivli, *H. Santapau*, 16079 (BLAT).

Dipteracanthus prostratus (Poir.) Nees in Wall. Pl. As. Rar. 3: 81.1832; Sant. in Univ. Bombay Bot. Mem. 2: 24.1952 & Indian Forester 79. 321.1953. *Ruellia prostrata* Poir. in Lam. Encycl. 6: 349.1804; C. B. Cl. in Hook. f. Fl. Brit. India 4: 411.1884. *R. prostrata* var. *dejecta* C. B. Cl. in Hook. f. *op. cit.* 412; Cooke, Fl. Pres. Bombay 2: 431.1958. (Repr. ed.).

Herbs up to 50 cm long; stems branched. Leaves 2.0–7.0 × 1.5–3.5 cm, ovate-elliptic to deltoid, truncate to acute at base, obtuse to subacute at apex, sparsely hairy. Flowers blue or violet, solitary, axillary or few together, nearly sessile. Capsules 1.5–1.8 × 0.6 cm, clavate, thinly pubescent. Seeds orbicular, hairy on margins.

Fls. & Frts. : September–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 525.1982.

Distrib. : Borivli, H. Santapau, 16079 (BLAT).

ECBOLIUM Kurz

Ecbolium ligustrinum (Vahl) Vollesen in *Kew Bull.* 44. 651.1989. *Justicia ligustrina* Vahl, *Enum.* 1: 118.1804. *Ecbolium linneanum* Kurz in *J. As. Soc. Bengal* 40: 75.1871; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 544.1885. *E. linneanum* Kurz var. *dentata* (Klein. ex Link) C. B. Cl. in *Hook. f. op. cit.* 545; Cooke, *Fl. Pres. Bombay* 2: 484.1958 (Repr. ed.). *E. linneanum* Kurz var. *laetevirens* (Vahl) C. B. Cl. in *Hook. f. op. cit.* 545; Cooke, *op. cit.*; *E. viride* (Forssk.) Alst. var. *laetevirens* (Vahl) Raiz. in *Indian Forester* 84: 482.1958. *E. viride* (Forssk.) Alst. var. *dentata* (Klein. ex Link) Raiz. *op. cit.* 'Dhakta-adulsa'

Undershrubs up to 1.5 m. Leaves 5–10 × 2–6 cm, elliptic–ovate to obovate or lanceolate, acute at base, acuminate at apex, shining, dark–green above, petiolate. Flowers light bluish–green, in terminal and axillary spikes; bracts foliaceous, imbricate, rounded and apiculate, margins smooth, bracteoles lanceolate. Capsules ca. 2.5 × 1.0 cm, ovoid, compressed, 2–seeded, pubescent. Seeds orbicular, tuberculate.

Fls. & Frts. : October–January.

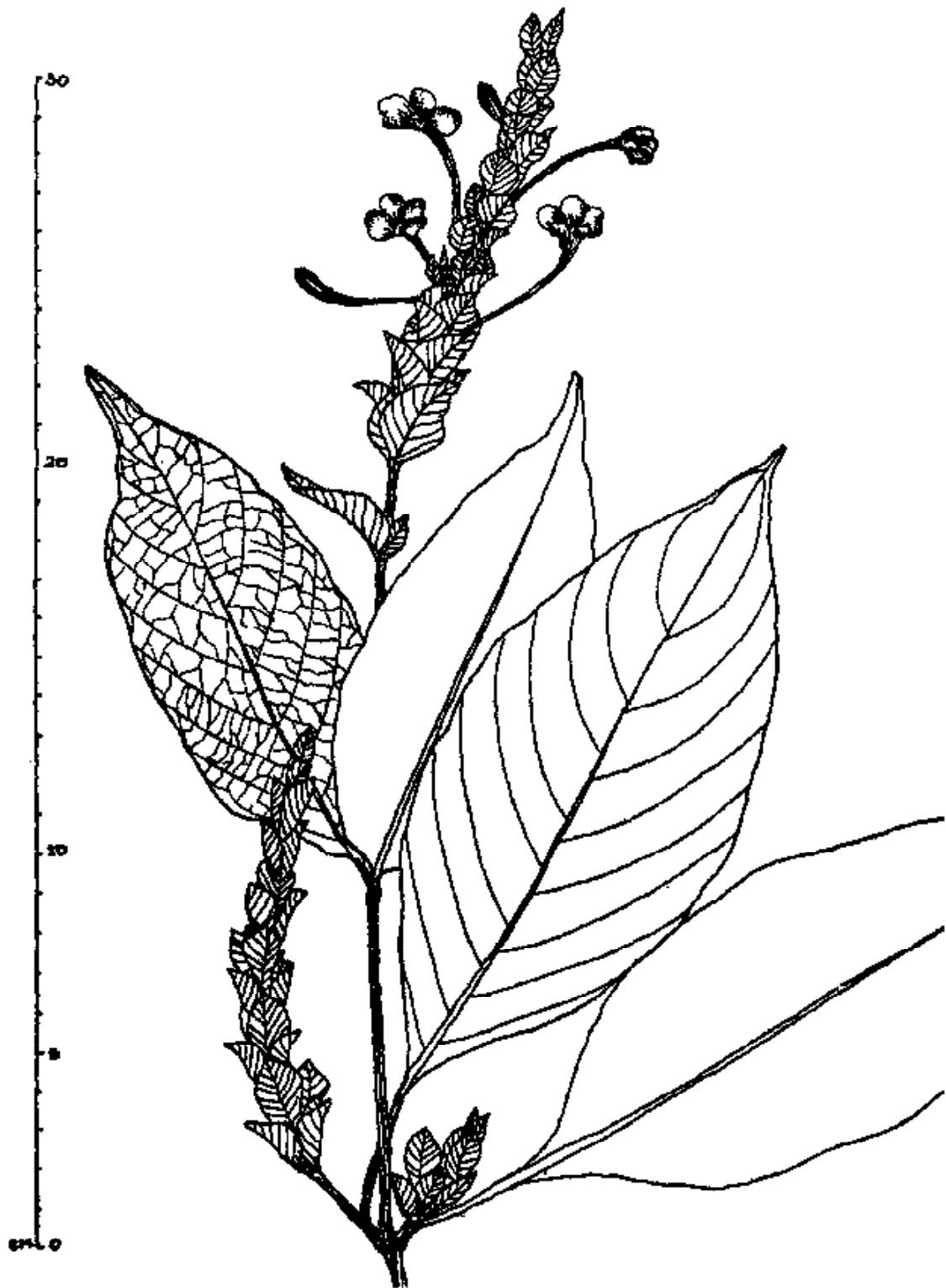
Illus. : Wight, *Ic. t.* 463.1841 (*Justicia ecbolium* L.)

Distrib. : Common inside the forest as undergrowth 167344.

ERANTHEMUM L.

Eranthemum roseum (Vahl) R. Br. *Prodr.* 477.1810; Sant. in *Univ. Bombay Bot. Mem.* 2: 34.1952. *Justicia rosea* Vahl, *Enum. Pl.* 1: 165.1804. *Daedalacanthus roseus* T. Anders. in *J. Linn. Soc.* 9: 487.1887; C. B. Cl. in *Hook. f. Fl. Brit. India* 4: 419.1884; Cooke, *Fl. Pres. Bombay* 2: 439.1958 (Repr. ed.). 'Dashamuli'.

Undershrubs, ca. 1 m tall. Leaves 10–20 × 3–8 cm, oblanceolate, lineolate, tapering at base, acuminate, at apex, margins entire or crenulate. Flowers blue, in axillary or terminal spikes up to 15 cm long; bracts foliaceous, obovate, white with green nerves, mucros recurved margins ciliate, bracteoles linear. Capsules ca. 1.2 cm long, clavate, pointed. Seeds discoid, with hygroscopic hairs.



f. 64. *Eranthemum roseum* (Vahl) R. Br..

Fls. & Frts. : November–January.

Distrib. : Common, inside thickets as undergrowth. 167332, 168428.

GANTELBUA Bremek.

Gantelbua urens (Heyne ex Roth) Bremek. in Verh. Kon. Ned. Akad. Wetensch. Afd. Natuurk. Tweede Sect. 2, 41, 1, 55: 148.1944; Sant. in Univ. Bombay Bot. Mem. 2: 28.1952. *Ruellia urens* Heyne ex Roth, Nov. Pl. Sp. 302.1821. *Hemigraphis dura* T. Anders. in J. Linn. Soc. 9: 461.1867; C. B. Cl. in Hook. f. Fl. Brit. India 4: 422.1884; Cooke, Fl. Pres. Bombay 2: 433.1958 (Repr. ed.). 'Gantelbu'.

Herbs; stems procumbent with diffuse branches, densely bristly all over. Leaves 2.0–3.5 × 1.0–1.2 cm, oblong, attenuate at base, obtuse at apex, margins subcrenate, hispid. Flowers ca. 2.5 cm long, blue, in dense, many-flowered heads densely covered with white and yellowish–brown hairs. Capsules ca. 1 cm long, linear–oblong, pointed, grooved. Seeds 6–8, ellipsoid or suborbicular, yellowish–brown.

Fls. & Frts. : December–March.

Distrib. : Salsette, Shah (1969).

HAPLANTHODES O. Ktze.

- | | | |
|---|-----|-----------------------------|
| 1. Axillary spines (cladodes) stout, 2.5–3.5 cm long; capsules glabrous | ... | <i>H. verticillata</i> |
| 1. Axillary spines slender, 0.6–1.8 cm long; capsules pubescent : | | |
| 2. Whorls of axillary spines distributed throughout whole plant | ... | <i>H. tentaculata</i> |
| 2. Whorls of axillary spines gathered at the ends of branches | ... | <i>H. neilgherryensis</i> . |

Haplantodes neilgherryensis (Wight) R. B. Majumdar in Bull. Bot. Soc. Bengal 25(1 & 2) : 76.1971; Panigr & Das in Bull. Bot. Surv. India 23: 201(1981) 1983. *Haplantus neilgherryensis* Wight, Ic. t. 1556.1850; Sant. in Univ. Bombay Bot. Mem. 2: 52.1952. *H. tentaculatus* Nees in DC. Prodr. 11: 513.1847 p.p.; Cooke, Fl. Pres. Bombay 2: 453.1958 (Repr. ed.). *H. tentaculatus* var. *neilgherryensis* (Wight) C. B. Cl. in Hook. f. Fl. Brit. India 4: 507.1884. *Bremekampia neilgherryensis* (Wight) Sreem. in Bull. Bot. Surv. India 6: 323. 1964.

Herbs; stems slender, quadrangular in upper parts, glandular. Leaves 5–10 × 3–5 cm, ovate, decurrent at base, acuminate at apex. Flowers blue or lilac, sessile, in the midst of axillary spines; spines

slender, villous with 2-3 teeth. Capsules ca. 0.8 cm long, oblong, pointed, pubescent.

Fls. & Frts. : November-December.

Illus. : Wight, *op. cit.*

Distrib. : Frequent as undergrowth. 167792.

Haplanthodes tentaculata (L.) R. B. Majumdar in Bull. Bot. Soc. Bengal 25(1 & 2) : 76.1971; Panigr. & Das in Bull. Bot. Surv. India 23: 201 (1981) 1983. *Ruellia tentaculata* L. in Torn. Cent. Pl. 22.1756. *Haplanthus tentaculatus* (L.) Nees in DC. Prodr. 11: 513.1847 *p.p.*; C. B. Cl. in Hook. f. Fl. Brit. India 4: 507.1884; Cooke, Fl. Pres. Bombay 2: 453.1958 (Repr. ed.). *p.p.* *H. tentaculatus* var. *neesiana* Sant. in Univ. Bombay Bot. Mem. 2: 52.1952.

Slender herbs; stems glandular-pubescent. Leaves 5-10 × 3-5 cm, ovate, decurrent into petiole, acuminate at apex, more or less hairy, cladodes 0.6-1.8 cm long, softly villous, with 2-3 teeth. Flowers blue or lilac, sessile, bracteolate. Capsules ca. 0.8 cm long, oblong, pointed, pubescent.

Fls. & Frts. : December-January.

Distrib. : Borivli, K. V. Shenoy, 152-62 (BLAT.).

Haplanthodes verticillata (Roxb.) R. B. Majumdar in Bull. Bot. Soc. Bengal 25(1&2) : 76.1971. *Justicia verticillata* Roxb. Fl. Ind. 1: 135.1832. *Haplanthus verticillatus* (Roxb.) Nees in DC. Prodr. 11: 513.1847 (*verticillaris*); C. B. Cl. in Hook. f. Fl. Brit. India 4: 506.1884; Cooke, Fl. Pres. Bombay 2: 452.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 51.1952. *Bremekampia verticillata* (Roxb.) Sreem. in Bull. Bot. Surv. India 6: 323.1964. 'Kateri'.

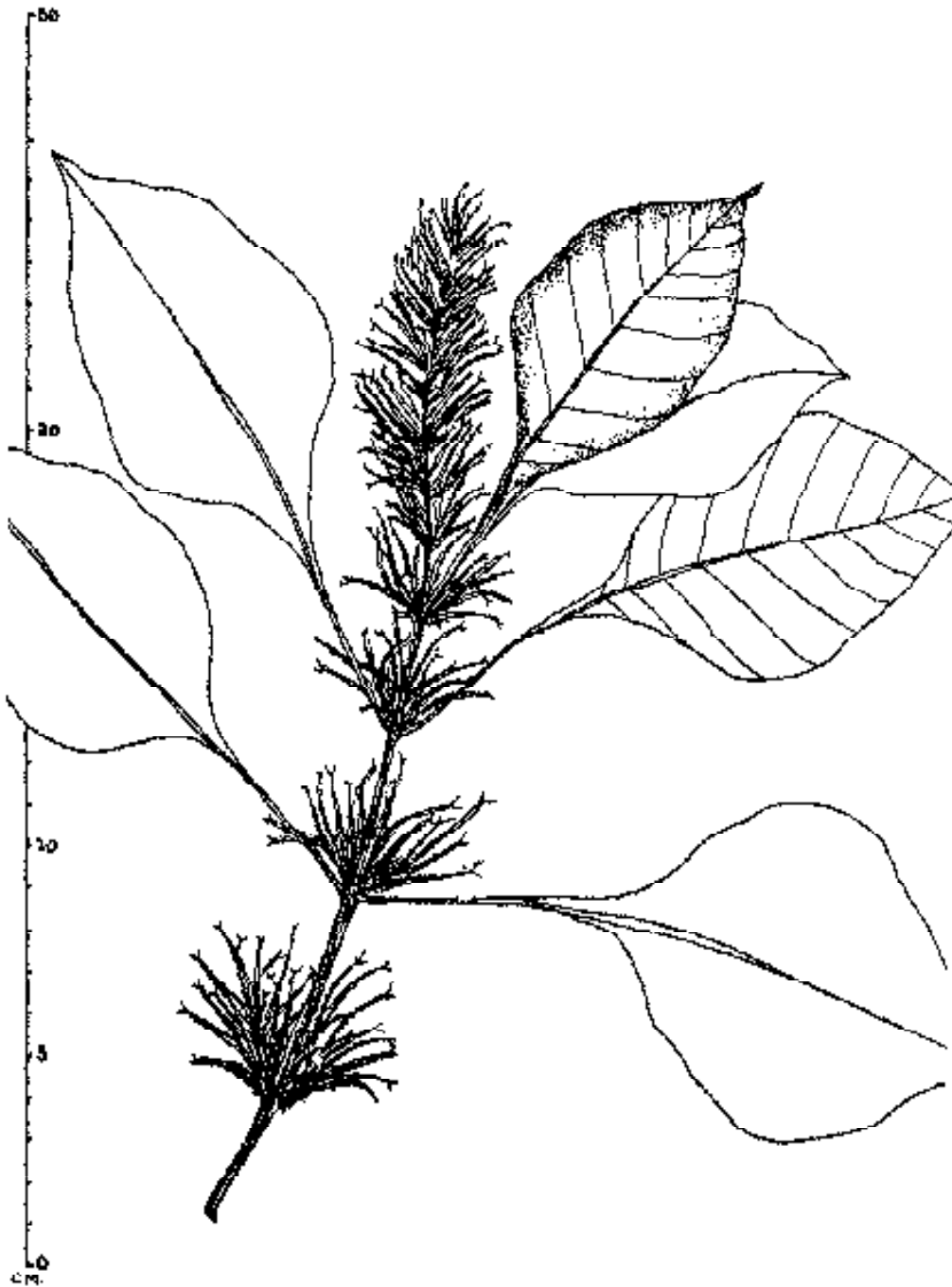
Herbs, 0.5-0.7 m tall; stems pubescent upwards. Leaves 8-10 × 3-5 cm, ovate, cuneate at base, or acute to acuminate at apex, pubescent, petioles 2.5-5.0 cm long. Flowers in the midst of axillary spines, dark lilac, spines with 2 spinous teeth at apex. Capsules 1.0-1.3 cm long, linear-oblong, acute. Seeds oblong, compressed, hygroskopically hairy.

Fls. & Frts. : December-January.

Distrib. : Common as forest undergrowth. 168506.

HEMIGRAPHIS Nees *emend.* T. Anders.

Hemigraphis latebrosa (Heyne ex Roth) Nees in DC. Prodr. 11: 723.1847; C. B. Cl. in Hook. f. Fl. Brit. India 4: 423.1884; Cooke, Fl.



f. 65. *Haplanthodes verticillata* (Roxb.) R. B. Majumdar

Pres. Bombay 2: 434.1958 (Repr. ed.). *Ruellia latebrosa* Heyne ex Roth, Nov. Pl. Sp. 307.1821. *Hemigraphis latebrosa* var. *heyneana* Bremek. Mat. Mon. Strob. 139.1944; Sant. in Univ. Bombay Bot. Mem. 2: 26.1952.

Herbs; stems procumbent, pubescent. Leaves 3–6 × 2–3 cm, ovate, cuneate at base, acuminate at apex, margins crenate. Flowers blue, in axillary and terminal heads; bracts foliaceous, elliptic, acute. Capsules ca. 0.6 cm long, oblong, pubescent, 6-seeded. Seeds suborbicular, hairy.

Fls. & Frts. : November–December.

Illus. : Wight, Ic. t. 1504.1850.

Distrib. : Not frequent, on hill tops 167729, 168482.

HYGROPHILA R. Br. emend. Heine

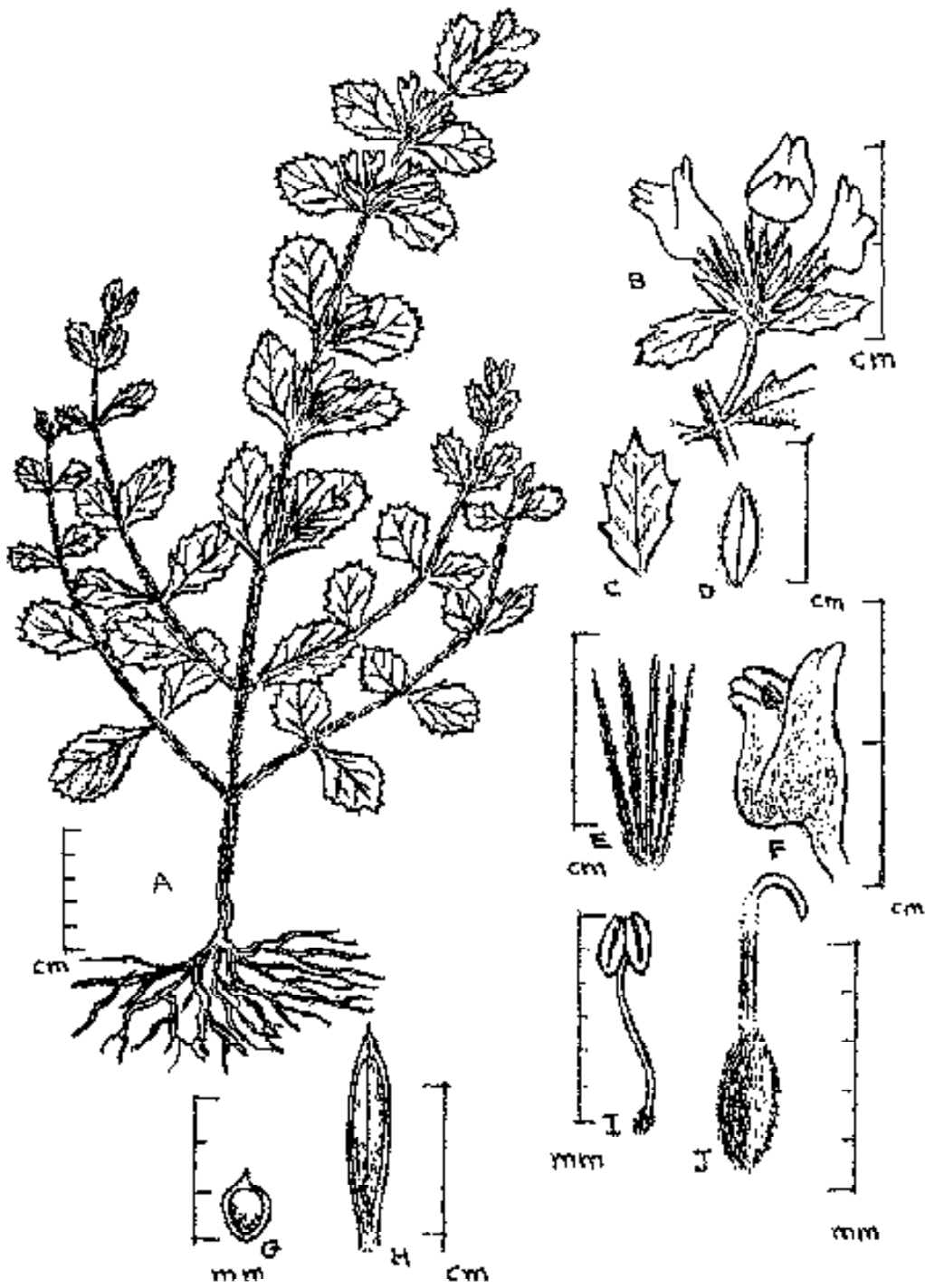
- | | | |
|--|-----|------------------------|
| 1. Stems erect, unbranched : | | |
| 2. Plants armed with sharp axillary spines | ... | <i>H. schullii</i> |
| 2. Plants unarmed | ... | <i>H. ringens</i> |
| 1. Stems prostrate or decumbent, branched : | | |
| 3. Leaves with distantly serrate–dentate margins | ... | <i>H. phlomoides</i> |
| 3. Leaves with entire margins | ... | var. <i>roxburghii</i> |
| 4. Fertile stamens 2; seeds 20 or more | ... | <i>H. polysperma</i> |
| 4. Fertile stamens 4; seeds 8–10 | ... | <i>H. serpyllum</i> |

Hygrophila phlomoides Nees var. **roxburghii** C. B. Cl. in Hook. f. Fl. Brit. India 4: 408.1885; Sharma & Pradhan in J. Econ. Tax. Bot. 14: 609.1990.

Herbs up to 40 cm tall; stems branched, decumbent, striate, glandular–pubescent. Leaves 1–5 × 0.9–2.5 cm, usually obovate or elliptic–oblong, cuneate at base, obtuse or subacute at apex, margins serrate–dentate in upper 2/3 parts. Flowers pale purple with dark purple streaks, bracteate, in axillary, subsessile to peduncled, 3-flowered cymes. Capsules 1.3–1.6 × 0.2 cm, oblong–linear, slightly dilated and mucronate at apex. Seeds many, compressed, ovoid, apiculate, margined.

Fls. & Frts. : February–April.

Distrib. : Rare, restricted to the dried park lake area. Locally abundant. 167489.



f. 66. *Hygrophila phlomoides* Nees var. *roxburghii* C. B. Cl.

Hygrophila polysperma T. Anders. in J. Linn. Soc. 9 : 456.1867; C. B. Cl. in Hook. f. Fl. Brit. India 4: 406.1884; Cooke, Fl. Pres. Bombay 2: 429.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 19.1952. *Justicia polysperma* Roxb. Fl. Ind. 1: 119.1832.

Herbs, 15–30 cm long; stems procumbent, much branched. Leaves 1–3 × 0.4–1.2 cm, linear-oblong to ovate, tapering at base, subobtusate at apex. Flowers pale-blue, in terminal, dense spikes. Capsules ca. 1 cm long, linear-oblong, apiculate, many-seeded. Seeds orbicular.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 1492.1849. (*Hemiadelphis polysperma* Nees in Wall. Pl. As. Rar. 3: 80.1832).

Distrib. : Borivli, H. Santapau, 152–60 (BLAT).

Hygrophila ringens (L.) Steud. Nom. 1. 418.1821; Nicols. *et al.* Interpr. Hort. Malab. 39.1988. *Ruellia ringens* L. Sp. Pl. 635.1753. *Hygrophila quadrivalvis* (Buch.–Ham.) Nees in Wall. Pl. As. Rar. 3: 81.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 407.1884. *H. angustifolia* T. Cooke, Fl. Pres. Bombay 2: 354.1904 [2 : 430.1958 (Repr. ed)] non R. Br.1810.

Herbs 60–80 cm tall; stems mostly straight upright. Leaves 2.5–8.0 × 2.0–3.5 cm, elliptic-ovate to obovate, rounded at base, obtuse at apex. Flowers violetish, in axillary whorls, bracts foliaceous, obtuse. Capsules 2.0–2.5 × 1.5 cm, 8–12-seeded. Seeds ovoid, hygroscopically hairy.

Fls. & Frts. : November–February.

Illus. : Wight, Ic. tt. 1489 & 1490.1849. (*Ruellia salicifolia* Vahl, Symb. Bot. 3: 84.1794); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 532.1982.

Distrib. : In-puddles and nallas. 168433.

Hygrophila schulli (Buch.–Ham.) M. Roem. & Schult. M. Almeida in J. Bombay nat. Hist. Soc. 83 (Suppl.) 221.1986; Nicols. *et al.* Interpr. Hort. Malab. 40.1988. *Behel schulli* Buch.–Ham. in Trans. Linn. Soc. Lond. 14: 289.1825. *Asteracantha longifolia* (L.) Nees in Wall. Pl. As. Rar. 3: 90.1832; Cooke, Fl. Pres. Bombay 2: 428.1958 (Repr. ed.); Sant, in Univ. Bombay Bot. Mem. 2: 17.1952. *Hygrophila spinosa* T. Anders. in Thw. Enum. Pl. Zeyl. 225.1860; C. B. Cl. in Hook. f. Fl. Brit. India 4: 408.1884. *H. auriculata* (K. Schum.) Heine in Kew Bull. 16: 172.1962. 'Kolshinde'.

Herbs 60–150 cm tall; stems stout, subquadrangular, hispid. Leaves in whorls of 6, outer pairs 5–15 × 1.5–3.5 cm, oblong-lanceolate, cuneate at base, acute at apex, margins minutely dentate, thorns 6 at each node. Flowers purple, in axillary whorls of 8, in 4 pairs, bracts foliaceous. Capsules ca. 1 × 0.5 cm, linear-oblong, pointed, 4–8-seeded; seeds orbicular.

Fls. & Frts. : June–January.

Illus. : Wight, Ic. t. 449.1841. (*Asteracantha longifolia*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 530.1982.

Distrib. : Common in nallas and puddles. 167277.

Hygrophila serpyllum (Nees) T. Anders. in J. Linn. Soc. 9: 456.1867; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 406.1884; Cooke, *Pres. Bombay* 2: 429.1958 (Repr. ed.); Sant. in *Univ. Bombay Bot. Mem.* 2: 19.1952. *Physichilus serpyllum* Nees in Hook. *Comp. Bot. Mag.* 2: 311.1837. 'Ran-tiwan'.

- | | | |
|---------------------------------|-----|------------------------|
| 1. Leaves ovate-acute | ... | var. <i>serpyllum</i> |
| 1. Leaves orbicular to reniform | ... | var. <i>hookeriana</i> |

var. serpyllum

Herbs; rootstock woody; stems 10–25 cm long, procumbent. Leaves 1.0–3.0 × 0.6–2.2 cm, elliptic to ovate, hairy. Flowers in terminal spikes, bracts elliptic, subacute, hairy, bracteoles linear-oblong. Capsules ca. 0.6 cm long, linear-oblong, pointed, 8–10-seeded. Seeds orbicular-ovoid.

Fls. & Frts. : September–January.

Illus. : Wight, Ic. t. 1493.1849. (*Physichilus serpyllum*).

Distrib. : Common on open grounds. 167739, 168492.

Hygrophila serpyllum var. *hookeriana* C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 407.1884; Cooke, *Fl. Pres. Bombay* 2: 430.1958 (Repr. ed.); Sant. in *Univ. Bombay Bot. Mem.* 2: 20.1952.

Robust herbs. Leaves variable, ca. 2–5 cm across, orbicular, often reniform, obtuse at apex, shortly petioled. Flowers white or light pinkish, in terminal spikes. Capsules ca. 0.6 cm long, linear-oblong, pointed, 6–10 seeded.

Fls. & Frts. : September–March.

Distrib. : *Randeria*, 587 (BLAT).

JUSTICIA L.

Justicia betonica L. Sp. Pl. 15, 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 525.1885; Sant. in Univ. Bombay Bot. Mem. 2: 85.1952. *J. betonica* var. *ramosissima* C. B. Cl. in Hook. f. *op. cit.*; Cooke, Fl. Pres. Bombay 2: 486.1958 (Repr. ed.).

Undershrubs, 2.0–2.5 m tall; stems diffusely branched. Leaves 6.0–10.0 × 2–3 cm, ovate to obovate, acute to attenuate at base, acuminate at apex, margins entire or crenate. Flowers dull-white to pale-pink, in 1–3, terminal or subterminal spikes 6–12 cm long; bracts and bracteoles similar, ca. 1.5 × 0.7 cm, elliptic to ovate. Capsules ca. 1.0 × 0.5 cm, mucronate, pubescent, 4-seeded. Seeds tuberculately rugose.

Fls. & Frts. : October–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 534.1982.

Distrib. : Salsette, G. L. Shah (1962).

LEPIDAGATHIS Willd.

- | | | |
|---|-----|-----------------------|
| 1. Flowers in subradical globose heads ; calyx 4-partite | ... | <i>L. cristata</i> |
| 1. Flowers in axillary or terminal spikes ; calyx 5-partite : | | |
| 2. Seeds 4 | ... | <i>L. cuspidata</i> |
| 2. Seeds 2 : | | |
| 3. Bracteoles dimorphic | ... | <i>L. bandraensis</i> |
| 3. Bracteoles uniform | ... | <i>L. trinensis</i> |

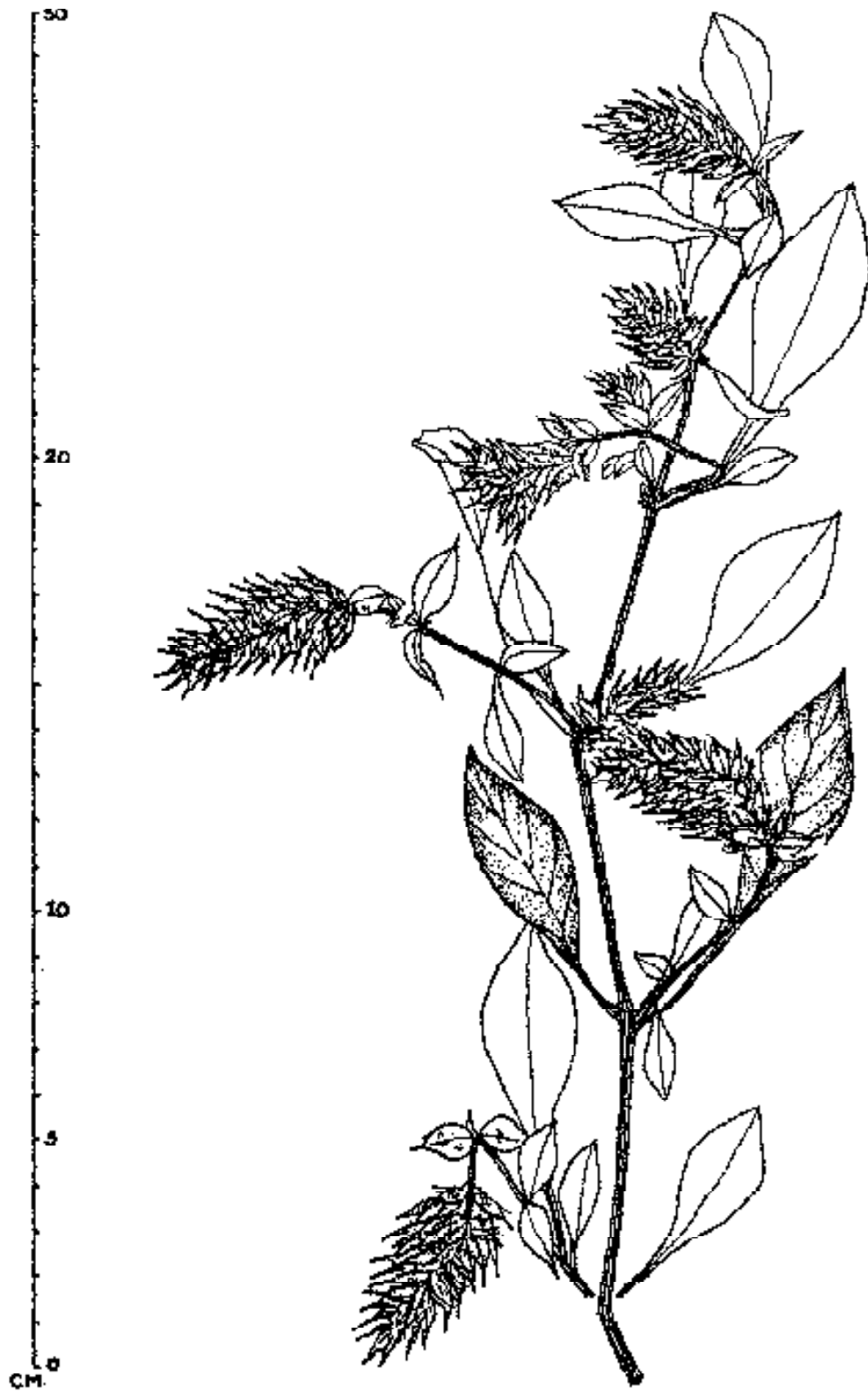
Lepidagathis bandraensis Blatt. in J. Asiat. Soc. Beng. (New series) 26 : 347. 1930; Sant. in Univ. Bombay Bot. Mem. 2: 75.1952; Moorthy in Singh et al. Fl. Maharashtra (Dicots) 2 : 664. 2001.

Herbs. Leaves opposite, sessile, elliptic-lanceolate, margins, spinous-serrulate. Flowers in spikes, clustered near the base; bracts imbricating; fertile ones glabrous, the rest hairy, bracteoles also dimorphous; calyx segments spinous-tipped. Capsules ovate, 2-seeded, with white mucilaginous hairs.

Fls. & Frts. : November–March.

Distrib. : Bandra (Bombay).

Lepidagathis cristata Willd. Sp. Pl. 3: 400.1800; C. B. Cl. in Hook. f. Fl. Brit. India 4: 516.1885; Cooke, Fl. Pres. Bombay 2: 470.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 71.1952. '*Bhui-gend*'.



f. 67. *Lepidagathis cuspidata* Nees



f. 68. *Lepidagathis trinervis* Wall. ex Nees

Perennial herbs; branches erect or diffuse. Leaves $3.5 \times 0.4-1.0$ cm, linear or linear-lanceolate, acute at both ends, margins entire to serrulate. Flowers pinkish, in condensed, ovoid, pilose spikes near the base of the stem. Capsules $0.4-0.6 \times 0.3$ cm, ovoid, 2-seeded. Seeds ovate, hygroscopically hairy.

Fls. & Frts. : October-May.

Illus. : Wight, Ic. t. 455.1841; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 535.1982.

Distrib. : Borivli, T. S. N. Rao, L. 26 (BLAT).

Lepidagathis cuspidata Nees in Wall. *Pl. Asiat. Rar.* 3: 97.1832; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 519.1885; Cooke, *Fl. Pres. Bombay* 2: 474.1958 (Repr. ed.); Sant. in *Univ. Bombay Bot. Mem.* 2: 73.1952.

Undershrubs up to 1 m tall, erect; stems and branches quadrangular. Leaves $6.0-10.5 \times 2.0-4.5$ cm, oblong-lanceolate, acute at base, acute to acuminate at apex. Flowers white, in terminal spikes 2.5-15.0 cm long; bracts $1.0-1.2 \times 0.4-0.5$ cm, elliptic-oblong or obovate, acute, spinous-pointed, 3-nerved; bracteoles linear-lanceolate, spine-tipped. Capsules ca. 0.8 cm long, ovoid-lanceolate, 4-seeded. Seeds ovoid, compressed, hygroscopically hairy.

Fls. & Frts. : March-May.

Illus. : Bedd. Ic. t. 227.1872.

Distrib. : Randeria, 47 (BLAT); Koppikar (1974).

Lepidagathis trinervis Wall. ex Nees in Wall. *Pl. Asiat. Rar.* 3: 96.1832; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 517.1885; Cooke, *Fl. Pres. Bombay* 2: 471.1958 (Repr. ed.); Sant. in *Univ. Bombay Bot. Mem.* 2: 72.1952.

Suffruticose herbs; stems diffuse, root stock woody. Leaves $1.0-4.0 \times 0.3-0.6$ cm, linear, tapering at base, subacute at apex. Flowers white in axillary, sessile, ovoid, 1.0-1.8 cm long spikes usually 2 or more together, bracts ovate to ovate-elliptic, cuspidate at apex. Capsules ca. 0.6 cm long, ovoid-lanceolate, compressed. Seeds oblong, hygroscopically hairy.

Fls. & Frts. : November-February.

Distrib. : Borivli, A. Randeria, 601 (BLAT).

MACKENZIEA Nees

Mackenzia integrifolia (Dalz.) Bremek. in Verh. Neder. Akad. Wet. 2, 40 : 182.1944; Sant. in Univ. Bombay Bot. Mem. 2: 43.1952. *Endopogon integrifolius* Dalz. in Kew J. Bot. 2: 343.1850. *Strobilanthes perfoliatus* T. Anders. in J. Linn. Soc. 9: 471.1867; C. B. Cl. in Hook. f. Fl. Brit. India 4:458.1884; Cooke, Fl. Pres. Bombay 2:448.1958 (Repr. ed.). 'Waiti'.

Shrubs ca. 1 m tall; stems much branched, terete. Leaves 10–20 × 3.5–6.5 cm, elliptic–lanceolate, tapering at base, acuminate at apex, grey beneath. Flowers blue, in axillary and terminal, strongly aromatic, 5–15 cm long spikes (inflorescence glandular–pubescent); bracts, bracteoles and calyx glandular–pubescent. Capsules ca. 1.0 × 0.5 cm, obovoid, mucronate, compressed.

Fls. & Frts. : December–May.

Illus. : Wight, Ic. t. 1527.1850. (*Leptacanthus alatus*.)

Distrib. : Occasional bushes, 167417.

NEURACANTHUS Nees

- | | | |
|---|-----|--------------------------|
| 1. Flowering spikes elongate, pubescent; corolla 2–lipped | ... | <i>N. trinervis</i> |
| 1. Flowering spikes globose, silky hairy; corolla entire | ... | <i>N. sphaerostachys</i> |

Neuracanthus sphaerostachys (Nees) Dalz. in Hook. Kew J. Bot. 2: 140.1850; C. B. Cl. in Hook. f. Fl. Brit. India 4: 491.1885; Cooke, Fl. Pres. Bombay 2: 465.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 66.1952. *Lepidagathis sphaerostachyus* Nees in DC. Prodr. 11: 254.1847.

Perennial herbs, 30–60 cm tall; stems erect, scabrous–pubescent. Leaves 3.5–10.0 × 3.0–6.0 cm, sessile, elliptic–oblong, truncate or subcordate at base, obtuse, apiculate at apex, lineolate on both the surfaces. Flowers blue, in axillary spikes; bracts elliptic to suborbicular, acuminate, hairy. Capsules ca. 1.3 × 0.4 cm, ovoid, acute, attenuate at base. Seeds orbicular, silky hairy.

Fls. & Frts. : September–October.

Illus. : Wight, Ic. t. 1531.1850. (*Neuracanthus lawii*.)

Distrib. : Common as forest undergrowth. 167273, 167345, 168429.

Neuracanthus trinervis Wight, Ic. t. 1532.1850; C. B. Cl. in Hook. f. Fl. Brit. India 4: 491.1885; Cooke, Fl. Pres. Bombay 2: 465.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 66.1952.



f. 69. *Mackenzia integrifolia* (Dalz.) Bremek.

Shrubby plants 30–80 cm tall; stems slender, erect. Leaves 6–18 × 3.0–4.5 cm, sessile, oblong–elliptic or elliptic–lanceolate, rounded or acute at base, acute at apex, lineolate. Flowers blue, in axillary spikes, 2.5–12.0 cm long, hairy; bracts broadly ovate, acute, spine-tipped, 5–7-nerved. Capsules 0.6–0.8 cm, oblong, acuminate, tetragonous, glabrous, 4-seeded. Seeds orbicular, silky pubescent.

Fls. & Frts. : November–January.

Illus. : Wight, *op. cit.*

Distrib. : Common as undergrowth. 167728.

PERISTROPHE Nees

Peristrophe paniculata (Forssk.) Brummitt in Kew Bull. 38 (3) : 451.1983. *Dianthera paniculata* Forssk. Fl. Aeg.–Arab. 7.1775. *Peristrophe bicalyculata* (Retz.) Nees in Wall. Pl. Asiat. Rar. 3: 113.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 554.1885; Cooke, Fl. Pres. Bombay 2: 495.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 93.1952.

Herbs, 1.0–1.5 m tall; stems branched, hairy, angled. Leaves 3–7 × 2.5–3.5 cm, ovate, rounded at base, acuminate at apex, hairy. Flowers rosy, in trichotomous, lax, pubescent, paniculate cymes. Capsules 0.8–0.25 cm, stipitate, pointed, pubescent. Seeds orbicular, papillose.

Fls. & Frts. : October–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 538.1982.

Distrib. : Occasional bushes. 167302.

PETALIDIUM Nees

Petalidium barlerioides (Roth) Nees in Wall. Pl. As. Rar. 3: 82.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 416.1884; Cooke, Fl. Pres. Bombay 2: 435.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 29.1952. *Ruellia barlerioides* Roth, Nov. Pl. Sp. 319.1821.

Undershrubs, 1.0–1.5 m tall. Leaves 4–10 × 3.5–6.0 cm, broadly ovate, rounded at base, acuminate at apex, margins crenate–serrate. Flowers white, solitary or crowded on short lateral branches, bracteolate; bracteoles foliaceous, ovate, acuminate, scarious. Capsules 1.0–1.5 × 0.5–0.6 cm, clavate, pointed, 2-seeded. Seeds orbicular, villous on margins.

Fls. & Frts. : February–April.

Distrib. : Borivli, N. A. Irani, 1771 (BLAT).

PLEOCAULIS Bremek.

Pleocaulis ritchiei (C. B. Cl.) Bremek. in Verh. Nederl. Akad. Wet. 2, 40 : 185.1944; Sant. in Univ. Bombay Bot. Mem. 2: 45.1952. *Strobilanthes sessilis* Nees var. *ritchiei* C. B. Cl. in Hook. f. Fl. Brit. India 4: 552.1884; Cooke, Fl. Pres. Bombay 2: 443.1958 (Repr. ed.).

Undershrubs, 30–45 cm tall; stems erect, quadrangular, hairy. Leaves 1.5–3.0 cm broad, as long as broad, ovate, rounded or cordate at base, acute at apex, sessile. Flowers purple, in strobiliform, axillary and terminal spikes. Capsules 0.8–1.0 cm long, linear-oblong, acute. Seeds suborbicular, hygroskopically hairy.

Fls. & Frts. : September–January.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill top 2: 209.1974 (Repr. ed.)

Distrib. : Kanheri caves. collector ? 28942. (BLAT).

RHINACANTHUS Nees

Rhinacanthus nasuta (L.) Kurz in J. Asiat. Soc. Bengal 39: 79.1870; Sant. in Univ. Bombay Bot. Mem. 2: 92.1952. *Justicia nasuta* L. Sp. Pl. 16.1753. *Rhinacanthus communis* Nees in Wall. Pl. Asiat. Rar. 3: 109.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 541.1885; Cooke, Fl. Pres. Bombay 2: 494.1958 (Repr. ed.).

Undershrubs, 1.0–1.5 m tall; stems subterete. Leaves 5–10 × 2.0–2.5 cm, elliptic-lanceolate, tapering at base, acute at apex, margins entire, lineolate, glabrous. Flowers white, sessile or shortly pedicellate, solitary or 2–3 together, distant, in lax, terminal panicles; bracts and bracteoles glandular-pubescent. Capsules ca. 2 cm long, narrow, pointed, velvety-pubescent, stipitate. Seeds ca. 0.25 cm across, tuberculate, glabrous, black.

Fls. & Frts. : October–January.

Illus. : Wight, Ic. t. 464.1841 (*Rhinacanthus communis*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 539.1882.

Distrib. : Salsette, Shah (1969).

ROSTELLULARIA Reichenb.

- | | | |
|--|-----|----------------------|
| 1. Calyx segments longer than bracts and bracteoles | ... | <i>R. diffusa</i> |
| 1. Calyx segments equal to or shorter than bracts and bracteoles : | | |
| 2. Bracts ovate-elliptic | ... | <i>R. japonica</i> |
| 2. Bracts linear-lanceolate | ... | <i>R. procumbens</i> |

Rostellularia diffusa (Willd.) Nees in Wall. Pl. As. Rar. 3: 100.1832 & in DC. Prodr. 11: 371.1847; Ellis in Bull. Bot. Surv. India 30 : 131. (1988) 1990. *Justicia diffusa* Willd. Sp. Pl. 1: 87.1797; C. B. Cl. in Hook. f. Fl. Brit. India 4: 538.1885; Cooke, Fl. Pres. Bombay 2: 489.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 87.1952.

Herbs 20-60 cm tall. Leaves 2.0-3.5 × 1.0-1.8 cm, ovate to ovate-elliptic, or elliptic-lanceolate, acute at base, acute to acuminate at apex, appressed-hairy. Flowers pink or purple, in axillary and terminal, 5-6 cm long, erect spikes. Capsules 0.3-0.4 cm long, oblong, pointed. Seeds ovate, minutely papillose.

Fls. & Frts. : July-September.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 455.1988.

Distrib. : Versova, H. Santapau, 50149-50. (BLAT).

Rostellularia japonica (Thunb.) Ellis in Bull. Bot. Surv. India 22: 196 (1980) 1982. *Justicia japonica* Thunb. Fl. Jap. 22.1784. *Justicia simplex* D. Don, Prodr. Fl. Nepal 118.1825; C. B. Cl. in Hook. f. Fl. Brit. India 4: 539.1885; Cooke, Fl. Pres. Bombay 2: 490.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 89.1952.

Slender herbs, 15-30 cm high, much branched, erect, quadrangular, grooved, hairy. Leaves 2.5-5.0 × 0.8-2.5 cm, ovate or elliptic-oblong, acute at base, subobtuse at apex. Flowers pink to lilac, in dense, terminal and axillary spikes 2.5-10.5 cm long; bracts subacute, hairy, scarious-margined. Capsules ca. 0.5 cm long, oblong, apically pubescent. Seeds concentrically rugose, ovate.

Fls. & Frts. : August-December.

Illus. : Fyson, Fl. Nilgiri & Pulney Hill top. 2: 212.1974 (Repr. ed.).

Distrib. : G. L. Shah (1962).

Rostellularia procumbens (L.) Nees in Wall. Pl. Asiat. Rar. 3: 101.1832. *Justicia procumbens* L. Sp. Pl. 15.1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 539.1885; Cooke, Fl. Pres. Bombay 2: 491.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 90.1952. 'Karambal'.

Herbs up to 30 cm long; branchlets spreading, diffuse, rooting at lower nodes. Leaves 1-3 × 0.5-2.0 cm, elliptic, ovate to lanceolate, obtuse at both ends, hairy on both sides. Flowers pale violet, in dense, cylindrical, terminal spikes 1.5-3.0 cm long; bracts hairy; bracteoles lanceolate, margins scarious. Capsules ca. 0.4 × 0.2 cm, oblong, hairy, pointed. Seeds ovoid, compressed, tubercled.

Fls. & Frts. : October-March.

Illus. : Sant. *op. cit.* facing page 90.

Distrib. : Common on hill slopes and open plains. 167338, 168467.

RUELLIA L. *emend.* Bremek.

Ruellia tuberosa L. Sp. Pl. 635.1753; Bremek. in Verh. Ned. Akad. Wet. Afd. Natuurk. Tweedes Sect. 2, 45: 11.1948; Sant. in Univ. Bombay Bot. Mem. 2: 23.1952; Naik, Fl. Marathwada, 2: 689.1998.

Herbs, 20-50 m tall; stems erect, hispid in younger parts, nodes purplish. Leaves 2.5-5.0 × 1.5-2.0 cm, obovate or elliptic, tapering at base, obtuse, acute at apex. Flowers blue to violet, in axillary or terminal cymes. Capsules ca. 2.5 × 0.4 cm, oblong-cylindric, glabrous, minutely beaked at apex. Seeds ca. 0.2 cm across, compressed, orbicular, hairy.

Fls. & Frts. : September-May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 540.1982.

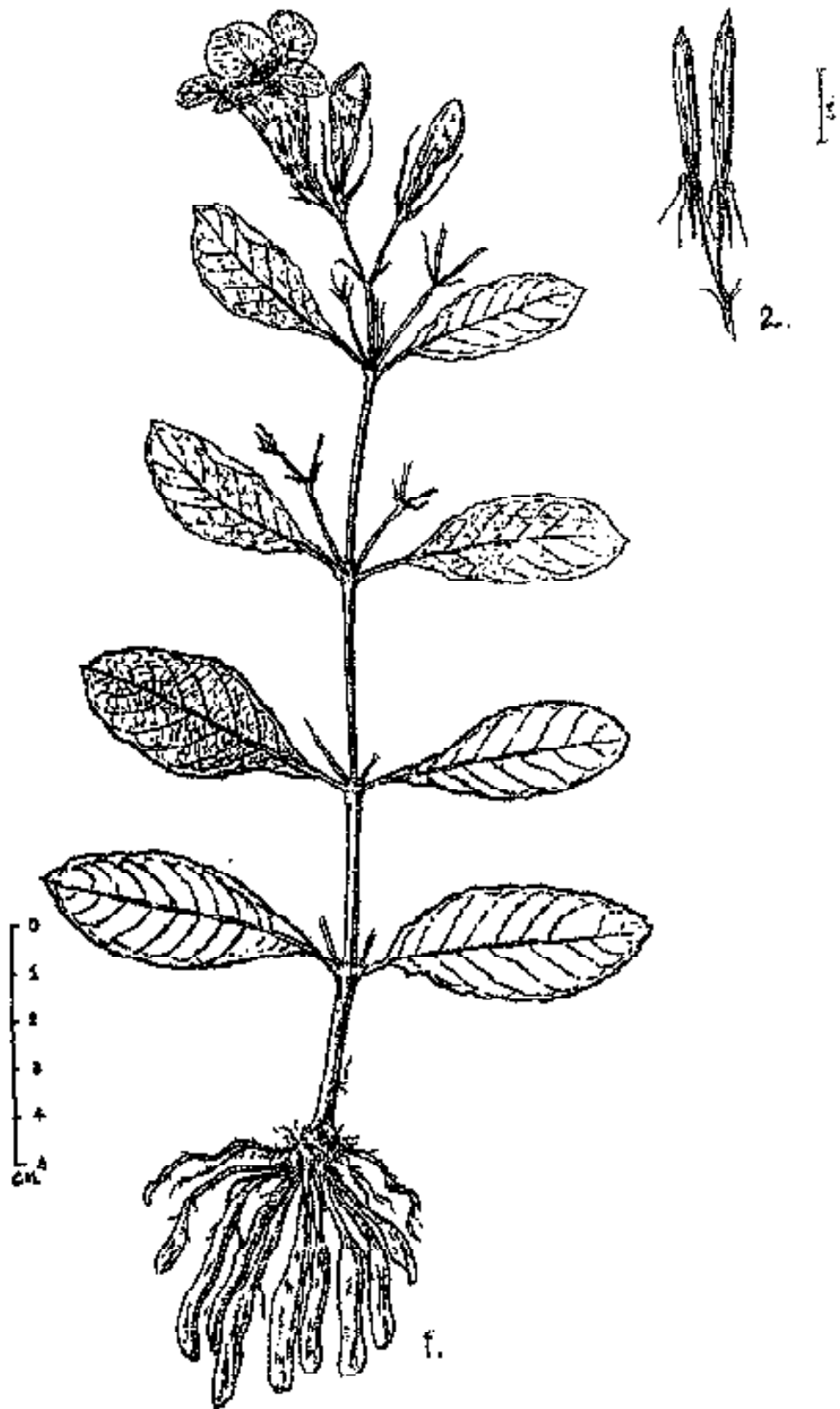
Distrib. : Salsette, *Shah* (1969).

RUNGIA Nees

- | | | |
|---|-----|---------------------|
| 1. Bracts dimorphic; upper lip of corolla, emarginate | ... | <i>R. pectinata</i> |
| 1. Bracts not dimorphic; upper lip of corolla, not emarginate : | | |
| 2. Stems decumbent, glabrescent; capsules acute | ... | <i>R. repens</i> |
| 2. Stems erect, densely hairy; capsules obtuse | ... | <i>R. elegans</i> |

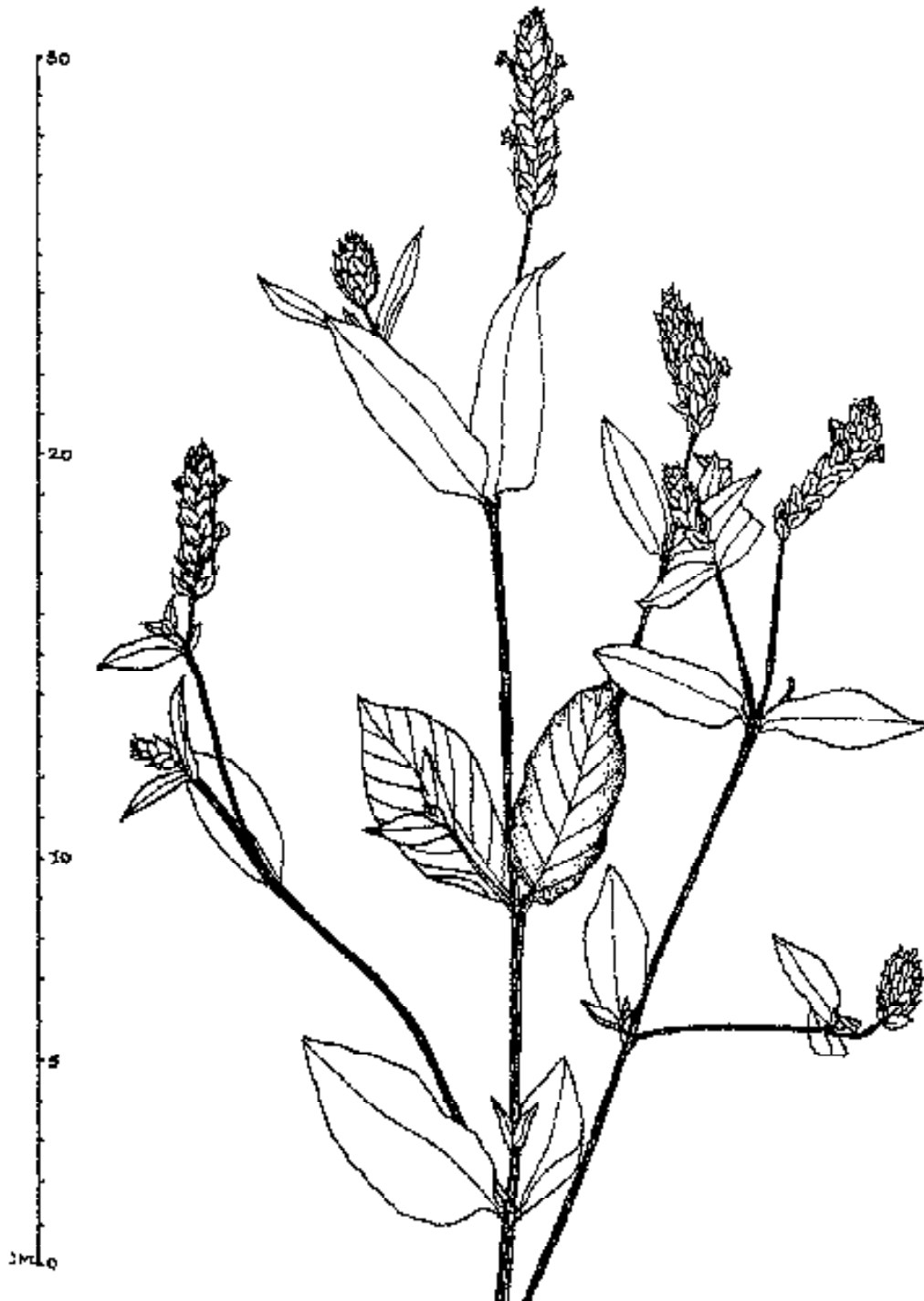
Rungia elegans Dalz. in Dalz. & Gibs. Bombay Fl. 196.1861; C. B. Cl. in Hook. f. Fl. Brit. India 4: 549.1885; Cooke, Fl. Pres. Bombay 2: 480.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 78.1952.

Herbs, 15-40 cm tall; stems angular. Leaves 3.0-6.5 × 1.0-3.5 cm, elliptic-lanceolate, rounded at base, acute to acuminate at apex. Flowers blue, in terminal, 2.5-5.0 cm long, imperfectly 1-sided spikes; bracts broadly elliptic, hairy and with scarious margins, bracteoles



f.70. *Ruellia tuberosa* L.

1 = Habit, 2 = Capsules.



f.71. *Rungia elegans* Dalz.

linear-lanceolate. Capsules 0.4–0.6 × 0.2–0.3 cm, obovoid-oblong, truncate, mucronulate, pubescent. Seeds suborbicular, rugose with concentric furrows.

Fls. & Frts. : September–January.

Distrib. : Koppikar (1974).

Rungia pectinata (L.) Nees in DC. Prodr. 11: 469.1847; Sant. in Univ. Bombay Bot. Mem. 2: 77.1952. *Justicia pectinata* L. in Torner, Cent. II, Pl. 3.1756. *Rungia parviflora* Nees var. *pectinata* (L.) C. B. Cl. in Hook. f. Fl. Brit. India 4: 550.1885; Cooke, Fl. Pres. Bombay 2: 478.1958 (Repr. ed.). *R. parviflora* var. *muralis* C. B. Cl. in Hook. f. *op. cit.*; Cooke, *op. cit.*

Annual herbs; stems much branched, diffuse. Leaves 1.2–6.0 × 0.4–3.5 cm, elliptic, lanceolate to oblong-lanceolate, acute at base, acute or obtuse at apex, lineolate. Flowers blue, in terminal and axillary, secund, 1.0–2.5 cm long spikes; bracts dimorphic, lanceolate to orbicular; bracteoles elliptic-oblong. Capsules 0.15–0.2 cm long, ovoid, acute, pubescent, 2–4-seeded. Seeds orbicular, echinulate.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 1547.1850; Mahesh. Illus. Fl. Delhi f. 167.1966.

Distrib. : Frequent as undergrowth and in open places. 167701, 167789.

Rungia repens (L.) Nees in Wall. Pl. Asiat. Rar. 3: 110.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 549.1885; Cooke, Fl. Pres. Bombay 2: 480.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 78.1952. *Justicia repens* L. Sp. Pl. 15.1753. '*Ghati-pipara*'.

Herbs; stems decumbent, rooting at nodes. Leaves 2–5 × 1–2 cm, elliptic-lanceolate, rounded at base, acute to acuminate at apex, puberulous. Flowers pinkish, in erect, terminal, 2.5–6.0 cm long spikes. Capsules 0.4–0.5 cm long, ovoid, oblong, flat, pubescent. Seeds orbicular, compressed, concentrically tuberculate.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 465.1841; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 541.1982.

Distrib. : Borivli, A. Randeria, 109 (BLAT).

SYNNEMA Bth.

Synnema anomalum (Blatt.) Sant. in Rec. Bot. Surv. India 16 (1) : 173.1960 & 194.1967 (3rd Rev. ed.); Raghavan & Singh in Jain & Sastry (eds), Pl. Cons. Bull. 3: 5.1983 & J. Econ. Tax. Bot. 5(1) : 161.1984; Singh & Raghavan *Ibid.* 8(1) : 33.1986; Ahmedulla & Nayar, Endemic Pl. Indian Reg. 1: 153.1987. *Cardanthera anomala* Blatt. in J. & Proc. As. Soc. Bengal. 1930 (n.s.) 26: 350.1930; Sant. in Univ. Bombay Bot. Mem. 2: 14.1952, & Rec. Bot. Surv. India 16(1) : 173.1960. *Synnema anomala* (Blatt.) Raiz. in Indian For. 94. 451, 1968.

Herbs; stems subquadrangular, prostrate. Leaves ca. 2.8×1.1 cm subsessile, obtuse at apex, margins subentire and ciliate, hairy on upper surface. Flowers ca 0.5 cm long, white, solitary axillary, sessile. Capsules ca. 0.7×0.12 cm, pubescent at tip, 10–12-seeded. Seeds tetragonal, in two rows, pale brown with hygroscopic hairs on margins.

Fls. & Frts. : October–December.

Distrib. : Salsette, Hallberg.

THELEPAEPALE Bremek.

Thelepaepale ixiocephala (Bth.) Bremek. in Verh. Nederl. Akad. Wet. (II), 40: 188.1944; Sant. in Univ. Bombay Bot. Mem. 2: 48.1952. *Strobilanthes ixiocephalus* Bth. in Fl. 33: 557.1849; C. B. Cl. in Hook. f. Fl. Brit. India 4: 444.1884; Cooke, Fl. Pres. Bombay 2: 448.1958 (Repr. ed.). 'Karva'.

Straggling shrubs. Leaves 5–15 \times 3–6 cm, elliptic–lanceolate, cuneate at base, often oblique, acuminate at apex, margins crenate, petiolate. Flowers white, 2–3 cm long, bracteolate in pedunculate, ovoid, viscid, 2–3 cm long spikes. Capsules 1–2 cm long, obovoid, 2-seeded, mucronate, compressed, tapering at base. Seeds 0.5 cm long, ovoid, flattened and hygroscopically hairy.

Fls. & Frts. : November–March.

Distrib. : Salsette, Dalzell & Gibson. (1862).

CULTIVATED SPECIES :

Gendarussa vulgaris Nees in Wall. Pl. Asiat. Rar. 3: 104.1832; Naik, Fl. Osmanabad 256.1979. *Justicia gendarussa* Burm. f. Fl. Ind. 10.1768; C. B. Cl. in Hook. f. Fl. Brit. India 4: 532.1885; Cooke, Fl. Pres. Bombay 2: 492.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 91.1952.

Shrubs, 1.5–2.0 m tall; stems much branched, dark purple. Leaves oblong-lanceolate, tapering at both ends. Flowers white with purple streaks, in terminal, 2–3 spikes.

Fls. & Frts. : November–April.

Illus. : Wight, Ic. t. 468.1841.

Distrib. : Vihar lake, H. Santapau, 152–53 (BLAT) (cultivated.).

THUNBERGIACEAE

THUNBERGIA Retz. (*nom. cons.*)

Thunbergia laevis Nees in Wall. Pl. As. Rar. 3: 77.1832; Bremek. in Verh. K. Nederl. Akad. Wet. II 50, (4) : 51.1955; Sant. in J. Bombay nat. Hist. Soc. 53: 500.1955. *T. fragrans auct. non Roxb.* 1795; C. B. Cl. in Hook. f. Fl. Brit. India 4: 390.1884; Cooke, Fl. pres. Bombay 2: 417.1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. 2: 8.1952. 'Chimine'.

Perennial herbs; stems slender, twining, hairy or glabrous. Leaves 5.0–8.5 × 2.0–3.5 cm, deltoid-ovate, rounded, cordate or hastate, obtuse to acute and apiculate at apex, margins entire or with large angular lobes. Flowers white, axillary, solitary or in pairs; pedicels 2–4 cm long, bracteoles oblong-lanceolate. Capsules ca. 2.5 cm long, beaked above and globose below, 4-seeded. Seeds hemispheric, reticulato-rugose.

Fls. & Frts. : August–November.

Distrib. : Frequent in cleared open areas of the forest & along forest foot-paths.

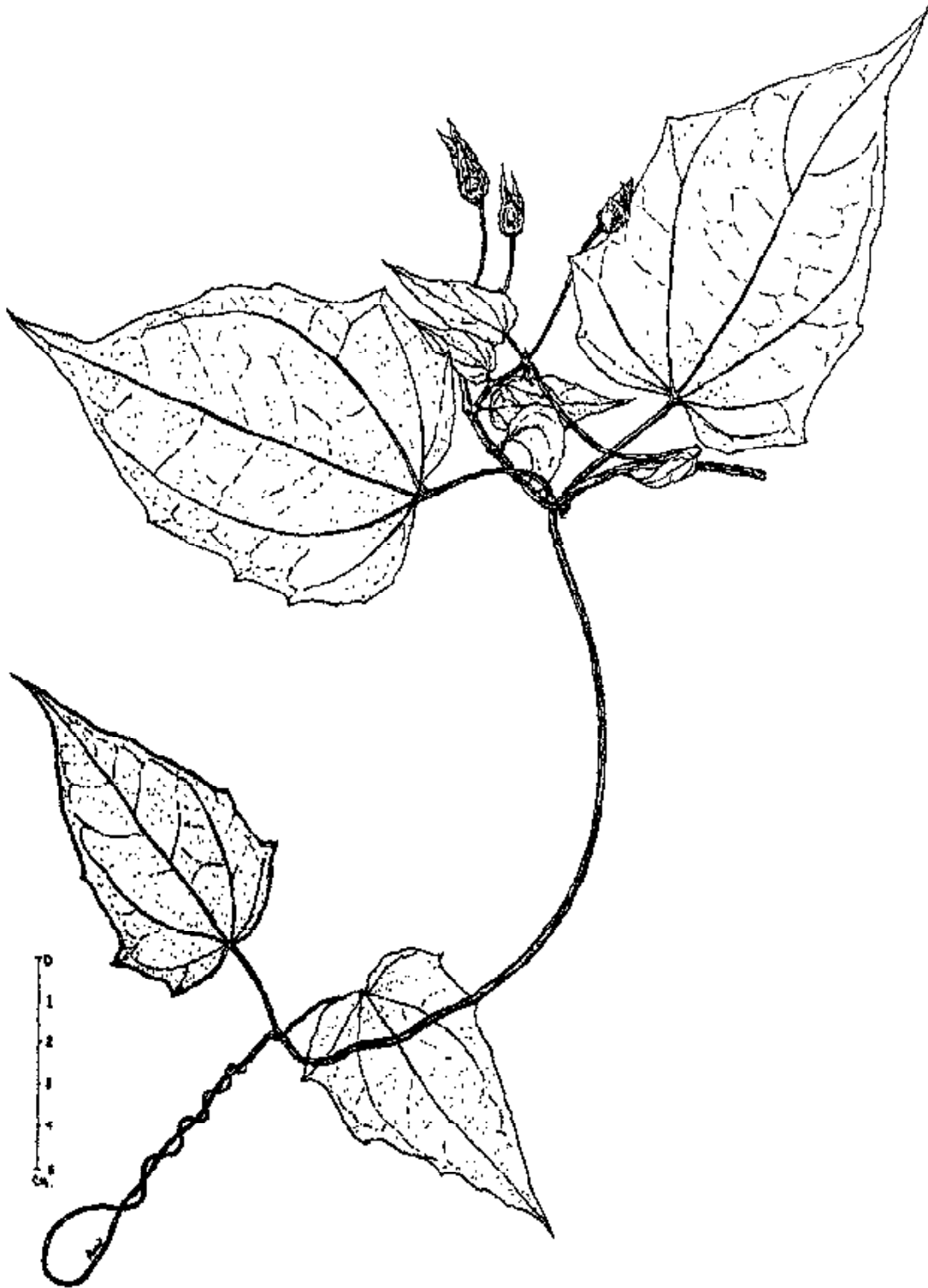
CULTIVATED SPECIES :

Thunbergia erecta (Bth.) T. Anders. in J. Linn. Soc. Bot. 7: 18.1864; Cooke, Fl. Pres. Bombay 2: 418.1958 (Repr. ed.); Sant. in Univ. Bombay. Bot. Mem. 2: 10.1952. *Meyenia erecta* Bth. in Hook. Niger Fl. 476.1849 & Bot. Mag. t. 4013.1857.

Undershrubs, 0.7–1.0 m tall. Leaves elliptic-ovate to obovate or rhomboid. Flowers purple, usually solitary, axillary. Capsules beaked, globose, 4-seeded. Seeds ovoid.

Fls. & Frts. : August–December.

Distrib. : Randeria, 539 (BLAT).



f.72. *Thunbergia laevis* Nees

VERBENACEAE

- | | | |
|---|-----|----------------|
| 1. Flowers in terminal, linear spikes | ... | STACHYTARPHETA |
| 1. Inflorescence not as above : | | |
| 2. Flowers in axillary, globose, conical-oblong, or ovoid heads : | | |
| 3. Stems erect, prickly | ... | LANTANA |
| 3. Stems prostrate, not prickly | ... | PHILA |
| 2. Flowers in paniculate or corymbose cymes : | | |
| 4. Leaves digitate | ... | VITEX |
| 4. Leaves simple : | | |
| 5. Fruits enclosed in bladder-like accrescent calyx ... | | TECTONA |
| 5. Fruits not enclosed in calyx, calyx not bladder like, and accrescent : | | |
| 6. Flowers 4-merous | ... | CALLICARPA |
| 6. Flowers 5-merous : | | |
| 7. Flowers in corymbs | ... | PREMNA |
| 7. Flowers not in corymbs : | | |
| 8. Corolla personate, ca. 3.5 cm across ... | | GMELINA |
| 8. Corolla salver-form, ca. 2.0 cm across ... | | CLERODENDRUM |

CALLICARPA L.

Callicarpa tomentosa (L.) Murr. in L. Syst. Veg. (ed. 13), 130.1774; Sant. in Rec. Bot. Surv. India 16(1) : 212.1967 (3rd Rev. ed.). *Tomex tomentosa* L. Sp. Pl. 118.1753. *Callicarpa lanata* L. Mant. Alt. 331.1771; C. B. Cl. in Hook. f. Fl. Brit. India 4: 567.1885; Cooke, Fl. Pres. Bombay 2: 502.1958 (Repr. ed.). 'Aisar'.

Shrubs or small trees, 2-6 m tall; branchlets fulvous, stellate-tomentose. Leaves 10-20 × 6-10 cm, broadly elliptic-ovate, truncate to acute at base, gradually acuminate at apex, margins entire or minutely toothed, stellate-tomentose below. Flowers purple, in axillary and terminal, umbellate stellate-tomentose cymes 5-7 cm long. Drupes 0.4-0.5 cm across, globose, black. Seeds oblong.

Fls. & Frts. : December-April.

Illus. : Wight, Ic. t. 1480. 1489; Talbot, For. Fl. Bombay Pres. & Sind 2: 345, 449.1911. (*Callicarpa lanata*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 548.1982.

Distrib. : Occasional. 167445.

CLERODENDRUM L.

- | | | |
|---|-----|-----------------------|
| 1. Flowers in few-flowered, axillary cymes | ... | <i>C. inerme</i> |
| 1. Flowers in many-flowered, terminal panicles : | | |
| 2. Calyx glabrous | ... | <i>C. multiflorum</i> |
| 2. Calyx variously hairy : | | |
| 3. Calyx silky-pubescent, much enlarged in fruits | ... | <i>C. viscosum</i> |
| 3. Calyx puberulous, not enlarged in fruits | ... | <i>C. serratum</i> |

Clerodendrum inerme (L.) Gaertn. Fruct. Sem. Pl. 1: 271. t. 75.1788; C. B. Cl. in Hook. f. Fl. Brit. India 4: 589.1885; Cooke, Fl. Pres. Bombay 2: 511.1958 (Repr. ed.). *Volkameria inermis* L. Sp. Pl. 637.1753. 'Koynel'.

Shrubs, 1.5–3.0 m tall; branches straggling. Leaves 1.5–4.5 × 1.5–2.0 cm, obovate to suborbicular or ovate-elliptic, cuneate at base, obtuse at apex. Flowers white, ca. 2.5 cm long, in 3-flowered, axillary, pedunculate cymes. Anthers much exserted; filaments violet, hairy at base. Drupes 1.0–1.5 cm across, globose, seated on persistent calyx.

Fls. & Frts. : August–January.

Distrib. : Common along marshy banks of creeks at Ghodbundar, 167372, 167947.

Clerodendrum multiflorum (Burm. f.) O. Ktze. Rev. Gen. Pl. 3. 526.1891; Prasanna in Singh *et al.* Fl. Maharashtra 2: 690. 2001. *Volkameria multiflorum* Burm. f. Fl. Ind. 137. t. 45. f. 1.1786. *Clerodendrum phlomidis* L. f. Suppl. 292.1781; C. B. Cl. in Hook. f. Fl. Brit. India 4: 590.1885; Cooke, Fl. Pres. Bombay 2: 511.1958 (Repr. ed.).

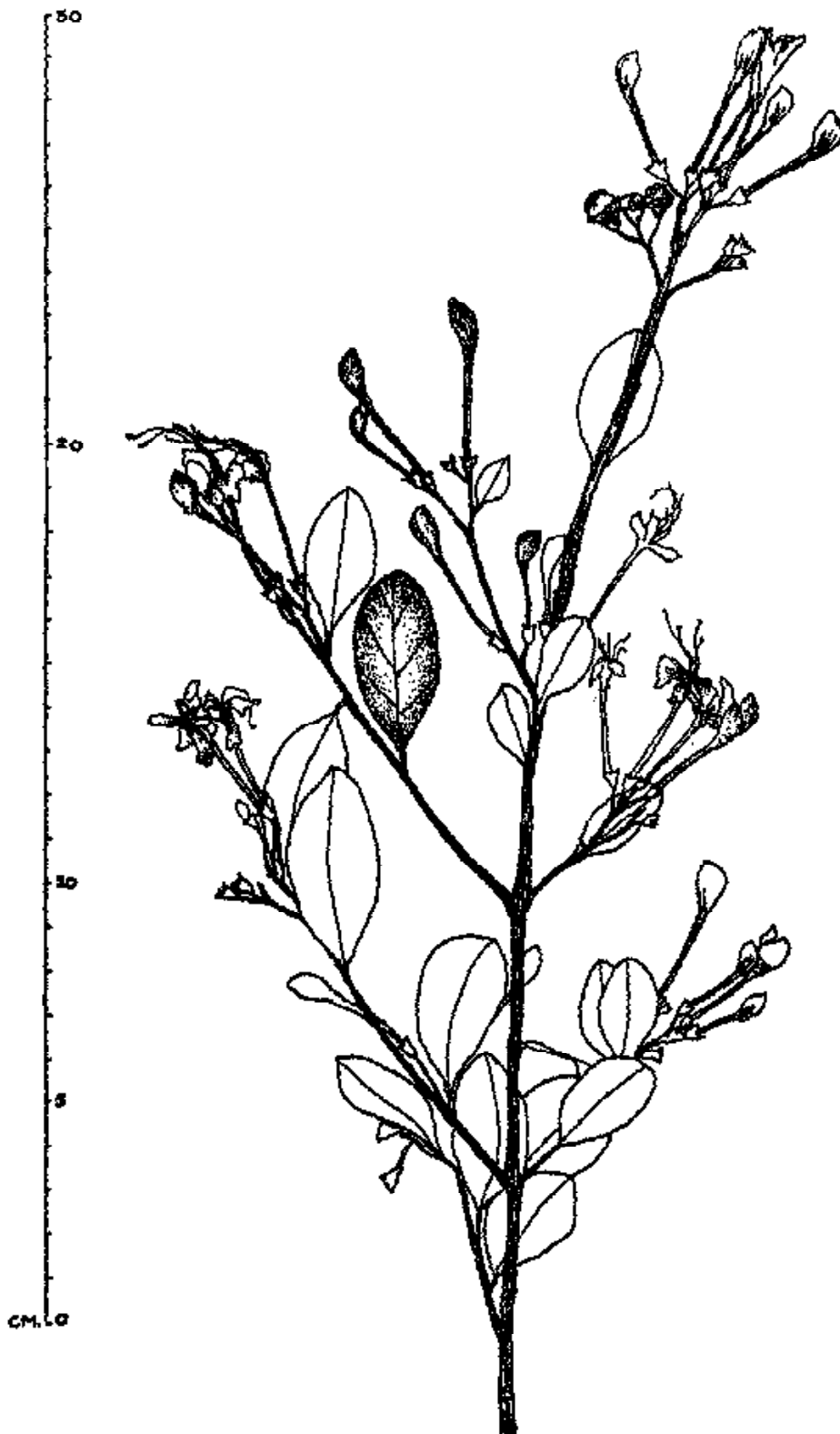
Shrubs or trees up to 9 m. high, branches pubescent. Leaves 3.5–6.0 × 3.0–3.5, ovate to subrhomboid, truncate or subcordate at base, obtuse to acute at apex, margins subentire or crenate-dentate. Flowers white or pinkish, fragrant, in axillary cymes finally forming terminal panicles. Drupes ca. 0.6 cm long, broadly obovoid, 4-lobed; calyx lobes persistent in fruits.

Fls. & Frts. : August–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 549.1982.

Distrib. : Salsette, Shah (1969).

Clerodendrum serratum (L.) Moon, Cat. Pl. Ceylon 46. no. 382.1824; C. B. Cl. in Hook. f. Fl. Brit. India 4: 592.1885; Cooke, Fl.



173. *Clerodendrum inerme* (L.) Gaertn.

Pres. Bombay 2: 512.1958 (Repr. ed.). *Volkameria serrata* L. Mant. 90.1767. 'Bharang'.

Shrubs 2–3 m tall. Leaves 10–20 × 6–10 cm, oblong-ovate to elliptic-lanceolate, acute to acuminate at apex, petiolate. Flowers ca. 4 cm long, violet, in terminal, paniculate cymes. ca. 20 cm long. Drupes 0.6 cm long, succulent, obovoid, 4-lobed.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 1472.1849; Talbot, For. Fl. Bombay Pres. & Sind 2: 359, f. 455.1911.

Distrib. : Salsette, *Graham* (1839).

Clerodendrum viscosum Vent. Jard. Malm. 1: t. 25.1803; Prasanna in Singh *et al.* Fl. Maharashtra 2: 691. 2001. *C. infortunatum* auct. non L.1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 594.1885; Cooke, Fl. Pres. Bombay 2: 513.1958 (Repr. ed.). 'Bhandira'.

Shrubs, 1–2 m tall; woody at base, branches obtusely quadrangular, covered with yellowish, silky pubescence. Leaves 5–20 × 3.5–17.0 cm, ovate, rounded or cordate at base, acuminate at apex, margins entire or denticulate, villous. Flowers white, tinged with pink, long-pedicelled, in stalked cymes forming large panicles. Drupes ca. 0.8 cm across, globose, black.

Fls. & Frts. : October–April.

Illus. : Wight, Ic. t. 1471.1849 (*Clerodendrum infortunatum*).

Distrib. : Scattered in park. 176316.

GMELINA L.

Gmelina arborea Roxb. Pl. Cor. 3: 42, t. 246.1815 & Fl. Ind. 3: 84.1832; C. B. Cl. in Hook. f. Fl. Brit. India 4: 581.1885; Cooke, Fl. Pres. Bombay 2: 504.1958 (Repr. ed.). 'Shivan'.

Trees, 8–13 m tall, deciduous; young parts fulvous-tomentose. Leaves 6–14 × 8–12 cm, broadly ovate, truncate to acute at base, obtuse to acute at apex, tomentose. Flowers brownish-yellow, in axillary and terminal, ca. 13 cm long panicles. Drupes 2, 8.0–2.5 cm long, ovoid or pyriform, orange-yellow when ripe.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 1470.1849; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 550.1982.

Distrib. : Uncommon in forests 167437.

LANTANA L.

Lantana camara var. **aculeata** (L.) Moldenke in *Torreyia* 34: 9.1934. *L. aculeata* L. Sp. Pl. 627.1753. *L. camara auct. non* L.1753; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 562.1885; Cooke, *Fl. Pres. Bombay* 2: 498.1958 (Repr. ed.). 'Tantani'.

Shrubs, 1.5–3.0 m tall; stems straggling. Leaves 3–7 × 2–5 cm, ovate, rounded at base, acute at apex, margins crenulate to crenate, nerves impressed above. Flowers pink, dark red or orange, aggregated in compact, capitate, 2–3 cm broad spikes. Drupes 0.3–0.4 cm across, globose, dark green.

Fls. & Frts. : More or less throughout the year.

Illus. : Tad. & G. V. Narayana *Handb. S. Indian Weeds* 326, f. 129.1955 (Rev. ed.).

Distrib. : Occasional bushes. 167900.

PHYLA Lour.

Phyla nodiflora (L.) Greene in *Pittonia* 4: 46.1899; Sant. in *Rec. Bot. Surv. India* ed. 3, 16 (1) : 211. 1967. *Verbena nodiflora* L. Sp. Pl. 20.1753. *Lippia nodiflora* (L.) A. Rich. in Michaux, *Fl. Bor. Amer.* 2: 15.1803; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 563.1885; Cooke, *Fl. Pres. Bombay* 2: 499.1958 (Repr. ed.). 'Ratalia'.

Herbs; stems prostrate, rooting at nodes. Leaves 1.5–3.0 × 0.9–1.8 cm, orbicular to obovate-spathulate, cuneate at base, obtuse at apex, margins coarsely toothed in upper half. Flowers purplish-white, sessile, aggregated in axillary, condensed or elongate cylindric, stalked, 0.3–1.5 cm long spikes. Drupes ca. 2.0 cm across, subglobose. Seeds minute.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 1463.1849 (*Lippia nodiflora*); Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 553.1982.

Distrib. : Frequent in wet places, along banks of lakes. 167999.

PREMNA L. (*nom. cons.*)

Premna obtusifolia R. Br. var. **pubescens** Moldenke *forma serratifolia* (L.) Moldenke in Phytologia 36: 438.1977. *P. serratifolia* L. Mant. 2: 253.1771. *nom. superfl.* *P. integrifolia* L. Mant. 2: 252.1771 *nom. superfl.* C. B. Cl. in Hook. f. Fl. Brit. India 4: 574.1885; Cooke, Fl. Pres. Bombay 2: 506.1958 (Repr. ed.). *Premna corymbosa* (Burm. f.) Rottl. & Willd. Ges. Naturf. Freunde Berlin Neue Schriften 4: 187.1802; *Cornutia corymbosa* Burm. f. Fl. Ind. 132, t. 41.1768.

Shrubs, 3–4 m tall. Leaves 3.5–7.0 × 1.8–5.5 cm, elliptic-ovate or deltoid-oblong, truncate to cordate at base, acute to acuminate at apex. Flowers creamy to brownish, in terminal inflorescence 2–5 cm long. Drupes ca. 0.4 cm across.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 1467.1849 (*Premna integrifolia* L.).

Distrib. : Salsette, Shah (1962).

STACHYTARPHETA Vahl (*nom. cons.*)

Stachytarpheta jamaicensis (L.) Vahl, Enum. Pl. 1: 206.1804; Rajendran & Daniel in Bull. Bot. Surv. India 34: 167. (1992).1997. *Verbena jamaicensis* L. Sp. Pl. 19.1753. *Stachytarpheta indica auct. non* (L.) Vahl, 1804; C. B. Cl. in Hook. f. Fl. Brit. India 4: 564.1885 *p.p.*; Cooke, Fl. Pres. Bombay 2: 501.1958 (Repr. ed.).

Undershrubs, 50–70 cm tall. Leaves 5–10 × 2.5–3.5 cm, obovate-elliptic, acute, narrowed and decurrent at base, obtuse or acute at apex, margins bluntly or acutely serrate. Flowers dark blue, sessile, in ca. 30 cm long spikes. Drupes 0.5–0.6 cm long, oblong, splitting into 2 pyrenes.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 556.1982.

Distrib. : Vihar lake, B. Rukmini, 267. abc. 268–9 (BLAT).

TECTONA L. (*nom. cons.*)

Tectona grandis L. f. Suppl. Pl. 151.1781; C. B. Cl. in Hook. f. Fl. Brit. India 4: 570.1885; Cooke, Fl. Pres. Bombay 2: 503.1958 (Repr. ed.). 'Sag'.

Trees, 15–20 m tall, deciduous; branchlets stellately tomentose. Leaves 20–60 × 15–30 cm, broadly elliptic, rounded to acute at base,

obtuse to acute at apex, scabrid above, pubescent below. Flowers yellowish, shortly pedicellate, in terminal and/or axillary, dichotomously branched cymose-panicles. Drupes ca. 1.5 cm across, globose, with spongy epicarp and stony endocarp; calyx persistent in fruits. Seeds oblong.

Fls. & Frts. : June–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 558.1982.

Distrib. : Scattered, frequent at some places. 168409.

VITEX L.

Vitex negundo L. Sp. Pl. 638.1753; C. B. Cl. in Hook. f. *Fl. Brit. India* 4: 583.1885; Cooke, *Fl. Pres. Bombay* 2: 508.1958 (Repr. ed.). 'Nirgudi'.

Shrubs, 2–4 m tall; young parts grey-tomentose. Leaves 3–5-foliolate; leaflets 4–12 × 1.0–2.5 cm, oblanceolate, acute at base, acuminate at apex, glabrous above, grey-tomentose below. Flowers purple to violet, in terminal paniculate-cymes 10–20 cm long. Drupes ca. 0.4 cm across, globose, dark purple to black.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, *Ic. t.* 519.1842.

Distrib. : Occasional bushes. 167909.

CULTIVATED SPECIES :

Clerodendrum glabrum E. Mey, *Comm. Pl. Afr. Austral.* 1: 273.1835 ('*Clerodendron*'); Bailey, *Man. Cult. Pl.* ed. 2, 845.1949.

Shrubs or small trees, evergreen; stems 1–12 m tall, trailing, lenticellate. Leaves ovate-lanceolate, elliptic-ovate to oblong, abruptly acute at base, acute at apex, margins entire or serrate, glossy green above. Flowers white, tinged with light pink, in axillary and terminal many-flowered, paniculate cymes. Drupes ca. 1 × 1 cm, oblique, shiny, white, with 1–2, 1-seeded pyrenes.

Distrib. : Ghodbundar, G. L. Shah, 486 2. 9.1955 (BLAT). (ornamental).

Clerodendrum indicum (L.) O. Ktze. *Rev. Gen. Pl.* 2: 586.1891.
Siphonanthus indica L. Sp. Pl. 109.1753. ('*Clerodendron*').
Clerodendrum siphonanthus R. Br. in *Ait. f. Hort. Kew.* ed. 2, 65.1882;

C. B. Cl. in Hook. f. Fl. Brit. India 4: 595.1885; Cooke, Fl. Pres. Bombay 2: 514.1958 (Repr. ed.).

Shrubs or undershrubs up to 3 m tall, mostly unbranched. Leaves linear-lanceolate, oblong, narrowly elliptic or oblanceolate. Flowers white or cream-coloured, in axillary, 4-6 cm long, 3-7-flowered, lax cymes and terminal thyrsoid panicles. Drupes obovoid, 4-lobed, blue-black or reddish black, fleshy; 1-seeded.

Distrib. : Tulsilake, H. Santapau, 21633; Vihar lake, H. Santapau, 22920 (BLAT) (ornamental).

Clerodendrum speciosum *Dombrain* (Hybrid); Bailey, Man. Cult. Pl. 845.1949. A garden hybrid between *C. thomsoniae* and *C. splendens*.

Climbers up to 6 m long; stems woody, scandent, densely brownish pubescent. Leaves ovate or elliptic-ovate or oblong-obtuse, rounded, subcordate or cordate at base, shortly acuminate at apex. Flowers bright scarlet passing into bright yellow, in axillary or supra-axillary cymes, aggregated into terminal panicles. Drupes bluish-black, separating into 4 pyrenes.

Fls. & Frts. : November-February.

Distrib. : Ghodbundar, G. L. Shah, 8160-1 (BLAT) (ornamental). Native of Tropical Africa.

Duranta erecta *auct. non. L.* Sp. Pl. 637.1753. *D. plumieri* Jacq. Select. Strip. Amer. Hist. 186, 1763; C. B. Cl. in Hook. f. Fl. Brit. India 4: 560.1885; Cooke, Fl. Pres. Bombay 2: 518.1958 (Repr. ed.).

Shrubs; stems armed. Leaves ovate-elliptic to oblong-lanceolate. Flowers white or pale-blue, in terminal and axillary spikes. Berries ellipsoid or spherical.

Fls. & Frts. : Throughout the year.

Distrib. : Salsette, G. L. Shah (1962) (ornamental).

Gmelina philippensis Cham. in Linnaea 7: 109.1832. *G. hystrix* Schult. ex Kurz in J. As. Soc. Bengal. 39 (2) : 81.1870; C. B. Cl. in Hook. f. Fl. Brit. India 4: 582.1885; Cooke, Fl. Pres. Bombay 2: 505.1958 (Repr. ed.).

Straggling shrubs, bark lenticellate. Leaves ovate, ovate-rhomboid or elliptic, margins entire or lobed. Flowers yellow, in pendulous racemes. Drupes obovoid, orange-yellow when ripe.

Fls. & Frts. : September–February.

Distrib. : Ghodbundar, G. L. Shah, 7478–9 (BLAT) (ornamental).

AVICENNIACEAE

AVICENNIA L.

- | | | |
|--|-----|-----------------------|
| 1. Leaves acute at apex; stamens exerted | ... | <i>A. marina</i> |
| 1. Leaves obtuse at apex; stamens included | ... | <i>A. officinalis</i> |

Avicennia marina (Forssk.) Vierh. in Denkschr. Kaiserl. Akad. Wiss. Math.–Naturwiss. Kl, 71: 435.1907; Banerjee *et al.* Mangroves in India Id. Man. 36, f. 37 & 38.1989. *Sceura marina* Forssk. Fl. Aeg.–Arab. 37.1775.

- | | | |
|---------------------------------|-----|------------------------|
| 1. Leaves petiolate | ... | var. <i>marina</i> |
| 1. Leaves sessile or subsessile | ... | var. <i>acutissima</i> |

var. *marina*.

Shrubs, 3–4 m tall. Leaves 3–5 × 2.5–4.0 cm, ovate–lanceolate to lanceolate, acute to cuneate at base, glabrous above, white–tomentose beneath; petioles 0.2–0.3 cm long. Flowers sessile, in heads; peduncles up to 8 cm long. Capsules ca. 1.5 × 1.0 cm, ovoid, compressed, apiculate. Seeds viviparous.

Fls. & Frts. : February–May.

Illus. : Banerjee, *et al.* *op. cit.*

Distrib. : Very common in marshy banks of creek at Ghodbundar, 167497, 167865.

var. *acutissima*. Stapf & Mold. in Phytologia 1: 411.1940 & 7: 227.1960; Banerjee *et al.* Mangroves in India Id. Man. 39. 1989. 'Tivar'.

Shrubs up to 3 m tall; Leaves 4–6 × 2–3 cm, elliptic, cuneate at base, sharply acuminate at apex, Flowers yellow. Capsules ovoid.

Fls. & Frts. : May–June.

Distrib. : Occasional along elevated tidal flats. Bombay (Banerjee, *op. cit.*).

Avicennia officinalis L. Sp. Pl. 110.1758; C. B. Cl. in Hook. f. Fl. Brit. India 4: 604.18 85; Cooke, Fl. Pres. Bombay. 2: 516.1958 (Repr. ed.). 'Tivar'.

Trees up to 4 m tall. Leaves 4–8 × 2.5–3.0 cm, elliptic-oblong or obovate-oblong, or acute, attenuate at base, coriaceous, obtuse at apex, glabrous above, thinly tomentose beneath. Flowers yellowish, sessile, in heads; peduncles up to 12 cm long, angular. Capsules ca. 1.5 × 2 cm long, ovoid, apiculate, compressed. Seeds viviparous.

Fls. & Frts. : March–April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 560.1982.

Distrib. : Common in marshy banks of Ghodbundar creek. 167866.

LAMIACEAE

- | | | | |
|-----|---|-----|-------------|
| 1. | Perfect stamens 2 | ... | SALVIA |
| 1. | Perfect stamens 4 : | | |
| 2. | Leaves pinnatisect, segments linear-oblong | ... | LAVANDULA |
| 2. | Leaves variously lobed, entire : | | |
| 3. | Corolla 1-lipped, 4-lobed; stamens equal or subequal : | | |
| 4. | Calyx 5-lobed, lobes plumose | ... | COLEBROOKEA |
| 4. | Calyx 5-toothed, glabrous | ... | POGOSTEMON |
| 3. | Corolla 2-lipped; stamens didynamous : | | |
| 5. | Calyx deflexed in fruits : | | |
| 6. | Corolla ca. 0.4 cm long; stigmas subentire or capitate | ... | OCIMUM |
| 6. | Corolla 0.6–1.2 cm long; stigmas 2-fid, not capitate | ... | ORTHOSIPHON |
| 5. | Calyx not deflexed in fruits : | | |
| 7. | Corolla orange; bracts and calyx segments spinous-tipped | ... | LEONOTIS |
| 7. | Corolla colour other than orange bract and calyx not spinous-tipped : | | |
| 8. | Calyx bilipped, upper lip suborbicular | ... | BASILICUM |
| 8. | Calyx 5–10-toothed : | | |
| 9. | Calyx 5-toothed : | | |
| 10. | Corolla blue; anther cells confluent | ... | HYPTIS |
| 10. | Corolla pink or purple; anther cells free | ... | ANISOMELES |
| 9. | Calyx 6–10-toothed | ... | LEUCAS |

ANISOMELES R. Br.

1. Flowers in peduncled cymes ... *A. heyneanus*
 1. Flowers in sessile cymes ... *A. indica*

Anisomeles heyneana Bth. in Wall. Pl. Asiat. Rar. 1: 59.1830; Hook. f. Fl. Brit. India 4: 672.1885; Cooke, Fl. Pres. Bombay 2: 543.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 152.1940. 'Chandhara'.

Herbs up to 1.5 m tall; stems erect, glabrous or slightly pubescent, quadrangular. Leaves 4-12 × 1.8-5.0 cm, ovate, ovate-oblong to ovate-lanceolate, narrowed at base, acuminate at apex, margins crenate-serrate, glabrous or sparsely hairy. Flowers greenish-white, in axillary or terminal, 5-20 cm long cymes. Nutlets ovoid or broadly oblong, obtuse, subcompressed, brown and smooth.

Fls. & Frts. : September-November.

Distrib. : Common on hill slopes and road sides. 167219. 167320, 168419.

Anisomeles indica (L.) O. Ktze. Rev. Gen. Pl. 512.1891; S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 152.1940. *Nepeta indica* L. Sp. Pl. 571.1753. *Anisomeles ovata* R. Br. in Ait. Hort. Kew (ed. 2), 364.1811; Hook. f. Fl. Brit. India 4: 672.1885; Cooke, Fl. Pres. Bombay 2: 543.1958 (Repr. ed.). 'Gopal'.

Undershrubs 60-100 cm tall; stems hirsute or pubescent, quadrangular. Leaves 3-8 × 1.5-6.0 cm, ovate to obovate, truncate at base, acute or shortly acuminate at apex, margins deeply crenate-serrate. Flowers light purple, in whorls, forming long spikes. Nutlets ca. 0.25 cm long; broadly ovoid, obtusely angled, black, shining.

Fls. & Frts. : August-December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 562.1982.

Distrib. : Koppikar (1974).

BASILICUM Moench.

Basilicum polystachyon (L.) Moench. Menth. Suppl. 143.1802; Bennet in Indian Forester 95: 629.1967; Keng in Gard. Bull. Singapore 24: 39.1969. *Ocimum polystachyon* L. Mant. Pl. 567.1767; *Moschosma polystachyum* (L.) Bth. in Wall. Pl. Asiat. Rar. 2: 13.1831; Hook. f. Fl. Brit. India 4: 612.1885; Cooke, Fl. Pres. Bombay 2: 527.1958 (Repr. ed.).

Annual herbs, 30–50 cm tall. Leaves 1.5–3.5 × 0.8–2.5 ovate to ovate-lanceolate, rounded or subcordate at base, obtuse, subacute, acuminate at apex, margins crenate-serrate. Flowers pale to bright purple, shortly pedicellate, in axillary and terminal, spicate-racemes. Nutlets minute, ellipsoid, compressed.

Fls. & Frts. : October–December.

Distrib. : Borivli, A. J. Randeria, 575. (BLAT).

COLEBROOKEA J. E. Sm.

Colebrookea oppositifolia J. E. Sm. Exot. Bot. 2: 111, t. 115.1805; Hook. f. Fl. Brit. India 4: 642.1885; Cooke, Fl. Pres. Bombay 2: 541.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 84.1940. 'Bhaman'

Shrubs, 2–3 m tall; branchlets densely grey-pubescent, verticillate. Leaves 8–15 × 2.5–6.5 cm, oblong-lanceolate, cuneate to truncate at base, acute at apex, margins serrate. Flowers white, minute, functionally unisexual, in dense, axillary and terminal, usually 3-chotomous, peduncled spikes up to 10 cm long. Nutlets oblong-obovoid, basilar.

Fls. & Frts. : December–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 563.1982.

Distrib. : Borivli, J. A. Lewis s. n. (BLAT).

HYPTIS N. Jacq. (*nom. cons.*)

Hyptis suaveolens (L.) Poit. Ann. Mus. Nat. Hist. Paris. 7: 472, t. 29. f. 2.1806; Hook. f. Fl. Brit. India 4: 630.1885; Cooke, Fl. Pres. Bombay 2: 560.1958 (Repr. ed.); S.K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 46.1940; Keng in Gard. Bull. Singapore 24: 96.1969. *Ballota suaveolens* L. Syst. Nat. (ed. 10) 1100.1759.

Undershrubs, 0.5–2.5 m tall; branches obtusely 4-gonous, hispid. Leaves 2.5–6.0 × 1.5–4.0 cm, broadly ovate, obliquely truncate to acute at base, acute at apex, margins irregularly serrulate, strigose. Flowers in verticils or in shortly stalked cymes. Nutlets 2, ovoid, or oblong, blackish-brown.

Fls. & Frts. : October–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 567.1982.

Distrib. : Frequent in open areas, near village and waste lands. 167289.

LAVANDULA L.

Lavandula bipinnata O. Ktze. Rev. Gen. Pl. 521.1891; S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 65.1940. *L. burmanni* Bth. Lab. Gen. & Sp. 151.1833; Hook. f. Fl. Brit. India 4: 631.1885; Cooke, Fl. Pres. Bombay. 2: 534.1958 (Repr. ed.). 'Ghodeghui'.

Herbs, 40–80 cm tall; stems erect, slender, quadrangular, pubescent. Leaves 3–8 cm long, as long as broad, pinnatipartite, lobes linear, margins entire or toothed, pubescent beneath. Flowers blue or white, in 1.5–5.0 cm long, axillary or terminal, simple or branched paniced spikes. Nutlets 0.1–0.2 cm long, oblong–ellipsoid, brownish-black.

Fls. & Frts. : October–February.

Illus. : Wight, Ic. t. 1438.1849 (*Lavandula burmanni*).

Distrib. : Frequent on hill tops and plains. 167967.

LEONOTIS R. Br.

Leonotis nepetiifolia (L.) R. Br. Prodr. 504.1810 ('*nepetaefolia*'); Hook. f. Fl. Brit. India 4: 691.1885; Cooke, Fl. Pres. Bombay 2: 555.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 185.1940. *Phlomis nepetiifolia* L. Sp. Pl. 586.1753. 'Deep-mal'.

Undershrubs, 1.0–2.5 m tall; stems erect, quadrangular; branchlets pubescent. Leaves 2–10 × 1–6 cm, ovate or lanceolate, truncate or cuneate at base, acute at apex, margins deeply crenate to serrate. Flowers velvety orange, in axillary whorls of spiny bracts. Nutlets ca. 0.4 cm long, oblong–obovoid, trigonous. Seeds oblong.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 867.1844–45; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 568.1982.

Distrib. : Occasional near fallow fields. 168485.

LEUCAS R. Br.

1. Calyx mouth oblique :

2. Leaves linear–oblong or oblong–lanceolate

...

L. aspera

2. Leaves ovate or ovate-lanceolate ... *L. cephalotes*
 1. Calyx mouth straight ... *L. mollissima*

Leucas aspera (Willd.) Link, Enum. Hort. Berol. Alt. 2: 113.1822; Hook. f. Fl. Brit. India 4: 690.1885; Cooke, Fl. Pres. Bombay 2: 548.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 166.1940; Keng in Gard. Bull. Singapore 24: 101.1969. *Phlomis aspera* Willd. Enum. Hort. Berol. Alt. 2: 621.1809.

Annual herbs; stems up to 45 cm tall, erect or diffuse, hairy. Leaves 2-8 × 0.4-0.2 cm, linear-lanceolate, to elliptic-lanceolate, cuneate at base, acute at apex, margins entire to serrate. Flowers white, in axillary and terminal, globose verticils. Nutlets oblong, subtruncate at apex, black, smooth.

Fls. & Frts. : September-October.

Illus. : Tad. & G. V. Narayana Handb. S. Indian Weeds 344, f. 137.1955 (Repr. ed.).

Distrib. : Koppikar (1974).

Leucas cephalotes (Roxb. ex Roth) Spr. Syst. Veg. 2: 743.1825; Hook. f. Fl. Brit. India 4: 689.1885; Cooke, Fl. Pres. Bombay 2: 549.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 168.1940. *Phlomis cephalotes* Roxb. ex Roth, Nov. Pl. Sp. 262.1821.

Herbs. 15-50 cm tall; stems erect, hispid. Leaves 3.5-7.0 × 1.5-2.5 cm, ovate to ovate-lanceolate, tapering at base, subacute at apex, margins crenate-serrate. Flowers white, sessile, in terminal, globose whorls 2.5-4.0 cm across. Nutlets 0.3 cm long, obovoid-oblong.

Fls. & Frts. : August-October.

Illus. : Wight, Ic. t. 337.1840.

Distrib. : Versova, H. Santapau, 143. 12 (BLAT).

Leucas mollissima Wall. Pl. Asiat. Rar. 1: 62.1831; Hook. f. Fl. Brit. India 4: 682.1885; Cooke, Fl. Pres. Bombay 2: 552.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 183.1940; Cramer in Dassan. & Fosb. Handb. Fl. Ceylon 3: 185.1981.

Herbs; stems weak, branched, hoary-tomentose, straggling on other bushes, 80-120 cm long. Leaves 2-6 × 1.0-2.5 cm, ovate to ovate-lanceolate, subacute to truncate at base, acute at apex, densely hairy beneath, margins serrate. Flowers white, subsessile distant, in many-flowered whorls; calyx silky villous outside; corolla ca. 1.5 cm

long, upper lip densely villous, lower lip obovate, 2-fid. Nutlets 0.15–0.2 cm long, ovoid, smooth.

Fls. & Frts. : September–February.

Distrib. : Salsette, *Shah* (1969).

OCTIMUM L.

Ocimum americanum L. Cent. Pl. 1 : 15.1755; Keng in Gard. Bull. Singapore 24: 12.1969. *Ocimum canum* Sims. in Curtis, Bot. Mag. t. 2452.1823; Hook. f. Fl. Brit. India 4: 607.1885; Cooke, Fl. Pres. Bombay 2: 521.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 17.1940. '*Ran-tulsi*'.

Herbs, 15–60 cm tall, aromatic; stems branched, erect. Leaves 2.0–3.5 × 1–2 cm, elliptic-oblong, truncate at base, acute to obtuse at apex, margins serrate, pubescent, petiolate. Flowers white, in compact whorls, ca. 6 in each whorl, forming terminal racemes. Nutlets ca. 0.1 cm long, ellipsoid or oblong.

Fls. & Frts. : October–February.

Illus. : Tad. & G. V. Narayana, Handb. S. Indian Weeds 336, f. 134.1955 (*O. canum*) (Rev. ed.); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 494.1988.

Distrib. : Borivli, A. J. *Randeria*, 108.185 (BLAT).

ORTHOSIPHON Bth.

- | | | |
|---|-----|-----------------------|
| 1. Corolla tube about equal to the calyx | ... | <i>O. pallidus</i> |
| 1. Corolla tube longer than the calyx : | | |
| 2. Upper leaves petioled, leaf margins crenate or serrate | ... | <i>O. thymiflorus</i> |
| 2. Upper leaves sessile, leaf-margins serrate-dentate | ... | <i>O. rubicundus</i> |

Orthosiphon pallidus Royle ex Bth. in Hook. Bot. Misc. 3: 370.1833; Hook. f. Fl. Brit. India 4: 613.1885; Cooke, Fl. Pres. Bombay 2: 523.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 23.1940.

Herbs or undershrubs 15–30 cm tall; stems from woody rootstocks. Leaves 1.0–3.5 × 0.9–2.3 cm, ovate, cuneate at base, obtuse at apex, margins crenate-serrate. Flowers white, yellowish-brown, or pale lilac, in 6-flowered whorls, forming short racemes, 5–15 cm long. Nutlets subglobose or ellipsoid.

Fls. & Frts. : June–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f.175.1966.

Distrib. : Borivli, Y. A. *Merchant*, 652 (*BLAT*).

Orthosiphon rubicundus (D. Don) Bth. in Wall. *Pl. Asiat. Rar.* 2: 141.1831; Hook. f. *Fl. Brit. India* 4: 614.1885; Gamble, *Fl. Madras* 1114 (779).1924; S. K. Mukerjee in *Rec. Bot. Surv. India* 14 (1) : 25.1940. *Plectranthus rubicundus* D. Don, *Prodr. Fl. Nepal* 116.1825.

Herbs, 25–50 cm tall; stems and branches pubescent. Leaves 5–8 × 4–6 cm, ovate–oblong, ovate–lanceolate; upper leaves smaller and sessile, cuneate at base, acute at apex. Flowers white to pinkish, in 6-flowered, distant whorls, in 10–15 cm long racemes. Nutlets ca. 0.2 cm long, oblong or obovoid, compressed, smooth.

Fls. & Frts. : July–September.

Disrib. : Borivli, H. *Santapau*, 13036 (*BLAT*).

Orthosiphon thymiflorus (Roth) Sleesen in Reinwardtia 5: 42. 1959; Keng in *Gard. Bull. Singapore* 24: 135.1969. *Ocimum thymiflorum* Roth, *Nov. Pl. Sp.* 269.1821. *Orthosiphon tomentosum* Bth. var. *glabratus* (Bth.) Hook. f. *Fl. Brit. India* 4: 614.1885; Cooke, *Fl. Pres. Bombay* 2: 524.1958 (Repr. ed.); S. K. Mukerjee in *Rec. Bot. Surv. India* 14 (1) : 24.1940.

Herbs or undershrubs, 30–60 cm tall. Leaves 3–7 × 1.5–3.5 cm, ovate to elliptic, truncate to shortly cuneate at base, acute at apex, glabrescent, petioles up to 4 cm long. Flowers white, or lilac, in verticils of 6, in terminal, trichotomous, peduncled racemes. Nutlets subglobose or ellipsoid, smooth or minutely tuberculate.

Fls. & Frts. : August–October.

Distrib. : Occasional. 167330, 167827.

POGOSTEMON Desf. (*nom. cons.*)

- | | | |
|--|-----|------------------------|
| 1. Bracts ca. 0.5 cm long, oblong–lanceolate, not foliaceous | ... | <i>P. purpurascens</i> |
| 1. Bracts ca. 0.8 cm long, broadly ovate, foliaceous | ... | <i>P. benghalensis</i> |

Pogostemon benghalensis (Burm. f.) O. Ktze. *Rev. Gen. Pl.* 2: 529.1891; Bhatti & Ingrouille in *Bull. nat. Hist. Mus. Lond. (Bot.)* 27: 89. f. 4a. 14a.1997. *Origanum benghalense* Burm. f. *Fl. Ind.* 128, t. 38, f. 3.1768. *Pogostemon parviflorus* Bth. in Wall. *Pl. Asiat. Rar.* 1: 31.1831;

Hook. f. Fl. Brit. India 4: 632.1885; Cooke, Fl. Pres. Bombay 2: 536.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 68.1940.

Undershrubs, 1.5–3.0 m tall; stems much branched, purplish. Leaves 3–10 × 2–5 cm, ovate to ovate-lanceolate, cuneate to acute at base, acute to acuminate at apex, margins coarsely crenate-dentate. Flowers white or pink-violet, bracteolate, in spicate, branched racemes up to 10 cm long. Nutlets broadly ellipsoid, smooth, black.

Fls. & Frts. : November–February.

Illus. : Bhatti & Ingrouille, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic*. 2: t. 574.1982.

Distrib. : Frequent along hill slopes and road sides. 168957.

Pogostemon purpurascens Dalz. in Hook. J. Bot. Kew Gard. Misc. 2: 337.1850; Hook. f. Fl. Brit. India 4: 632.1885; Cooke, Fl. Pres. Bombay 2: 537.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 71.1940; Bhatti & Ingrouille in Bull. Bot. nat. Hist. Mus. Lond. (Bot.) 27 : 92. f. 5a, 16b.1997.

Herbs ca. 60 cm high. Leaves 5–15 × 3–8 cm, ovate or ovate-elliptic, cuneate at base, acute at apex, margins deeply cut or double-serrate, hairy. Flowers white, bracteate, whorled, in 5–20 cm long, terminal, simple or branched, villous spikes. Nutlets ovoid, compressed, faintly trigonous, smooth.

Fls. & Frts. : October–February.

Illus. : Bhatti & Ingrouille, *op. cit.*

Distrib. : Occasional. 168976.

SALVIA L.

Salvia plebeia R. Br. Prodr. 501.1810; Hook. f. Fl. Brit. India 4: 655.1885; Cooke, Fl. Pres. Bombay 2: 557.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 111.1940; B. G. Kulkarni & S. K. Das Das in Singh *et. al.* Fl. Maharashtra 2: 762. 2001.

Herbs, 15–50 cm tall; stems erect, pubescent. Leaves 4–8 × 1.8–3.0 cm, oblong-lanceolate, acute at base, obtuse to acute at apex, margins irregularly crenate. Flowers pale blue or white, in paniculate, spicate racemes. Nutlets ovoid, brown.

Fls. & Frts. : September–February.

Illus. : Keng in Gard. Bull. Singapore 24 : 163, f. 29d–f.1969.

Distrib. : Common. 167774.

CULTIVATED SPECIES :

Ocimum basilicum L. Sp. Pl. 597.1753; Hook. f. Fl. Brit. India 4 : 608.1885; S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 18.1940.

Herbs, 30–70 cm tall. Leaves elliptic–ovate to elliptic–lanceolate, margins entire to serrulate. Flowers white, in compact or distant terminal racemose verticils. Nutlets ellipsoid or oblong.

Fls. & Frts. : Throughout the year.

Distrib. : 167261 (cultivated).

Ocimum gratissimum L. Sp. Pl. 1197.1753; Hook. f. Fl. Brit. India 4: 608.1885; Cooke, Fl. Pres. Bombay 2: 522.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 20.1940. Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 112.1981.

Herbs or undershrubs, 0.5–1.5 m tall; stems erect, pubescent in young parts. Leaves ovate–elliptic to elliptic–lanceolate, cuneate at base, acute to shortly acuminate at apex, margins distantly serrate. Flowers white, bracteate, in compact whorls forming 10–20 cm long racemes. Nutlets 4, oblong to ellipsoid.

Fls. & Frts. : July–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 570 (520).1982.

Distrib. : Ghodbundar, *Blatter & Sedgwick*, 11–24 (BLAT).

Ocimum tenuiflorum L. Sp. Pl. 2: 597.1753; H. Keng in Steenis, Fl. Males. 1, 8: 378.1978. *O. sanctum* L. Mant. Pl. 85.1767 & Syst. Nat. ed. 12, 2: 302.1767; Hook. f. Fl. Brit. India 4: 609.1885; Cooke, Fl. Pres. Bombay 2: 521.1958 (Repr. ed.); S. K. Mukerjee in Rec. Bot. Surv. India 14 (1) : 19.1940; Cramer in Dassan. & Fosb. Rev. Hand. Fl. Ceylon 3: 116.1981. 'Tulsi'.

Undershrubs, branchlets hispid. Leaves 1–4 × 0.6–2.0 cm, elliptic–oblanceolate, ovate or ovate–oblong, truncate at base, acutely apiculate at apex, margins serrate or undulate; petiolate up to 2 cm long. Flowers white and purplish within, in compact whorls, in axillary and terminal racemes. Nutlets broadly ellipsoid, smooth.

Fls. & Frts. : Throughout the year.

Distrib. : Koppikar (1974).

NYCTAGINACEAE

BOERHAVIA L.

Boerhavia repens L. Sp. Pl. 3.1753; Hook. f. Fl. Brit. India 4: 709.1885; Nair in Rec. Bot. Surv. India 21 (1) : 218.1978. var. **diffusa** (L.) Hook. f. Fl. Brit. India 4: 709.1885. *B. diffusa* L. Sp. Pl. 3: 1753; Cooke, Fl. Pres. Bombay 2: 563.1958 (Repr. ed.); Stemm. in Steenis, Fl. Males. 1, 6: 154.1964; A. K. Mukerjee in J. Econ. Tax. Bot. 5: 582.1984. 'Ghetuli'.

Herbs; stems and branches up to 50 cm long, diffuse, spreading, prostrate or ascending, divaricately branched. Leaves 1.5-4.0 × 1.5-3.7 cm, ovate, subcordiform, truncate to subcordate at base, obtuse or acute at apex, petiolate. Flowers purple or light pink, in 5-7 cm long, axillary and terminal panicles. Fruits ca. 0.25 cm long, clavate, bluntly 5-ribbed, glandular.

Fls. & Frts. : November-March.

Illus. : Wight, Ic. t. 874.1844-55; Tad. & G. V. Narayana Handb. S. Indian Weeds 350, f. 139.1955 (Rev.ed); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 2: t. 578. ff. 1-10 1988.

Distrib. : Common in moist places and fields and on waste lands, 167235, 167929.

CULTIVATED SPECIES :

Mirabilis jalapa L. Sp. Pl.177.1753; Cooke, Fl. Pres. Bombay 2: 567.1958 (Repr. ed.); A. K. Mukerjee in J. Econ. Tax. Bot. 5: 587.1984. 'Gul-abbas'.

Herbs, up to 75 cm tall; stems much branched, succulent, swollen at nodes. Leaves 3.5-8.5 × 2.5-6.5 cm, triangular-ovate, elliptic, oblique-truncate or shortly decurrent at base, acute to acuminate at apex, petiolate. Flowers yellow or dark crimson or variegated in above colours, shortly stalked, subtended by involucre of ovate-elliptic bracts. Fruits (Anthocarp) ca. 0.6 cm across, globose, black, ribbed.

Fls. & Frts. : Throughout the year.

Illus. : Y. Nasir in E. Nasir & Ali, Fl. W. Pakistan 115 : 2, f. 1. A-C.1977.

Distrib. : Vihar lake, H. Santapau, 11184 (BLAT). Native of Mexico, commonly grown in gardens.

AMARANTHACEAE

- 1. Spikes with hooked spines :
 - 2. Stamnodes present, 2-3-fid ... CYATHULA
 - 2. Stamnodes absent ... PUPPALIA
- 1. Spikes without such hooked spines :
 - 3. Flowers unisexual :
 - 4. Plants hoary tomentose; staminodes present ... AERVA
 - 4. Plants glabrous; staminodes absent ... AMARANTHUS
 - 3. Flowers bisexual :
 - 5. Leaves alternate or alternate and opposite mixed :
 - 6. Plants white-pubescent or tomentose ... AERVA
 - 6. Plants glabrous :
 - 7. Spikes ovoid to cylindric-oblong, consisting of dense imbricating, glistening bracts ... CELOSIA
 - 7. Spikes linear, consisting of lax, dull bracts ... DIGERA
 - 5. Leaves all opposite :
 - 8. Flowers deflexed, in elongate, 8-20 cm long spikes ... ACHYRANTHES
 - 8. Flowers not deflexed; spikes globose to cylindric-oblong, 0.5-5.0 cm long :
 - 9. Stems erect; stamens 2, filaments free ... NOTHOSAERVA
 - 9. Stems erect, ascending or prostrate; stamens 3-5, filaments connate :
 - 10. Anthers 2-celled, filaments forming a tubular sheath ... GOMPHRENA
 - 10. Anthers 1-celled, filaments connate at base forming a basal cup ... ALTERNANTHERA

ACHYRANTHES L.

Achyranthes aspera L. Sp. Pl. 204.1753; Hook. f. Fl. Brit. India 4: 730.1885; Cooke, Fl. Pres. Bombay 2: 580.1958 (Repr. ed.); Backer in Steenis, Fl. Males. 1, 4: 88.1949. 'Aghada'.

- 1. Leaves velvety tomentose, rachis stout ... var. *aspera*
 - 1. Leaves glabrous or sparsely pubescent, rachis slender ... var. *porphyristachya*
- var. **aspera**

Herbs, 30–80 cm tall, erect, stiff, pubescent. Leaves 3.0–5.5 × 2.0–3.5 cm, elliptic or obovate or suborbicular, rounded at apex, acuminate at apex, petiolate. Flowers greenish–white, numerous, deflexed, in spikes up to 50 cm long; bracts ovate–acuminate, aristate, bracteoles ovate, spine-tipped. Utricles oblong–cylindric, truncate at apex. Seeds subcylindric, truncate at apex, rounded at base.

Fls. & Frts. : September–January.

Illus. : Wight, Ic. t.1777.1852; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 581.1982.

Distrib. : Common weed on outskirts of forest and near forest villages. 167203.

var. *porphyristachya* (Wall. ex Moq.) Hook. f. *Fl. Brit. India* 4: 730.1885; Sant. in *Rec. Bot. Surv. India* 16 (1) : 224. ed. 3.1967. *A. porphyristachya* Wall. ex Moq. *Cat.* 1925.1832. 'Aghada'.

Herbs, 0.3–1.2 m tall; stems erect or diffuse, woody. Leaves 3.5–1.5 × 2.5–6.0 cm, elliptic–lanceolate or ovate–lanceolate. Flowers reddish–purple, in 10–30 cm long spikes. Fruits oblong, cylindric.

Fls. & Frts. : August–February.

Illus. : Mahesh. *Illus. Fl. Delhi*, f.188.1966.

Distrib. : Borivli, P. S. Herbert, 368 (BLAT).

AERVA Forssk. (nom. cons.)

- | | | |
|---|-----|-------------------------|
| 1. Spikes in axillary clusters | ... | <i>A. lanata</i> |
| 1. Spikes in axillary and terminal panicles : | | |
| 2. Flowers unisexual (plants dioecious); stigmas 2-forked | ... | <i>A. javanica</i> |
| 2. Flowers bisexual (plants monoecious); stigmas slightly lobed | ... | <i>A. sanguinolenta</i> |

Aerva javanica (Burm. f.) Juss. ex Schult. *Syst. Veg.* ed 15, 5: 564.1819; Hook. f. *Fl. Brit. India* 4: 727.1885; Cooke, *Fl. Pres. Bombay* 2: 577.1958 (Repr. ed.); Townsend in *Dassan. & Fosb. Rev. Handb. Fl. Ceylon* 1: 32.1980. *Iresine javanica* Burm. f. *Fl. Ind.* 21, t. 65. f. 1.1768.

Undershrubs, 0.6–1.0 m tall, dioecious. Stems erect or scandent, branched. Leaves 3–5 × 0.5–1.0 cm, alternate, oblanceolate to spatulate, cuneate at base, obtuse or acute at apex, tomentose. Flowers unisexual, in terminal, paniculate spikes. Utricles orbicular–ovoid. Seeds lenticular, shining, brownish–black.

Fls. & Frts. : September–March.

Illus. : Wight, Ic. t. 876.1844-45; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 582.1982.

Distrib. : Vihar lake, *H. Santapau*, 232 (*BLAT*).

Aerva lanata (L.) Juss. ex Schult. *Syst. Veg.* ed. 15, 5: 564.1819; Hook. f. *Fl. Brit. India* 4: 728.1885; Cooke, *Fl. Pres. Bombay* 2: 578.1958 (Repr. ed.); Townsend in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 1: 32.1980. *Achyranthes lanata* L. Sp. Pl. 204.1753. '*Kapuri-Maduri*'.

Herbs ca. 1 m tall; stems erect or prostrate, much branched. Leaves 2.0-2.5 × 1.0-1.5 cm, elliptic, obovate or suborbicular, obtuse or acute at apex, woolly-tomentose beneath, petiolate. Flowers greenish-white, sessile, in dense, subsessile, axillary heads or 0.5-1.0 cm long spikes. Utricles broadly ovoid, acute. Seeds minute, smooth.

Fls. & Frts. : August-February.

Illus. : Mahesh. *Illus. Fl. Delhi* f.176.1966.

Distrib. : Scarce. 167230.

Aerva sanguinolenta (L.) Bl. *Bijdr.* 547.1825; Backer in Steenis, *Fl. Males.* 1, 4: 85.1949. *Achyranthes sanguinolenta* L. Sp. Pl. (ed. 2), 294.1762. *Aerva scandens* Wall. ex Moq. in DC. *Prodr.* 13 (2) : 302.1849; Hook. f. *Fl. Brit. India* 4: 727.1885; Cooke, *Fl. Pres. Bombay* 2: 577.1958 (Repr. ed.).

Scandent undershrubs; branches straggling. Leaves 3-8 × 1.0-2.5 cm, elliptic-lanceolate, tapering at base, mucronate at apex, pubescent. Flowers yellowish, in ovoid or cylindrical, axillary and terminal, 0.6-1.0 cm long spikes, forming lax, terminal panicles. Utricles broadly ovate, acute. Seeds minute, shining, black.

Fls. & Frts. : November-March.

Illus. : Wight, Ic. t. 724.1840 (*Aerva scandens*).

Distrib. : Infrequent, on the outskirts of the forests and in open areas. 168903.

ALTERNANTHERA Forssk.

- | | | |
|-------------------------------|-----|------------------------|
| 1. Tepals 5-nerved | ... | <i>A. pungens</i> |
| 1. Tepal nerves less than 5 : | | |
| 2. Tepals 3-nerved | ... | <i>A. bettzichiana</i> |
| 2. Tepals 1-nerved | ... | <i>A. sessilis</i> |

Alternanthera bettzichiana (Regel) Nicols. Illus. Dict. Gard. 1: 51.1885; Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 52.1980; Chaudhury & Bhattacharyya in Bull. Bot. Surv. India 36: 274. t. 3. figs. 1-7 (1994).1997. *Telanthera bettzichiana* Regel, Ind. Sem. Hort. Petrop.1862 : 28.1862 & Gartenflora 11: 178.1862. *Alternanthera ficoidea auct. non* (L.) R. Br. ex Roem. & Schult.1819; Backer in Steenis, Fl. Males. 4 (2) : 93.1949; Naik, Fl. Marathwada 2: 744.1998.

Herbs; stems diffuse or suberect, spreading, sparsely pubescent or glabrescent. Leaves 3-8 × 1.5-4.5 cm, elliptic-oblong or oblanceolate, tapering at base, subacute at apex, margins entire. Flowers white or slightly pink, in axillary and terminal, capitate spikes.

Fls. & Frts. : Almost throughout the year.

Distrib. : Common, in waste places and in open grass lands. 167290, 167903.

Alternanthera pungens Kunth in H. B. & K. Nov. Gen. Sp. 2: 206.1817; Sant. & Shah in J. Bombay nat. Hist. Soc. 58 : 551.1961; Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 47.1980; Chaudhury & Bhattacharyya in Bull. Bot. Surv. India 36: 270, t. 1. figs. 1-8 (1994) 1997. 'Chibu-kata'.

Herbs, spreading flat to ground. Leaves 1.5-3.0 × 1-2 cm, obliquely elliptic to orbicular, cuneate at base, slightly apiculate at apex. Flowers greenish-white, in 2 or more axillary spikes; bracts 0.5 cm long, shortly awned; bracteoles 0.25-0.3 cm long, tepals 5, outer pairs with awns, a tuft of glochidiate bristles arising from their base. Utricles 1-seeded. Seeds 0.1 cm across, discoid.

Fls. & Frts. : Almost throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi f.180.1966; Chaudhury & Bhattacharryya, *op. cit.*

Distrib. : Salsette, G. L. Shah (1962).

Alternanthera sessilis (L.) R. Br. ex DC. Cat. Pl. Hort. Monsp. 4: 77.1831; Hook. f. Fl. Brit. India 4: 731.1885; Backer in Steenis, Fl. Males. 1, 4: 92.1949; Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 49.1980; Chaudhury & Bhattacharryya in Bull. Bot. Surv. India 36: 268. t.1, figs. 1-8/ (1994) 1997. *Gomphrena sessilis* L. Sp. Pl. 225.1753. *Alternanthera triandra* Lam. Encycl. 1: 95.1783; Cooke, Fl. Pres. Bombay 2: 584.1958 (Repr. ed.). 'Kanchri'.

Herbs; stems much branched; branches prostrate or ascending, rooting at lower nodes. Leaves 1-5 × 0.3-1.0 cm, linear-oblong, lanceolate to elliptic, obtuse or subacute, subsessile. Flowers white,

shining, in axillary, sessile heads, bracts ovate-obovate, scarious. Utricles minute, flattened, obcordate. Seeds suborbicular.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 727.1843; Mahesh. *Illus. Fl. Delhi* f.181.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 584.1982; Chaudhury & Bhattacharrya *op. cit.*

Distrib. : Abundant in moist clayey soil near nallas. 167926.

AMARANTHUS R. Br.

- | | | |
|--|-----|-------------------------|
| 1. Plants armed | ... | <i>A. spinosus</i> |
| 1. Plants unarmed : | | |
| 2. Stamens and tepals 5 : | | |
| 3. Spikes drooping, bracts ovate-mucronate | ... | <i>A. caudatus</i> |
| 3. Spikes not as above, bracts ovate-acuminate | ... | <i>A. cruentus</i> |
| 2. Stamens and tepals 3 : | | |
| 4. Utricles indehiscent : | | |
| 5. Plants succulent | ... | <i>A. roxburghianus</i> |
| 5. Plants not succulent | ... | <i>A. viridis</i> |
| 4. Utricles dehiscent | ... | <i>A. tricolor</i> |

Amaranthus caudatus L. Sp. Pl. 990.1753; Hook. f. *Fl. Brit. India* 4: 719.1885; Cooke, *Fl. Pres. Bombay* 2: 576.1958 (Repr. ed.); Backer in Steenis, *Fl. Males.* 1, 4: 80.1949.

Herbs ca. 1 m tall, erect. Leaves 8-13 × 2.5-4.0 cm, obovate to rhomboid, shortly acuminate at both ends. Flowers crimson, unisexual, in terminal and axillary, drooping panicles up to 20 cm long. Utricles circumscissile.

Fls. & Frts. : August-December.

Distrib. : Borivli, P. S. Herbert, 1046 (BLAT).

Amaranthus cruentus L. Syst. Nat. ed. 10, 1269.1759; Duke in *Ann. Miss. Bot. Gard.* 48: 15.1961. *A. paniculatus* L. Sp. Pl. ed. 2, 1406.1763; Hook. f. *Fl. Brit. India* 4: 718.1885; Cooke, *Fl. Pres. Bombay* 2: 573.1958 (Repr. ed.). *A. hybridus* L. ssp. *cruentus* (L.) Thell. var. *paniculatus* (L.) Thell. in Aschers. & Graebn. *Syn.* 5, 1: 247.1914; Naik, *Fl. Marathwada* 2: 742.1998. 'Rajgira'.

Herbs, 1.0–1.5 m tall; stems stout, grooved, glabrous or pubescent. Leaves 5–15 × 2.7 cm, elliptic–lanceolate, cuneate at base, acute to acuminate at apex, petiolate. Flowers many, bracteolate; perianth oblong–lanceolate, shortly awned, in dense, red spikes. Capsules ca. 0.3 cm long, ovoid, circumscissile about the middle. Seeds subglobose minute, white, red and black.

Fls. & Frts. : July–August.

Illus. : Wight, Ic. t. 720.1843 (*A. frumentaceus* Buch.–Ham.) in Roxb. Fl. Ind. (Carey ed.) 3: 609.1832.

Distrib. : Salsette, Shah (1969).

Amaranthus roxburghianus Nevski in Trudy, Act. Inst. Bot. Acad. Sc. USSR. 1, Fasc. 4: 311.1937 in Obs. (*roxburghiano*); N. C. Nair in J. Bombay nat. Hist. Soc. 73: 60.1976; Naik, Fl. Marathwada. 2: 748.1998. *A. blitum* L. var. *oleraceus* (L.) Hook. f. Fl. Brit. India 4: 721.1885; Cooke, Fl. Pres. Bombay 2: 575.1958 (Repr. ed.).

Herbs, 30–60 cm tall; stems prostrate. Leaves 3–8 × 1.5–5.0 cm, ovate, cuneate at base, obtuse, emarginate at apex, petiolate. Flowers greenish, in axillary clusters and terminal spikes 6–12 cm long, simple or branched. Utricles broadly ovate, acute. Seeds lenticular.

Fls. & Frts. : Throughout the year.

Distrib. : Borivli, P. S. Herbert, 101, 273, 611 (BLAT).

Amaranthus spinosus L. Sp. Pl. 991.1753; Hook. f. Fl. Brit. India 4: 718.1885; Cooke, Fl. Pres. Bombay 2: 573.1958 (Repr. ed.); Backer in Steenis, Fl. Males. 1, 4: 78.1949. '*Kateri-math*'.

Herbs, 30–60 cm tall; stems reddish, spines sharp, axillary. Leaves 2.5–5.5 × 1.0–3.5 cm, ovate or lanceolate, spinous–apiculate, petiolate. Flowers numerous, sessile, in dense, axillary and terminal clusters; bracts and bracteoles narrowly ovate–lanceolate, shortly awned. Utricles ovoid, circumscissile.

Fls. & Frts. : July–February.

Illus. : Wight, Ic. t. 513.1841.

Distrib. : Common near forest villages. 167400.

Amaranthus tricolor L. Sp. Pl. 989.1753; Backer in Steenis, Fl. Males. 1, 4 (2) : 77.1949. *A. gangeticus* L. Syst. Nat. (ed. 10), 1268.1759; Hook. f. Fl. Brit. India 4: 720.1885; Cooke, Fl. Pres. Bombay 2: 574.1958 (Repr. ed.). '*Tandulja*'.

Herbs, 0.3–1.0 m tall; stems erect, stout, tinged with purple, striate. Leaves 3–8 × 2–5 cm, ovate, obovate or rhomboid, petiolate, tapering at base, obtuse, apiculate at apex. Flowers greenish, in axillary fascicles and terminal, interrupted, 0.15 cm long spikes; bracts and bracteoles broadly ovate, awned. Utricles minute, ovoid, circumscissile.

Fls. & Frts. : October–January.

Illus. : Mahesh. *Illus. Fl. Delhi* f.178.1966.

Distrib. : Common near forest villages or human dwellings 168401.

Amaranthus viridis L. *Sp. Pl.* (ed. 2). 1405.1763; Hook. f. *Fl. Brit. India* 4: 720.1885; Cooke, *Fl. Pres. Bombay* 2: 575.1958 (Repr. ed.). *A. gracilis* Desf. *Tabl. Bot.* 43.1804; Backer in Steenis, *Fl. Males.* 1, 4: 76.1949.

Herbs, 30–60 cm tall; stems erect or diffuse. Leaves 1.5–6.5 × 1–4 cm, broadly ovate at apex, margins entire or undulate. Flowers unisexual, greenish or reddish–brown, in terminal and axillary clusters and paniculate spike like racemes. Utricles rugose, subcompressed, indehiscent, shortly beaked. Seeds lenticular, shining black.

Fls. & Frts. : September–December.

Illus. : Tad. & G. V. Narayana, *Handb. S. Indian Weeds* 362, f. 145.1955.

Distrib. : Versova, H. Santapau, 23–12, 23–15 (BLAT).

CELOSIA L.

Celosia argentea L. *Sp. Pl.* 205.1753; Hook. f. *Fl. Brit. India* 4: 714.1885; Cooke, *Fl. Pres. Bombay* 2: 570.1958 (Repr. ed.); Townsend in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 1: 3.1980. 'Kurdu'.

Herbs up to 90 m tall; stems erect. Leaves 2.5–10.0 × 0.6–3.0 cm, elliptic–ovate below, linear or linear–lanceolate above, tapering at base. Flowers at first pinkish, turning glistening white, in terminal, 2.5–15.0 cm long spikes; bracts linear–lanceolate, scarious, acute, aristate; bracteoles oblanceolate. Capsules ca. 0.4 cm long, ellipsoid, circumscissile, 4–8-seeded. Seeds subreniform, compressed, black, smooth.

Fls. & Frts. : August–February.

Illus. : Wight, Ic. t.1767.1852; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 586.1982.

Distrib. : Common as weed in cultivated fields and cleared forest areas. 167239, 167841.

CYATHULA Bl. (*nom. cons.*)

Cyathula prostrata (L.) Bl. *Bijdr.* 549.1825; Hook. f. *Fl. Brit. India* 4: 723.1885; Cooke, *Fl. Pres. Bombay* 2: 581.1958 (Repr. ed.); Townsend in *Dassan. & Fosb. Rev. Handb. Fl. Ceylon* 1: 26.1980. *Achyranthes prostrata* L. *Sp. Pl. ed.* 2. 296.1753.

Herbs; stems prostrate, rooting at lower nodes, hairy, purple; branches erect or ascending. Leaves 2–6 × 1–3 cm, elliptic-rhomboid, ovate, subacute at both ends, hairy. Flowers faint violet, in solitary, lax clusters of terminal racemes 8–13 cm long, bracts and bracteoles ovate, acuminate. Utricles ovoid, covered with perianth. Seeds oblong-ellipsoid.

Fls. & Frts. : October–May.

Illus. : Wight, Ic. t. 733.1843 (*Desmochaeta prostrata* DC. *Cat. Hort. Monsp.* 102.1813).

Distrib. : Ghodbundar, G. L. Shah, 10482–3 (BLAT).

DIGERA Forssk.

Digera muricata (L.) Mart. *Beitr. Amar.* 77. n. 2.1825; Backer in Steenis, *Fl. Males.* 1, 4: 80.1949. *Achyranthes muricata* L. *Sp. Pl. (ed. 2)*, 295.1762. *Digera arvensis* Forssk. *Fl. Aeg.-Arab.* 65.1775; Hook. f. *Fl. Brit. India* 4: 717.1885; Cooke, *Fl. Pres. Bombay* 2: 572.1958 (Repr. ed.).

Annual herbs up to 60 cm tall; stems erect or ascending. Leaves 2–7 × 1.5–3.5 cm, ovate or elliptic, acute or rounded at apex, petiolate. Flowers sessile, in threes, in lax, axillary, 2.5–12.0 cm long, pedunculate spikes; bracts obovate; bracteoles lanceolate. Fruits globose, indehiscent, hard, verrucose, 1-seeded.

Fls. & Frts. : July–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 587.1982.

Distrib. : G. L. Shah (1962).

GOMPHRENA L.

Gomphrena serrata L. Sp. Pl. 224.1753; Mears in Taxon 20 : 86.1980; Naik, Fl. Marathwada 2: 753.1998. *G. celosioides* auct. non Mart.1826; Backer in Steenis, Fl. Males. 1, 4 (2) : 96.1949; Shah, Fl. Gujarat 1: 595.1978.

Herbs, 20–30 cm tall; stems ascending or erect with spreading branches. Leaves 1–6 × 0.4–1.6 cm, lanceolate, elliptic-oblong or spatulate, apiculate at apex, pubescent beneath. Flowers in terminal or axillary, globose or elongate, 1.5–6.0 cm long spikes. Utricles ca. 0.2 cm long, ovoid. Seeds faintly reticulate.

Fls. & Frts. : Mostly throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 588.1982. (*Gomphrena celosioides*)

Distrib. : Borivli, P. S. Herbert, 18 ; G. L. Shah. 2070 (BLAT).

NOTHOSAERVA Wight

Nothosaerva brachiata (L.) Wight, Ic. Pl. Ind. Orient. 6: 1, t.1776. bis f. B.1853; Hook. f. Fl. Brit. India 4: 726.1885; Cooke, Fl. Pres. Bombay 2: 580.1958 (Repr. ed.). *Achyranthes brachiata* L. Mant. 50.1767.

Herbs, 15–50 cm tall; stems branched from the base. Leaves 2.0–3.5 × 1–2 cm, elliptic-lanceolate, tapering at base, acute or subobtuse at apex. Flowers white, sessile, in small, dense, axillary, subsessile, solitary or clustered, 0.4–1.5 cm long spikes; bracts and bracteoles ovate-acute and ovate-acuminate respectively. Capsules pyriform, enclosed in hardened perianth. Seeds minute, shining, black.

Fls. & Frts. : August–February.

Illus. : Wight, *op. cit.*; Mahesh, Illus. Fl. Delhi f.182.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 589.1982.

Distrib. : Common along road sides. 167279, 168402.

PUPALIA A. L. Juss.

Pupalia lappacea (L.) A. L. Juss. in Ann. Mus. Natl. Hist. Nat. Paris 2: 132.1803; Hook. f. Fl. Brit. India 4: 728.1885; Cooke, Fl. Pres. Bombay 2: 583.1958 (Repr. ed.); Backer in Steenis, Fl. Males. 4 (2) : 83.1949; Townsend in Kew Bull. 34: 135.1979 & in Dassan. & Fosb.

Rev. Handb. Fl. Ceylon 1: 29.1980. *Achyranthes lappacea* L. Sp. Pl. 204.1753.

Herbs, 45–100 cm tall; stems erect or straggling; young parts pubescent. Leaves 2–8 × 1–4 cm, obovate, or elliptic-ovate, acute to acuminate at base, apiculate at apex. Flowers greenish-yellow, in clusters of 3, in lax, terminal spikes; imperfect flowers reduced to hooked spines. Utricles ca. 0.25 cm across, depressed-globose, circumscissile, with 5–20 radially spreading hooked-bristles. Seeds orbicular, compressed.

Fls. & Frts. : August–February

Illus. : Mahesh. *Illus. Fl. Delhi* f.184.1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 591.1982.

Distrib. : Versova, H. Santapau, 23.18. (BLAT).

CULTIVATED SPECIES :

Celosia argentea L. var. *cristata* (L.) O. Ktze. Liu, *Syst. Bot. Fl. Fam. N. China* 91.1931; Naik, *Fl. Marathwada* 2: 751.1998. *C. cristata* L. Sp. Pl. 205.1753; Hook. f. *Fl. Brit. India* 4: 715.1885. 'Kombada'.

Shrubby plants; stems erect. Leaves lanceolate, acuminate. Flowers shining violet, in cocks-comb like monstrous and branched inflorescence.

Distrib. : Ghodbundar, G. L. Shah, 20270–3, 6740 (BLAT). 'Ornamental'.

Gomphrena globosa L. Sp. Pl. 224.1753; Hook. f. *Fl. Brit. India* 4: 732.1885; Cooke, *Fl. Pres. Bombay* 2: 584.1958 (Repr. ed.); Backer in Steenis, *Fl. Males.* 1, 4 (2) : 95.1949.

Herbs, 30–50 cm tall. Stems erect or ascending. Leaves obovate-lanceolate or elliptic-oblong, acutely apiculate at apex. Flowers in terminal, bright purple, bracteate and bracteolate, globose or elongate, solitary or 2–3, fascicled heads. Utricles ellipsoid. Seeds spherical, notched.

Fls. & Frts. : Throughout the year.

Illus. : Wight, *Ic.* t.1784.1852.

Distrib. : Borivli, P. S. Herbert, 525. Versova; H. Santapau, 23.19 (BLAT) (ornamental).

CHENOPODIACEAE

1. Stamen 1 :
 2. Stems leafy, prostrate, flowering spikes 1.2–1.8 cm long ... ARTHROCNEMUM
 2. Stems leafless, erect, flowering spikes 2.5–7 cm long ... SALICORNIA
1. Stamens 3–5 :
 3. Stems jointed ... SUAEDA
 3. Stems not jointed :
 4. Stems, branches and perianth woolly ... KOCHIA
 4. Stems, branches and perianth not as above ... ATRIPLEX

ARTHROCNEMUM Moq.

Arthrocnemum indicum (Willd.) Moq. *Chenop. Monogr. Enum.* 113.1840; Hook. f. *Fl. Brit. India* 5: 12.1886; Cooke, *Fl. Pres. Bombay* 2: 589.1958 (Repr. ed.). *Salicornia indica* Willd. in *Nov. Acta Acad. Sci. Imp. Petrop. Hist. Nat.* 5: 111, t. 4, f. 1.1799. 'Machur'.

Herbs, suffruticose; stems usually prostrate, diffuse, ascending, fleshy; joints clavate, reddish-purple. Leaves decussate, obscure. Flowers pink, minute, 2–3 together, in cylindrical spikes 1.2–1.6 cm long. Utricles ovoid, compressed, enclosed in swollen perianth. Seeds trigonous, compressed.

Fls. & Frts. : December–February.

Illus : Wight, *Ic. t.* 737.1844 (*Salicornia indica*).

Distrib. : Versova, *H. Santapau*, 22. 2 & *H. Santapau*, 3608 (BLAT).

ATRIPLEX L.

Atriplex stocksii (Wight) Boiss. *Ser.* 2, no. 4. 73.1879; Mast. in Hook. f. *Fl. Brit. India* 4: 7.1886; Cooke, *Fl. Pres. Bombay* 2: 587.1958 (Repr. ed.). *Obione stocksii* Wight, *Ic. t.* 1789.1852.

Shrubby perennials, 15–45 cm high, monoecious, stems prostrate or suberect. Leaves 1.2–2.5 × 0.6–1.8 cm, fleshy, elliptic-oblong or obovate, acute at base, obtuse at apex. Flowers unisexual male flowers in axillary fascicles or short spikes. Utricles enclosed in persistent bracteoles. Seeds suborbicular, smooth.

Fls. & Frts. : December–April.

Illus. : Wight, *op. cit.*

Distrib. : Navalkar (1956).

KOCHIA Roth

Kochia indica Wight, Ic. t.1791.1852; Hook. f. Fl. Brit. India 5: 11.1886; Cooke, Fl. Pres. Bombay 2: 588.1958 (Repr. ed.).

Annual herbs, tall, erect, branches woolly-white. Leaves 0.6–3.0 × 0.2–0.6 cm, linear-lanceolate, tapering at base, acute at apex, villous or pubescent on both sides. Flowers hermaphrodite, axillary, solitary or 2-nate; perianth woolly, ca.0.2 cm across, orbicular or ovoid.

Fls. & Frts. : September–October.

Illus. : Wight, *op. cit.*

Distrib. : Navalkar (1956).

SALICORNIA L.

Salicornia brachiata Roxb. Fl. Ind. 1: 84.1832; Hook. f. Fl. Brit. India 5: 12.1886; Cooke, Fl. Pres. Bombay 2: 590.1958 (Repr. ed.).

Succulent shrubs; stems more or less erect, jointed, leafless, much branched, greenish-red. Flowers bracteolate, in cylindrical spikes 2.5–6.0 cm long. Utricles ovoid, membranous, enclosed in perianth; seeds hispid.

Fls. & Frts. : November–January.

Illus. : Wight, Ic. t. 738.1844.

Distrib. : Navalkar (1956).

SUAEDA Forssk. ex Scop. (*nom. cons.*)

- | | | |
|---|-----|---------------------|
| 1. Flowers polygamous, stigmas 2–5 : | | |
| 2. Seeds horizontal | ... | <i>S. maritima</i> |
| 2. Seeds erect | ... | <i>S. monoica</i> |
| 1. Flowers bisexual; stigmas 3: | | |
| 3. Bracteoles with slightly denticulate margins | ... | <i>S. fruticosa</i> |
| 3. Bracteoles with pectinate margins | ... | <i>S. nudiflora</i> |

Suaeda fruticosa (L.) Forssk. Fl. Aegpt–Arab. 70.1775; Hook. f. Fl. Brit. India 5: 13.1886; Cooke, Fl. Pres. Bombay 2: 590.1958 (Repr. ed.). *Chenopodium fruticosum* L. Sp. Pl. 221.1753. 'Moras'.

Shrubs; stems erect, much branched. Leaves 0.5–1.5 × 0.15–0.3 cm, linear-oblong to elliptic or obovate, narrowed at base, obtuse at apex. Flowers greenish, solitary, axillary or 2–3-nate, bracteoles membranous. Utricles obovoid. Seeds ovoid, minute, oblique, beaked, flattened.

Fls. & Frts. : September–December.

Distrib. : Salsette, G. L. Shah (1962).

Suaeda maritima (L.) Dumort. Fl. Belg. 22.1827; Hook. f. Fl. Brit. India 5: 14.1886; Cooke, Fl. Pres. Bombay 2: 591.1958 (Repr. ed.). *Chenopodium maritimum* L. Sp. Pl. 22.1753. 'Lani'.

Herbs, 45–60 cm tall; stems erect, woody, branched. Leaves 1.0–2.5 × 0.6–0.1 cm, narrowly linear to filiform, succulent. Flowers few, in globose clusters arranged in lax, elongate spikes. Utricles covered with perianth. Seeds suborbicular or obliquely ovoid, shining.

Fls. & Frts. : April–June.

Distrib. : Versova, H. Santapau, 22.1 (BLAT).

Suaeda monoica Forssk. ex J. F. Gmel. in L. Syst. Nat. (ed. 13), 2: 503.1791; Hook. f. Fl. Brit. India 5: 13.1886; Cooke, Fl. Pres. Bombay 2: 591.1958 (Repr. ed.).

Bushy, erect undershrubs ca. 1.5 m tall; branches ascending, marked with numerous leafscars, glabrous. Leaves sessile, succulent, 1.0–2.5 × 0.1–0.2 cm, linear, obtuse or subacute at apex or apiculate, bright green. Flowers polygamous, ca. 1.5 cm across, in lax spikes, bracteolate. Utricles included in perianth. Seeds ovoid, shining black.

Fls. & Frts. : May–December.

Illus. : Wight, Ic. t.1792.1853; Matthew, Illus. Fl. Tamilnadu Carnatic 3 (Pt. 2): 1325, t. 961.1983.

Distrib. : Along coastline, Navalkar (1956).

Suaeda nudiflora Moq. in Ann. Sci. Nat. (Paris) 23: 316.1831; Hook. f. Fl. Brit. India 5: 14.1886; Cooke, Fl. Pres. Bombay 2: 591.1958 (Repr. ed.). 'Morus', 'Mochole'.

Undershrubs, perennial, 30–45 cm tall; stems prostrate, diffuse, branched. Leaves 0.6–1.2 × 0.2–0.3 cm, elliptic-oblong, linear-oblong or obovate or spathulate, narrowed at base, obtuse at apex. Flowers greenish, in axillary, dense clusters forming terminal spikes. Utricles ovoid ca. 0.1 cm across. Seeds lenticular, shining black.

Fls. & Frts. : September–February.

Illus. : Wight, Ic. t. 1793.1852 (*Suaeda indica* Moq. in Ann. Sci. Nat. 23: 316.1831); Matthew, Illus. Fl. Tamilnadu Carnatic 3: 1325, t. 961.1983.

Distrib. : Versova, H. Santapau, 3907 (BLAT).

BASELLACEAE

CULTIVATED SPECIES :

Basella alba L. Sp. Pl. 272.1753; Moorthy in Singh *et al.* Fl. Maharashtra 2: 799. 2001. *B. rubra* L. Sp. Pl. 272.1753; Hook. f. Fl. Brit. India 5: 21.1886; Cooke, Fl. Pres. Bombay 2: 594.1958 (Repr. ed.) 'Mayalu'.

Perennial herbs; stems rhizomatous, twisting to right, succulent, branched. Leaves ovate–cordate, acute–acuminate at apex. Flowers white or red, few in pedunculate spikes. Fruits globose. red, white or black.

Fls. & Frts. : October–December.

Illus. : Wight, Ic. t. 896.1844, 1844–1845; Matthew Illus. Fl. Tamilnadu Carnatic 2: t. 596.1982. (*Basella rubra*).

Distrib. : G. L. Shah (1969), grown as vegetable.

POLYGONACEAE

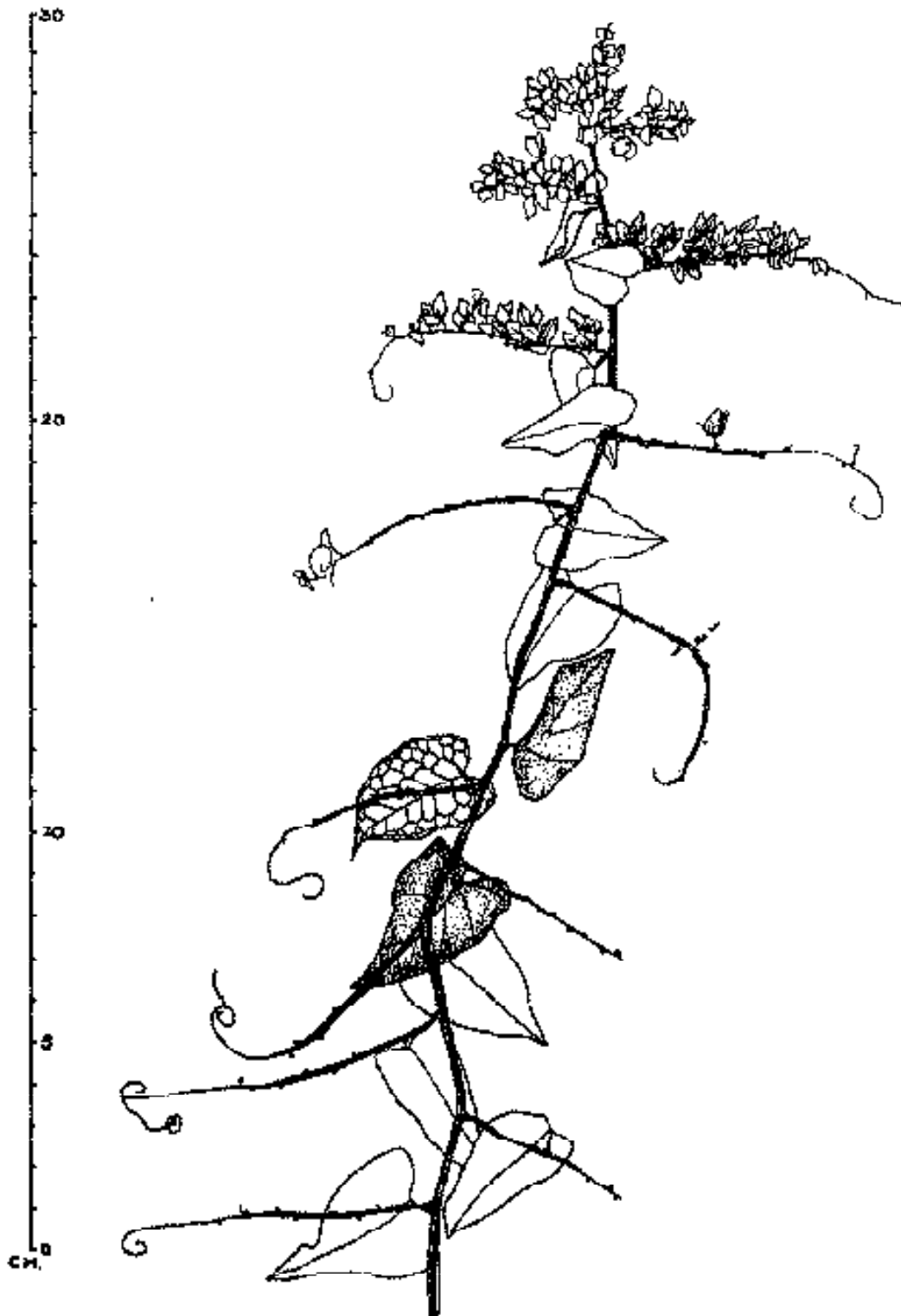
- | | | |
|---|-----|------------|
| 1. Plants climbing, tendrillate | ... | ANTIGONON |
| 1. Plants not climbing, not tendrillate : | | |
| 2. Flowers terminal, ocreae membranous | ... | PERSICARIA |
| 2. Flowers axillary, ocreae hyaline | ... | POLYGONUM |

ANTIGONON Endl.

Antigonon leptopus Hook. & Arn. Bot. Beech. Voy. 308, t. 69.1841; Cooke, Fl. Pres. Bombay 3: 10.1958 (Repr. ed.).

Stems extensive, spreading, climbing, tendrils axillary. Leaves 3–13 × 2–7 cm, ovate, cordate, or hastate at base, acute at apex, pubescent, prominently nerved. Flowers pink or whitish in racemes terminating in a tendrillate panicle.

Fls. & Frts. : February–April.



f.74. *Antigonon leptopus* Hook. & Arn.

Distrib. : Occasional, growing as an escape, naturalised. 167735.

PERSICARIA (L.) P. Mill. (*non. cons.*)

- | | | |
|---|-----|-------------------|
| 1. Ocreae glabrous; styles 2; nuts biconvex | ... | <i>P. glabra</i> |
| 1. Ocreae strigose and /or ciliate; styles 3; nut trigonous | ... | <i>P. barbata</i> |

Persicaria barbata (L.) Hara Fl. East. Himal. 1: 70.1966; C. R. Jadhav in Singh et al. Fl. Maharashtra 2. 801. 2001. *Polygonum barbatum* L. Sp. Pl. 362.1753; Hook. f. Fl. Brit. India 5: 37.1886; Steward in Contrib. Gray Herb. 88: 52.1930.

- | | | |
|----------------------|-----|----------------------|
| 1. Plant hairy | ... | var. <i>stagnina</i> |
| 1. Plant glabrescent | ... | var. <i>barbata</i> |

var. **barbata**

Herbs; stems up to 1 m tall, erect. Leaves 5–10 × 1.0–2.3 cm, lanceolate, acute to cuneate at base, gradually acute at apex, strigose on nerves and margins only, petiolate; stipules ocreate, 1.5–2.0 cm long, truncate. Flowers white, in terminal and axillary spikes ca. 8 cm long. Nutlets ca. 2.0 × 1.5 cm, trigonous.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, Ic. t.1798.1852 (*Polygonum barbatum*); Matthew, Illus, Fl. Tamilnadu Carnatic : 4 t. 521.1988.

Distrib. : Koppikar (1974).

var. **stagnina** (Buch.–Ham. ex Meissn.) Sojak in Preshia 46 (2) : 152.1974. *Polygonum stagninum* Buch.–Ham. ex Meissn. in Wall. Pl. Asiat. Rar. 3: 56.1832; Hook. f. Fl. Brit. India 5: 37.1886; Sald. Fl. Karnataka 1: 181.1984. *P. barbatum* var. *stagninum* (Buch.–Ham. ex Meissn.) Steward in Contrib. Gray Herb. 88. 54.1930.

Annual herbs ca. 1.5 m tall; stems strigose when young. Leaves 10–13 × 1.5 cm, lanceolate, acuminate at apex, shortly petiolate; ocreate, strigose. Flowers white, in compact racemes. Nutlets 3–gonous.

Fls. & Frts. : September–March.

Illus : Naik, Fl. Marathwada 2: 761, f. 95.1998. *polygonum barbatum* var. *stagninum*.

Distrib. : Locally abundant on the banks of Vihar lake, 168907.

Persicaria glabra (Willd.) M. Gomez in Ann. Inst. Segunda Enseñ. Habana 2: 278.1896; Hara in Hara *et al.* Enum. Fl. Pl. Nepal 3: 176.1982; Maiti & Sikdar in Indian J. For. 8: 192.1985. *Polygonum glabrum* Willd. Sp. Pl. 2: 447.1799; Hook. f. Fl. Brit. India 5: 34.1886; Cooke, Fl. Pres. Bombay 3: 5.1958 (Repr. ed.). 'Sheral'.

Herbs up to 2.5 m tall. Leaves 10–23 × 1.0–3.5 cm, narrowly lanceolate, acute to decurrent at base, gradually acuminate at apex, petiolate; stipules ocreate, 2–4 cm long, tubular, truncate. Flowers rose-coloured, in terminal or axillary racemes, ca. 8–10 cm long. Nutlets ca. 3.0 × 2.7 cm, compressed, ovoid or suborbicular, biconvex.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, Ic. t.1799.1852; Mahesh. Illus. Fl. Delhi f.188.1966 (*Polygonum glabrum*).

Distrib. : Frequent and locally abundant on the banks of Tulsi & Vihar Lakes 167437.

POLYGONUM L.

Polygonum plebeium R. Br. Prodr. 420.1810 (*plebejum*); Hook. f. Fl. Brit. India 5: 27.1886; Cooke, Fl. Pres. Bombay 3: 4.1958 (Repr. ed.); C. R. Jadhav in Singh *et al.* Fl. Maharashtra 2: 808. 2001.

Herbs; stems ca. 30–45 cm long, prostrate. Leaves 0.5–0.7 × 0.13–0.3 cm, oblong, attenuate and shortly decurrent at base, obtuse or acute at apex, sessile, prominently nerved below; stipules ocreate, hyaline, scarious, ca. 0.3 cm long, lacerate. Flowers rose-coloured. Nutlets 3-gonous, ca. 0.2 × 0.1 cm, apiculate by style base.

Fls. & Frts. : More or less throughout the year.

Illus. : Tad. & G. V. Narayana, Handb. S. Indian Weeds 380. f. 153.1955. (Rev. ed.); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 527.1988.

Distrib. : Koppikar (1974).

CULTIVATED SPECIES :

Rumex versicarius L. Sp. Pl. 336.1753; Hook. f. Fl. Brit. India 5: 61.1886; Naik, Fl. Marathwada 2: 765.1998. 'Chuka'.

Subsucculent, erect herbs. Leaves ovate. Flowers in terminal panicles. Nuts enclosed in persistent perianth, trigonous in shape.

Fls. & Frts. : January--March.

Distrib. : Salsette, G. L. Shah (1984). Native of W. Punjab; Cultivated as vegetable and as a medicinal plant.

TRISTICHACEAE

DALZELLIA Wight

Dalzellia ceylanica (Gardn.) Wight, Ic. 5(2) : t. 35.1852. *Sphalm zelanica*. Cusset & Cusset in Bull. Mus. nat. Hist. nat. Paris Ser. 10, Sect. B, Adansonia no. 2: 172.1988; Jadhav in Singh *et al.* Fl. Maharashtra 2: 813. 2001. *Tristicha ceylanica* Gardn. in Calcutta J. nat. Hist. 7: 177.1846. *Lawia zeylanica* (Gardn.) Tul. *emend.* Willis. var. *malabarica* Willis in Ann. Roy. Bot. Gard. Peradeniya 1 (3) : 215.1902; Cooke, Fl. Pres. Bombay 3: 13.1958 (Repr. ed.). *L. zeylanica* (Gardn.) Tul. var. *konkanica* Willis, *op. cit.* 216.1902; Cooke, *op. cit.* *Terniola zeylanica* (Gardn.) Tul. var. *konkanica* (Willis) Sant. in Rec. Bot. Surv. India 16(1) : 256.1953. *Dalzellia zeylanica* (Gardn.) Wight, var. *malabarica* (Willis) Janardhanan in Bull. Bot. Surv. India 24. 207. (1982) 1983. *D. zeylanica* (Gardn.) Wight, var. *konkanica* (Willis) Janardhanan, *op. cit.*

Herbs, plant body thalloid, flabelliform, attached to rock,, rootless. Leaves 0.5–1.5 cm long, in rosettes on the thallus , acute, numerous. Flowers white, stalked, closely crowded at apices of thallus lobes, fruiting pedicels 0.6–0.8 cm long. Capsules ca. 0.2 cm long, ellipsoid with persistent perianth. Seeds minute, numerous.

Illus. : Wight, *op. cit.*

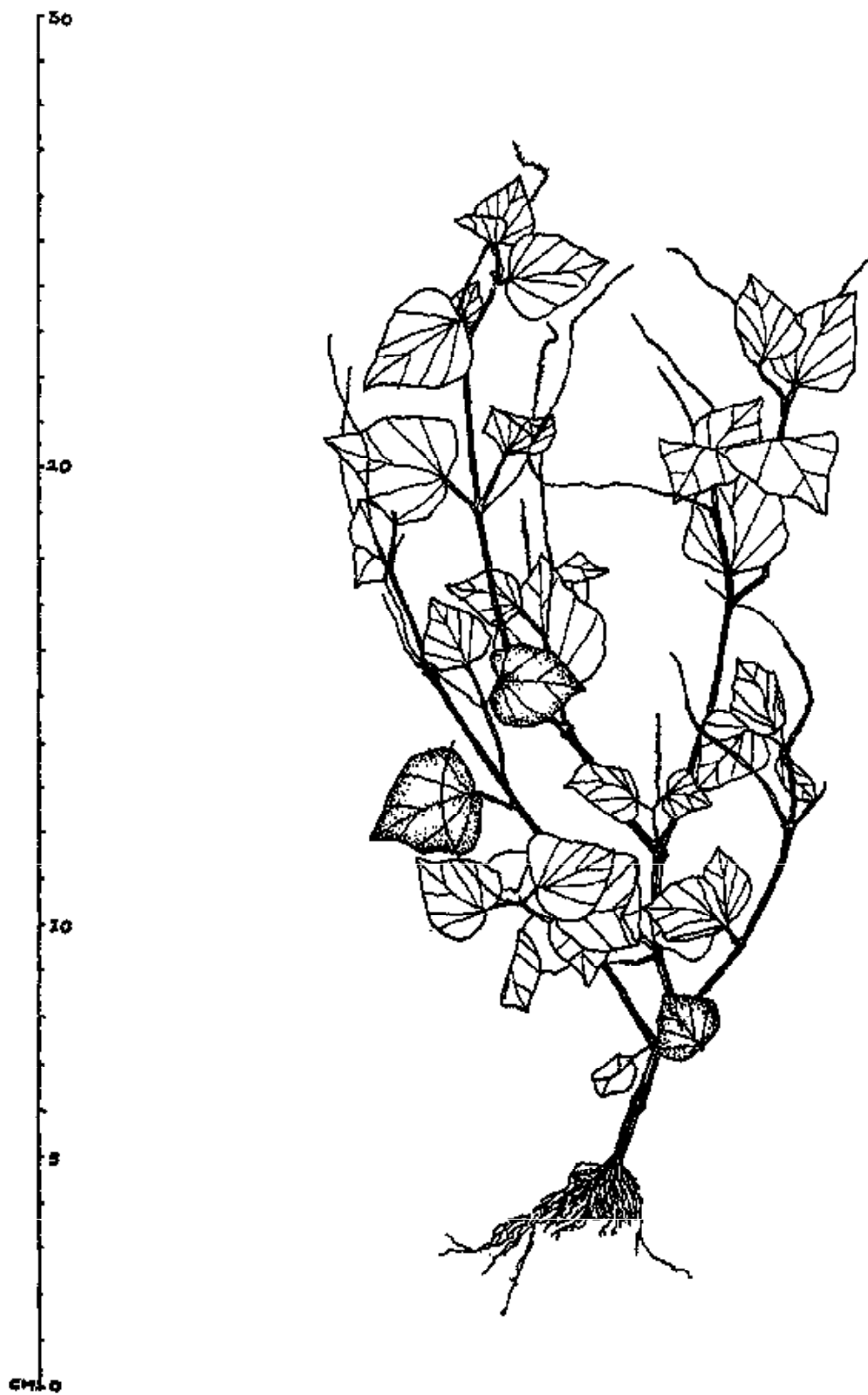
Distrib. : Borivli, G. Kalianiwalla, 1671, 7–52 (BLAT).

ARISTOLOCHIACEAE

ARISTOLOCHIA L.

Aristolochia indica L. Sp. Pl. 960.1753; Hook. f. Fl. Brit. India 5: 75.1886; Cooke, Fl. Pres. Bombay 3: 16.1958 (Repr. ed.). '*Sapsund*'.

Shrubby twiners; stems slender, woody at base. Leaves 2–8 × 1.5–5.0 cm, linear-oblong to obovate-oblong, rounded to cuneate at base, obtusely acuminate at apex, margins undulate. Flowers purple with globose, inflated base and oblique tube, in few-flowered, axillary racemes. Capsules 3.5–5.0 cm long, oblong to globose-oblong, 6-valved. Seeds deltoid-ovate, winged.



f.75. *Peperomia pellucida* (L.) H. B. & K.

Fls. & Frts. : November–February.

Distrib. : Borivli, P. S. Herbert, 853 (BLAT).

PIPERACEAE

PEPEROMIA Ruiz. & Pavon

Peperomia pellucida (L.) H. B. & K. Nov. Gen. & Sp. 1: 64.1815; Cooke, Fl. Pres. Bombay 3: 21.1958 (Repr. ed.); Yuncker in Ann. Miss. Bot. Gard. 37: 79.1950. *Piper pellucidum* L. Sp. Pl. 30.1753.

Herbs, 10–15 cm tall; stems succulent, much-branched, procumbent. Leaves opposite, 0.5–1.5 × 0.5–0.8 cm, broadly ovate, rounded or cordate at base, acute at apex. Flowers greenish, minute, in slender, terminal and leaf-opposed, linear spikes, 3–4 cm long.

Fls. & Frts. : August–September.

Distrib. : Rare, growing in forest nursery as a weed. 169111.

CULTIVATED SPECIES :

Piper longum L. Sp. Pl. 29.1753; Hook. f. Fl. Brit. India 5: 83.1886; Cooke, Fl. Pres. Bombay 3: 20.1958 (Repr. ed.). *Chavica roxburghii* Miq. Syst. Piperac. 239.1843; Wight, Ic. t.1928.1853. 'Pipli'.

Scandent shrubs; stems creeping. Leaves cordate; lower leaves petiolate, upper ones sessile, cordate–ovate. Flowers unisexual, in whitish catkins. Fruits ca. 0.25 cm across, edible.

Distrib. : Salsette, Graham (1839) (cultivated).

LAURACEAE

- | | | |
|---|-----|-------------|
| 1. Flowers unisexual, in umbels | ... | LITSEA |
| 1. Flowers bisexual, in panicles : | | |
| 2. Inflorescence silky pubescent | ... | CINNAMOMUM |
| 2. Inflorescence glabrous or puberulous : | | |
| 3. Perianth persistent in fruits | ... | PERSEA |
| 3. Perianth not persistent in fruits | ... | ALSEODAPHNE |

ALSEODAPHNE Nees

Alseodaphne semicarpifolia Nees in Wall. Pl. Asiat. Rar. 2: 72.1831; Hook. f. Fl. Brit. India 5: 144.1886; Cooke, Fl. Pres. Bombay 3: 30.1958 (Repr. ed.). 'Phudgus'.

Trees, 8–10 m tall. Leaves 6–15 × 2–6 cm, obovate to oblanceolate, acute to cuneate at base, rounded or subacute at apex, clustered at apices of branches, coriaceous. Flowers yellowish–green, in much branched, terminal or subterminal pedunculate, subumbellate cymes at the tips of branches, in lax panicles. Berries 2.2 × 1.2–1.3 cm, ellipsoid, smooth. Seeds oblong–globular.

Fls. & Frts. : September–April.

Illus. : Wight, Ic. t.1826 and 1827.1852; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 605.1982.

Distrib. : Occasional on hill tops. 167444.

CINNAMOMUM Schaeff.

Cinnamomum verum J. L. Presl in *Prir. Rostlin.* 2: 36, 37–44, t. 7.1825; Kosterm. in *Reinwardtia* 7: 141.1965; Sald. & Ramesh in *Sald. Fl. Karnataka* 1: 62.1984. *C. zeylanicum* Bl. *Bijdr.* 568.1825; Hook. f. *Fl. Brit. India* 5: 131.1886; Cooke, *Fl. Pres. Bombay* 3: 28.1958 (Repr. ed.). 'Dalchini', 'Tamalpatra'.

Trees, 7–10 m tall, evergreen. Leaves and bark aromatic. Leaves 7–20 × 3.5–7.5 cm, ovate or ovate–lanceolate or ovate–oblong, rounded or acute at base, subacute to acuminate at apex, coriaceous, 3–5–nerved, glabrous, shining above. Flowers greenish to creamy, in silky–pubescent, lax panicles. Berries ovoid–oblong, apiculate, dark purple, surrounded by enlarged perianth.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. tt. 123 & 134.1839; Talbot, *For. Fl. Bombay Pres. & Sind* 2: 388. f. 453.1911. (*Cinnamomum zeylanicum*).

Distrib. : G. L. Shah, 341 & 342 (BLAT).

LITSEA Lam. (*nom. cons.*)

- | | | |
|--|-----|-----------------------|
| 1. Perianth lobes complete | ... | <i>L. latea</i> |
| 1. Perianth lobes absent or incomplete : | | |
| 2. Umbels simple | ... | <i>L. deccanensis</i> |
| 2. Umbels compound | ... | <i>L. glutinosa</i> |

Litsea deccanensis Gamble, *Fl. Pres. Madras* 2: 1235.1925 & [2: 864.1957 (Repr. ed.)]; Kosterm. in *Reinwardtia* 7: 502.1969. *L. tomentosa* Heyne ex Hook. f. *Fl. Brit. India* 5: 157.1886 *non* Bl.1826; Cooke, *Fl. Pres. Bombay* 3: 32.1958 (Repr. ed.). 'Chikna'.

Trees, 5–15 m tall; branchlets softly rusty-tomentose. Leaves 10–20 × 5–15 cm, elliptic-lanceolate to obovate-ob lanceolate, truncate to acute at base, shortly acuminate at apex, glabrous above, tomentose beneath. Flowers pale yellow, in pedunculate, umbellate heads. Berries ca. 1 cm across, globose, black when ripe. Seeds globose.

Fls. & Frts. : November–December.

Illus. : *Tetranthera tomentosa* (Roxb. ex Wall.) Wight, Ic. t.1834.1852; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 609.1982.

Distrib. : Occasional. 168483.

Litsea glutinosa (Lour.) C. B. Robins. in *Philipp. J. Sci. (Bot.)* 6: 321.1911; Kosterm. in *Reinwardtia* 7: 505.1969. *Sebifera glutinosa* Lour. *Fl. Cochinch.* 638.1790. *L. chinensis* Lam. *Encycl.* 3: 574.1789; Hook. f. *Fl. Brit. India* 5: 157.1886; Cooke, *Fl. Pres. Bombay* 3: 32.1958 (Repr. ed.).

Trees, 5–8 m tall, evergreen. Leaves 8–20 × 6–8 cm, elliptic-lanceolate, or ovate, acute to cuneate at base, obtuse to acute at apex. Flowers pedicellate. Fruits ca. 0.6 cm across, globose.

Fls. & Frts. : March–September.

Distrib. : Tulsi lake, *P. V. Bole, s. n. (BLAT)*.

Litsea latea Bth. & Hook. f. *Gen. III* 161.1883; Hook. f. *Fl. Brit. India* 5: 169.1886.

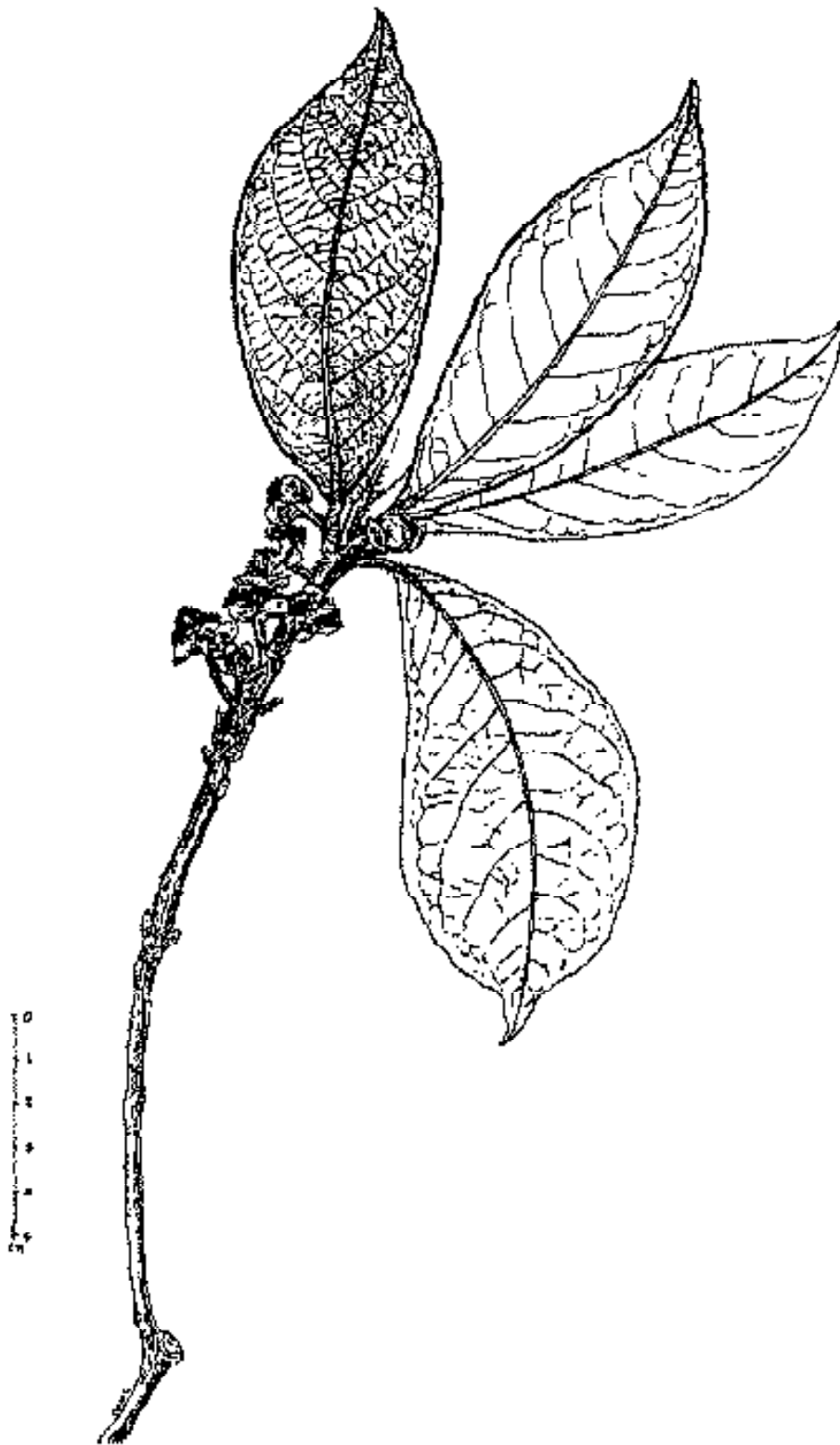
Trees; branches slender. Leaves 10–30 cm long, alternate, elliptic to linear-oblong or lanceolate, acute at apex, coriaceous. Flowers bracteate, in 3–8-flowered umbels 7–20 cm long in a cluster, finely hoary. Fruits ca. 2.5 cm across, globose, with a large pedicelled, turbinate perianth tube.

Distrib. : Borivli, *P. S. Herbert* 2116–19. (BLAT).

PERSEA P. Mill.

Persea macrantha (Nees) Kosterm. in *Reinwardtia* 6: 193.1962; Sant. in *Rec. Bot. Surv. India* 16(1) : 231.1967. (3rd. Rev. ed.). *Machilus macrantha* Nees in Wall. *Pl. Asiat. Rar.* 2: 70.1831; Hook. f. *Fl. Brit. India* 5: 140.1886; Cooke, *Fl. Pres. Bombay* 3: 29.1958 (Repr. ed.). 'Gulum'.

Trees, 15–20 m tall. Leaves 6–15 × 3–6 cm, elliptic-lanceolate to oblong-elliptic, truncate or oblique at base, obtuse or acute at apex,



f.76. *Litsea deccanensis* Gamble

petiolate. Flowers yellow, numerous, in subterminal panicles up to 20 cm long. Berries *ca.* 1.5 cm across, globose, with basal perianth. Seeds 1, globose.

Fls. & Frts. : December–March.

Illus. : Wight, Ic. t.1824.1852 (*Machilus macrantha*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 611.1982.

Distrib. : Occasional, noted specimen in Tumnipada Jungle. Pradhan, *s. n.*

CASSYTHACEAE

CASSYTHA L.

Cassytha filiformis L. Sp. Pl. 35.1753; Hook. f. Fl. Brit. India 5: 188.1886; Cooke, Fl. Pres. Bombay 3: 35.1958 (Repr. ed.); Londhe in Singh *et al.* Fl. Maharashtra 2: 825, 2001. '*Amar-val*'.

Parasitic, leafless, herbaceous twiners; stems green, extensive, branched, cord-like, attached to host plants by suckers. Flowers small, sessile in lateral, lax spikes 1.2–2.5 cm long; perianth lobes 6, in 2 rows of 3 each. outer lobes short, rounded and ciliate, the inner ones oblong, acute and valvate. Drupes globose, covered with enlarged persistent perianth.

Fls. & Frts. : June–September.

Illus. : Wight, Ic. t.1847.1852; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 607.1982.

Distrib. : Salsette, Shah (1969).

LORANTHACEAE

- | | | |
|---|-----|--------------|
| 1. Leaves well developed : | | |
| 2. Bracteoles present | ... | MACROSOLEN |
| 2. Bracteoles absent : | | |
| 3. Peduncles with campanulate involucre | ... | TOLYPANTHUS |
| 3. Peduncles without such involucre | ... | DENDROPHTHOE |
| 1. Leaves reduced | ... | Viscum |

DENDROPHTHOE Mart.

Dendrophthoe falcata (L. f.) Etting in Denkschr. Kaiserl. Akad. Wiss. Math. Naturwiss. Cl. 32: 52, 58, t. 13, ff. 14 & 15. 1872; Danser in Bull. Jard. Buit. 3, 16: 30. 1938. *Loranthus falcatus* L. f. Suppl. Pl. 211. 1781. *L. longiflorus* var. *falcatus* (L.f.) Kurz, For. Fl. 2: 321. 1827; Hook f. Fl. Brit. India 5: 215. 1885. *L. longiflorus* var. *amplexifolia* (DC.) Thw. Enum. Pl. Zeyl. 134. 1859; Hook. *op. cit.* 215. *L. longiflorus* Desr. in Lam. Encycl. 3: 498. 1789; Cooke, Fl. Pres. Bombay 3: 42. 1958 (Repr. ed.). '*Bandgul*'.

Shrubby parasites; stems brittle. Leaves 5–13 × 2–5 cm, elliptic-oblong or elliptic-ovate, cuneate to acute at base, obtuse at apex, subcoriaceous, petiolate. Flowers yellow, in *ca.* 0.4 cm long racemes. Berries 0.8–1.2 cm long, ovoid-oblong, pink, crowned by persistent calyx.

Fls. & Frts. : September–May.

Illus. : Wight, Ic. t. 302. 1840 (*L. longiflorus*); Mahesh. Illus. Fl. Delhi f. 190. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 616. 1982.

Distrib. : Frequent in the forest. 168442.

MACROSOLEN (Bl.) Reichenb.

Macrosolen capitellatus (Wight & Arn.) Danser in Blumea 2: 36. 1936; Ramam. in Sald. & Nicols. Fl. Hassan Dt. 308. 1976. *Loranthus capitellatus* Wight & Arn. Prodr. 382. 1834; Hook. f. Fl. Brit. India 5: 221. 1886; Cooke, Fl. Pres. Bombay 3: 44. 1958 (Repr. ed.). '*Bandgul*'.

Shrubby parasites. Leaves 3.5–8.0 × 2.5–4.0 cm, elliptic-lanceolate to ovate-lanceolate, acute at base, acuminate at apex. Flowers reddish, *ca.* 2.5 cm long, 3–4 in clusters, in opposite leaf axils. Berries *ca.* 0.8 cm long, ellipsoid, with persistent calyx cup, black, shining.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t. 304. 1840; Talbot, For. Fl. Bombay Pres. & Sind 2: 418, f. 478. 1911. (*Loranthus capitellatus*).

Distrib. : Frequent in the forest. 167410.

TOLYPANTHUS Bl.

Tolypanthus lagenifer (Wight) van Tiegh. in Bull. Soc. Bot. France 42: 249.1895 (*lageniferus*); Ramam. in Sald. & Nicöls. Fl. Hassan Dt. 310.1976. *Loranthus lageniferus* Wight, Ic. t. 306.1840; Hook. f. Fl. Brit. India 5: 218.1886; Cooke, Fl. Pres. Bombay 3: 44.1958 (Repr. ed.). 'Bandgul'.

Shrubs, branches terete, stout, woody, lenticular. Leaves 4-11 × 3.5-9.0 cm, elliptic or suborbicular, rounded or subcordate at base, obtuse at apex. Flowers sessile or subsessile, green and red, 5, in reddish involucre.

Fls. & Frts. : April-July.

Illus. : Wight, *op. cit.*

Distrib. : Borivli, P. S. Herbert, 2740 (BLAT).

VISCUM L.

Viscum articulatum Burm. f. Fl. Ind. 311.1768; Hook. f. Fl. Brit. India 5: 226.1886; Cooke, Fl. Pres. Bombay 3: 47.1958 (Repr. ed.); Danser in Blumea 4: 280.1941; R. S. Rao in J. Indian Bot. Soc. 36: 126.1957. *V. nepalense* Spr. Syst. Cur. Post. 4(2) : 42.1827; Danser, *op. cit.* 283. 'Bandgul'.

Shrubs; stems apparently leafless, pendulous, dichotomously branched; branches jointed. Flowers yellow, minute, shortly pedicellate, 1-6 together at the nodes, bracteate. Berries ca. 0.4 cm across, globose, greenish.

Fls. & Frts. : July-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 423, f. 482.1911.

Distrib. : Frequent bushes on trees in the forest. 167346, 168430.

EUPHORBIACEAE

1. Flowers arranged in cyathia; perianth absent ... EUPHORBIA
1. Flowers not arranged in cyathia; perianth present :
 2. Flowers solitary, fascicled or in racemes :
 3. Stamens up to 10 :
 4. Filaments connate at least at base :

- 5. Tepals 5-6 :
 - 6. Disc present ... PHYLLANTHUS
 - 6. Disc absent :
 - 7. Capsules dehiscent; perianth not accrescent in fruit :
 - 8. Styles confluent in a conical or globular structure, 3-6-toothed or notched at apex ... GLOCHIDION
 - 8. Styles free, 3, each 2-fid at apex ... SAUROPOUS
 - 7. Capsules indehiscent, perianth accrescent in fruit ... BREYNIA
- 5. Tepals 10 ... BRIDELIA
- 4. Filaments free :
 - 9. Leaves peltate ... MACARANGA
 - 9. Leaves not peltate :
 - 10. Leaf margins serrulate; fruits ellipsoid ... DRYPETES
 - 10. Leaf margins entire; fruits depressed globose :
 - 11. Leaves acute to acuminate at apex; stamens 3, 4 or 6 ... PHYLLANTHUS
 - 11. Leaves obtuse or emarginate at apex; stamens 5 ... SECURINEGA
- 3. Stamens more than 10 :
 - 12. Filaments branched; ovaries echinate ... RICINUS
 - 12. Filaments unbranched; ovaries not echinate :
 - 13. Leaf-margins entire or sparsely serrulate :
 - 14. Capsules with red tomentum ... MALLOTUS
 - 14. Capsules brown-tomentose when young, glabrous at length ... TREWIA
 - 13. Leaf-margins lobbed or sinuately toothed :
 - 15. Plants stellate-woolly ... CHROZOPHORA
 - 15. Plants glabrescent except young parts, hairs not stellate ... BALIOSPERMUM
- 2. Flowers in spikes :
 - 16. Female bracts foliaceous, dentate or ciliate; styles fimbriate ... ACALYPHA
 - 16. Female bracts neither foliaceous nor dentate nor ciliate; styles papillose at most :

17. Stamens 3-7 :
18. Perianth 1-seriate :
19. Disc present ... ANTIDESMA
19. Disc absent ... EXCOECARIA
18. Perianth 2-seriate ... BRIDELIA
17. Stamens 20 or more :
20. Filaments branched ... HOMONIA
20. Filaments unbranched ... MALLOTUS

ACALYPHA L.

1. Bracts with toothed margins :
2. Capsules hairy, quite concealed by bracts ... *A. indica*
2. Capsules glabrescent, not concealed by bracts ... *A. malabarica*
1. Bracts with fimbriate margins ... *A. ciliata*

Acalypha ciliata Forssk. Fl. Aeg.-Arab. 162.1775; Hook. f. Fl. Brit. India 5: 417.1887; Cooke, Fl. Pres. Bombay 3: 109.1958 (Repr. ed.).

Herbs, 30-60 cm tall; stems erect, stout, strigose. Leaves 2.5-6.5 × 1.2-3.5 cm, ovate, rounded at base, abruptly acuminate at apex, margins serrate, petiolate. Flowers unisexual, in axillary spikes; male flowers above the female flowers in position. Capsules covered by bracts, ca. 1.5 cm across, subglobose, trigonous. Seeds globose-ovoid.

Fls. & Frts. : August-December.

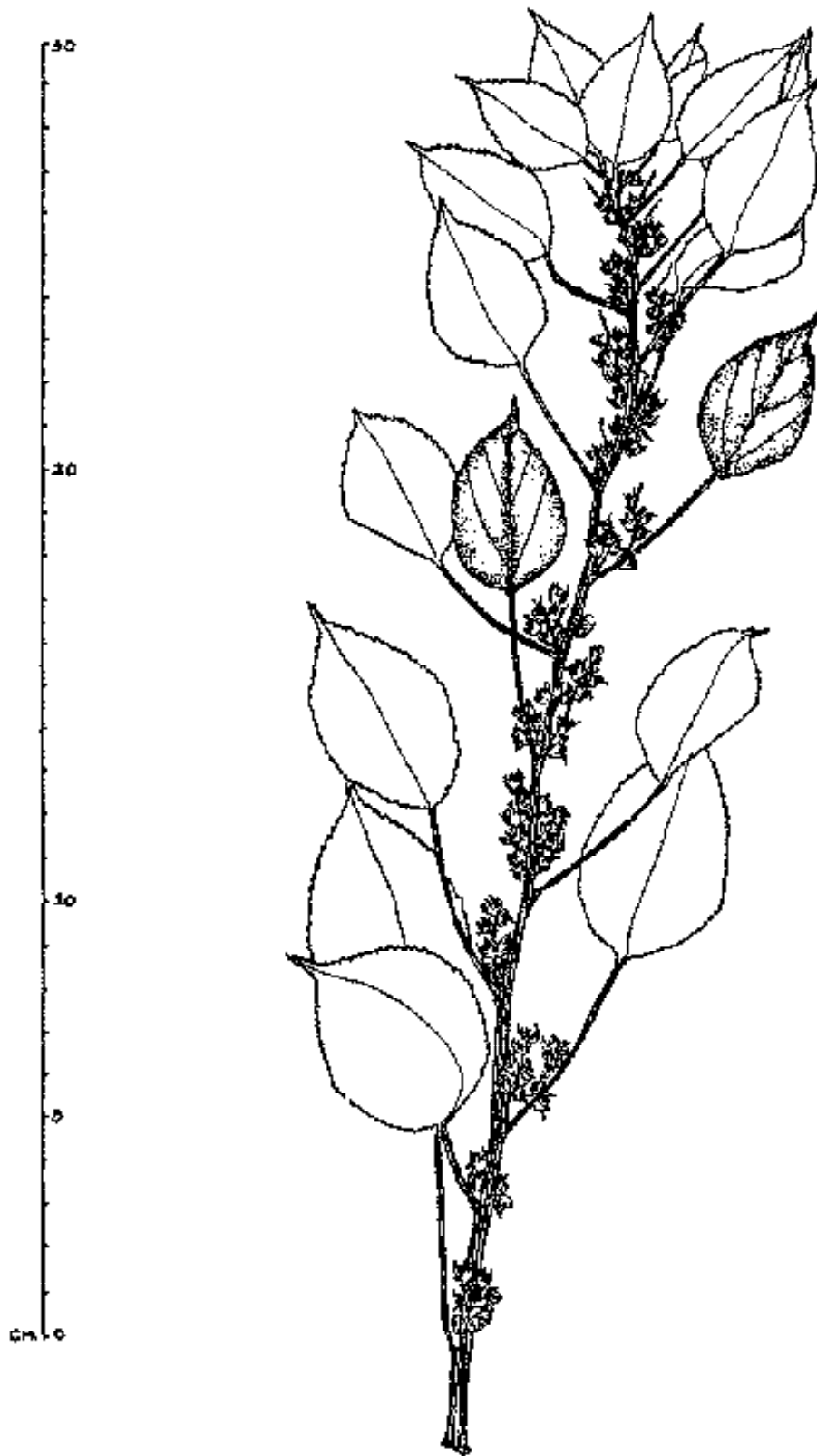
Illus. : Matthew, Fur. Illus. Tamilnadu Carnatic 4: t. 537.1988.

Distrib. : Borivli, Y. A. Merchant, 157 (BLAT).

Acalypha indica L. Sp. Pl. 1003.1753; Hook. f. Fl. Brit. India 5: 416.1887; Cooke, Fl. Pres. Bombay 3: 108.1958 (Repr. ed.); A. N. Londhe in Singh *et al.* Fl. Maharashtra 2; 856. 2001. '*Khokali*'.

Annual herbs, 30-60 cm tall; stems much branched, ascending, hairy. Leaves 2-6 × 1.5-4.0 cm, ovate or rhomboid-ovate, cuneate at base, acute at apex, margins crenate-serrate; petioles longer than the blade. Flowers unisexual, in axillary spikes; male flowers near the apex of the spikes and female flowers at the lower half of the spikes; bracts folded, campanulate, shortly dentate. Capsules ca. 2.0 × 2.5 cm, hispid, often one-seeded. Seeds ovoid, smooth.

Fls. & Frts. : June-November.



f.77. *Acalypha ciliata* Forssk.

Illus. : Wight, Ic. t. 877.1844-45; Tad. & G. V. Narayana, Handb. S. Indian Weeds 402, f. 162: 1955 (Rev. ed.).

Distrib. : Frequent in the forest. 167342.

Acalypha malabarica Muell.-Arg. in Linnaea 34: 42.1865-1866; Hook. f. Fl. Brit. India 5: 416.1887; Cooke, Fl. Pres. Bombay 3: 109.1958 (Repr. ed.).

Annual herbs up to 30 cm tall ; stems stout, pubescent. Leaves 2-3 × 0.6-0.8 cm, elliptic to elliptic-lanceolate, acute at base; subacute at apex, margins subserrate, petioles shorter or longer than the leaf blades. Flowers unisexual, in spikes; male flowers few, terminal, female flowers numerous below, bracts of female flowers toothed, bordered with glandular hairs. Capsules 0.1- 0.2 × 1 cm, obtusely trigonous. Seeds globose, smooth.

Fls. & Frts. : August-December.

Distrib. : Occasional. 167869.

ANTIDESMA L.

- | | |
|--|----------------------------|
| 1. Leaves acute to acuminate at apex; stamens 2; ovary glabrous ... | <i>A. acidum</i> |
| 1. Leaves obtuse or emarginate at apex; stamens 5-7; ovary densely pubescent | ... <i>A. ghaesembilla</i> |

Antidesma acidum Retz. Obs. Bot. 5: 30.1788; Airy Shaw in Kew Bull. 26(2) : 352.1972; T. Chakrab. & Gang. in J. Econ. Tax. Bot. 24: 8, f. 1. 2000. *A. diandrum* (Roxb.) Roth, Nov. Pl. Sp. 369.1821; Hook. f. Fl. Brit. India 5: 361.1887 *p.p.*; Cooke, Fl. Pres. Bombay 3: 90.1958 (Repr. ed.).

Shrubs or trees up to 10 m tall, dioecious. Leaves 3-10 × 2-5 cm, ovate-lanceolate, elliptic-lanceolate or obovate, acute at base and apex. Flowers unisexual, greenish-yellow, in terminal spikes. Drupes 0.4-0.7 × 0.4 cm, oblong or globose, purple-red.

Fls. & Frts. : July-November.

Illus. : Wight, Ic. t. 766.1844. (*Antidesma lanceolarium*).

Distrib. : Borivli, P. S. Herbert, 341 (BLAT).

Antidesma ghaesembilla Gaertn. Fruct. Sem. Pl. 1: 189, t.39. f. 5.1788; Hook. f. Fl. Brit. India 5: 357.1887; Cooke, Fl. Pres. Bombay 3: 89.1958 (Repr. ed.); Mondal & Panigr. in J. Econ. Tax. Bot. 4: 258.1983.

Small trees, 10–12 m tall, deciduous; young parts pubescent. Leaves 3–8 × 3–6 cm, rotund or elliptic, truncate or subcordate at base, rounded or emarginate at apex. Flowers unisexual, in panicles, rusty-pubescent spikes; male spikes terminal; female ones terminal and axillary. Drupes ca. 0.5 cm across, ovoid-globose, with persistent style.

Fls. & Frts. : May–September.

Illus. : Wight, Ic. t. 820.1844–45 (*Antidesma paniculatum* Roxb. Fl. Ind. 3: 770.1832).

Distrib. : Borivli, P. S. Herbert, 2721–6 (BLAT).

BALIOSPERMUM Bl.

Baliospermum montanum (Willd.) Muell.–Arg. in Linnaea 34: 215.1864 & in DC. Prodr. 15(2) : 1125.1866; Airy Shaw in Kew Bull. 26(2) : 222.1972. *Jatropha montana* Willd. Sp. Pl. 4: 563.1805. *Baliospermum axillare* Bl. Bijdr. 604.1825; Hook. f. Fl. Brit. India 5: 461.1887; Cooke, Fl. Pres. Bombay 3: 106.1958 (Repr. ed.). '*Jamalgota*'.

Undershrubs, 1–2 m high; stems and branches slender. Leaves 8–20 × 3–8 cm, upper leaves smaller, lower ones large, ovate-lanceolate to ovate, palmately 3–5-lobed, rounded or cuneate at base; petioles 4–10 cm long. Flowers unisexual, greenish, numerous, in axillary racemes, all males or a few females below. Capsules 0.8–1.3 cm long, obovoid, hairy. Seeds smooth, ellipsoid.

Fls. & Frts. : October–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 479, f. 508.1911. (*Baliospermum axillare*).

Distrib. : Frequent as undergrowth. 168427.

BREYNIA J. R. & J. G. A. Forst. (*nom. cons.*)

Breynia retusa (Dennst.) Alst. in Ann. Roy. Bot. Gard. (Peradeniya) 11: 204.1929; Ramam. in Sald. & Nicol. Fl. Hassan Dt. 333.1976; T. Chakrab. & Gang. in J. Econ. Tax. Bot. 20: 505, f. 3A–E.1996. *Phyllanthus retusus* Dennst. Schluss. Hort. Malab. 31: 1818. *Breynia patens* (Roxb) Rolfe in J. Bot. 11. 359.1832; Hook. f. Fl. Brit. India 5: 329.1887; Cooke, Fl. Pres. Bombay 3: 79.1958 (Repr. ed.). *Melanthesa turbinata* Wight, Ic. t.1897.1852. '*Kangli*'.

Shrubs ca. 1.5 m tall; branches spreading. Leaves 1.0–2.5 × 0.8–1.5 cm, elliptic-oblong, oblique at base, obtuse at apex. Flowers unisexual, on filiform pedicels; male flowers yellow, 1–3—together, in the lower axils; female flowers greenish, in the upper axils. Capsules ca. 0.8 cm across, depressed-globose. Seeds triquetrous, arillate.

Fls. & Frts. : April–September.

Illus. : Wight, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 628.1982; Chakrab. & Gang. *op. cit.*

Distrib. : Occasional bushes, 167901.

BRIDELIA Willd.

1. Trees :

2. Flowers in spicate clusters on leafless branches; plants monoecious ... *B. retusa*

2. Flowers in axillary clusters; plants dioecious ... *B. squamosa*

1. Straggling shrubs ... *B. hamiltoniana*

Bridelia hamiltoniana Wall. ex Muell.—Arg. in *Linnaea* 34: 77.1805–1806; Hook. f. *Fl. Brit. India* 5: 271.1887; Cooke, *Fl. Pres. Bombay* 3: 69.1958 (Repr. ed.); Sant. in *J. Bombay nat. Hist. Soc.* 50: 309.1951.

Shrubs. Leaves 2–5 × 1.5–3.5 cm, elliptic-oblong or obovate-elliptic or rhomboid, cuneately narrowed at base, obtuse at apex. Flowers minute, greenish, in axillary, sessile, spicate clusters, unisexual. Drupes ca. 0.6 cm across, globose, black.

Fls. & Frts. : August–November.

Distrib. : Occasional bushes, 167314, 167321, 167707

Bridelia retusa (L.) Spr. *Syst. Veg.* 3: 48.1826; Hook. f. *Fl. Brit. India* 5: 268.1887; Cooke, *Fl. Pres. Bombay* 3: 68.1958 (Repr. ed.); Sant. in *J. Bombay nat. Hist. Soc.* 50: 308.1951. *Cluitia retusa* L. *Sp. Pl.* 1042.1753. 'Asana'

Shrubs or small trees 5–8 m tall, deciduous, dioecious. Leaves 7–15 × 4–10 cm, elliptic-oblong, rounded at base, obtuse or subacute at apex, margins entire or faintly crenulate, glabrous above and finely tomentose below, shortly petiolate. Flowers unisexual, greenish-yellow, in axillary or subterminal, spicate clusters. Drupes ca. 0.6 cm across, subglobose, fleshy, with persistent perianth, purple-black.

Fls. & Frts. : June–February.

Illus. : Sant. *op. cit.* opp. page 308, f. 1; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2:t. 629.1982.

Distrib. : Common. 167264, 167335, 167343, 168415.

Bridelia squamosa (Lam.) Gehrm. in *Engl. Bot. Jahrb.* 41. Beibl. 95: 30.1909; Sant. in *J. Bombay nat. Hist. Soc.* 50 : 308.1951. *Cluitia squamosa* Lam. *Encycl.* 5(2). 54.1790. 'Asana'.

Trees, 8-10 m tall, deciduous. Leaves 7-15 × 3-6 cm, ovate-elliptic or elliptic-oblong, pubescent beneath. Flowers greenish. Fruits ca. 0.6 cm across, globose, dark purple to black when ripe.

Fls. & Frts. : April-February.

Illus. : Sant. *op. cit.* opp. page 308, f. 2.

Distrib. : Common in deciduous forests. 168997.

CHROZOPHORA Neck.

- | | | |
|---|-----|---------------------|
| 1. Sepals or outer tepals of female flower triangular | ... | <i>C. rottleri</i> |
| 1. Sepals or outer tepals of female flowers linear | ... | <i>C. prostrata</i> |

Chrozophora prostrata Dalz. in *Dalz. & Gibs. Bombay Fl.* 233.1861; Hook. f. *Fl. Brit. India* 5: 410.1887; Cooke, *Fl. Pres. Bombay* 3: 105.1958 (Repr. ed.); Balakr. in *Bull. Bot. Surv. India* 15: 6. (1973) 1976.

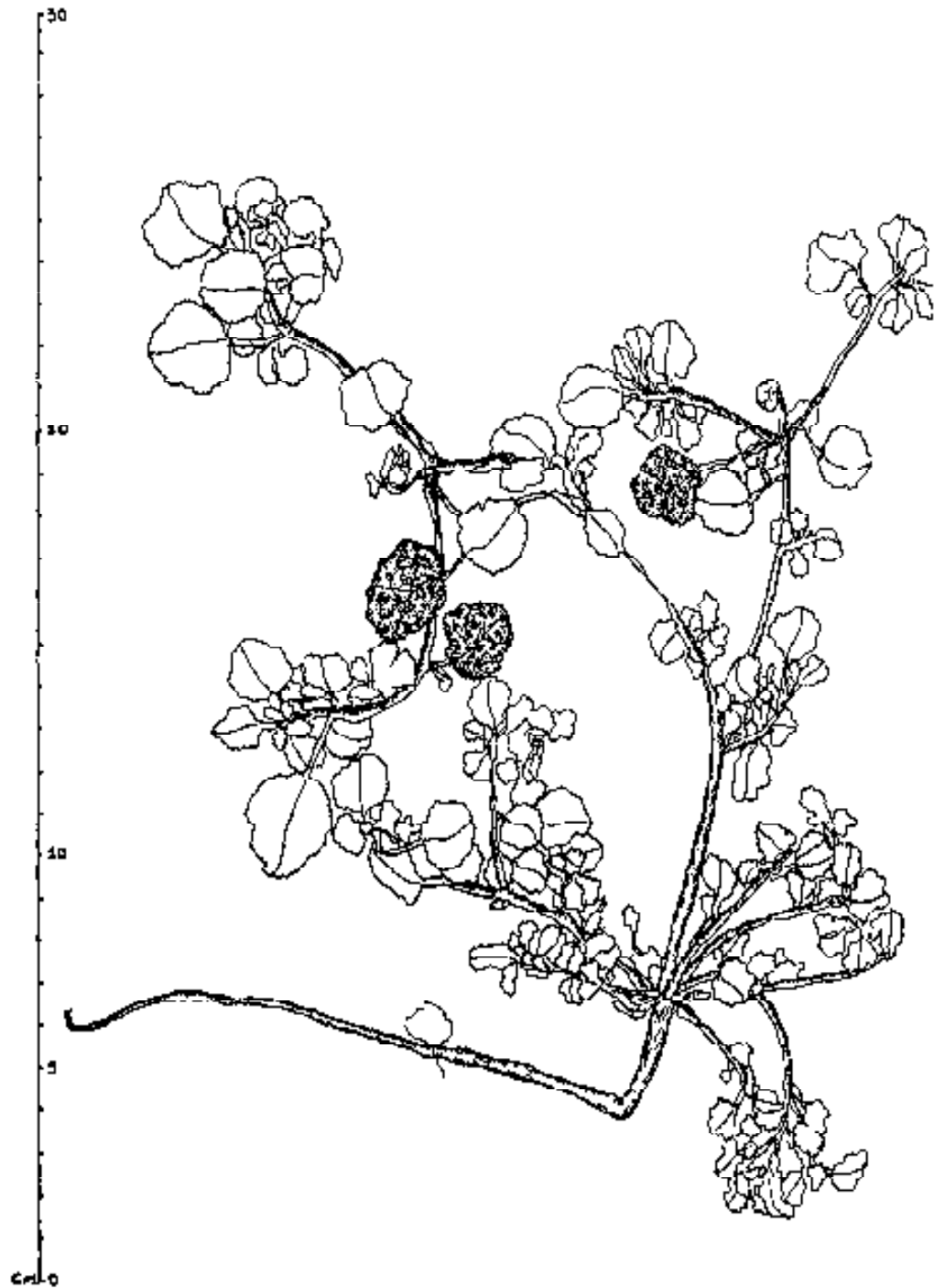
Herbs; stems prostrate; branches stellate-tomentose. Leaves 1-3 × 0.5-2.5 cm, broadly ovate to suborbicular, bullate, subcordate at base, obtuse or acute at apex, pubescent above and woolly beneath. Flowers yellowish, unisexual, in few-flowered, axillary and terminal racemes. Capsules 0.4-0.6 cm across, stellate-woolly. Seeds muriccate.

Fls. & Frts. : November-April.

Distrib. : Borivli, P. S. Herbert, 1530 & G. Kalianiwalla, 106 (BLAT).

Chrozophora rottleri (Geis.) A. Juss. ex *Spr. Syst. Veg.* 3: 850.1826; Balakr. in *Bull. Bot. Surv. India* 15: 4 (1973) 1976. *Croton rottleri* Geis. *Croton Monogr.* 54.1807. *Chrozophora plicata* Voigt, Hort. Sub. Calc. 156.1846 non A. Juss. 1824; Hook. f. *Fl. Brit. India* 5: 408.1887; Cooke, *Fl. Pres. Bombay* 3: 104.1958 (Repr. ed.).

Herbs, 20-60 cm tall, monoecious; stems erect, stellate-tomentose. Leaves 2-8 × 1.5-6.5 cm, alternate, broadly ovate to suborbicular, acute



f.78. *Chrozophora prostrata* Dalz.

to subcordate at base, obtuse at apex; petioles 6–8 cm long. Flowers unisexual, in axillary and subterminal, tomentose racemes. Capsules 0.5–0.6 cm across, stellate-tomentose, depressed-globose. Seeds globose, shiny.

Fls. & Frts. : November–April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 630.1982.

Distrib. : Vihar lake, Y. A. Merchant, 761 (BLAT)

DRYPETES Vahl

Drypetes roxburghii (Wall.) Hurus. in J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 6: 337.1954; Airy Shaw in Kew Bull. 26: 257.1972; T. Chakrab. et al. in J. Econ. Tax. Bot. 21: 271.1997. *Putranjiva roxburghii* Wall. Tent. Fl. Nep. 61.1826; Hook. f. Fl. Brit. India 5: 336.1887; Cooke, Fl. Pres. Bombay 3: 86.1958 (Repr. ed.). '*Putranjiva*'.

Trees, 10–20 m tall. Leaves 5–10 × 2–4 cm, lanceolate, oblique at base, shortly acuminate at apex. margins entire or serrulate. Flowers unisexual; male flowers many, greenish-yellow, sessile, on branchlets; female flowers few, axillary, pedicels up to 1 cm long. Drupes ca. 2 × 1.5 cm, pedicellate. Seeds crustaceous.

Fls. & Frts. : March–May.

Illus. : Wight, Ic. t.1876.1852; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 650.1982 (*Putranjiva roxburghii*).

Distrib. : Occasional, 167709.

EUPHORBIA L.

- 1. Plants armed; leaves deciduous ... *E. ligularia*
- 1. Plants unarmed; leaves not deciduous :
 - 2. Leaves 0.3–0.6 cm long :
 - 3. Capsules glabrous :
 - 4. Leaves rounded, oblong; seeds smooth ... *E. heyneana*
 - 4. Leaves linear-oblong; seeds obscurely transversely rugose ... *E. clarkeana*
 - 3. Capsules hairy ... *E. thymifolia*
 - 2. Leaves more than 1 cm long:
 - 5. Capsules 0.12–0.3 cm across :

- | | | | |
|----|--|-----|------------------------|
| 6. | Floral leaves distichously imbricating | ... | <i>E. pycnostegia</i> |
| 6. | Floral leaves not as above: | | |
| 7. | Involucre solitary | ... | <i>E. erythroclada</i> |
| 7. | Involucre many to numerous : | | |
| 8. | Leaves obtuse at apex | ... | <i>E. parviflora</i> |
| 8. | Leaves subacute to acute at apex | ... | <i>E. hirta</i> |
| 5. | Capsules ca. 0.6 cm across | ... | <i>E. geniculata</i> |

Euphorbia clarkeana Hook. f. Fl. Brit. India 5: 253.1887; Cooke, Fl. Pres. Bombay 3: 65.1958 (Repr. ed.); Londhe in Singh *et al.* Fl. Maharashtra 2: 876. 2001.

Herbs; stems 7–15 cm long, filiform, prostrate. Leaves 0.3–6.0 × 0.2–2.5 cm, distichous, linear-oblong, oblique at base, rounded at apex, margins entire or toothed. Involucre axillary, solitary, campanulate, lobed; gland without a limb. Flowers unisexual. Capsules ca. 0.01 cm across, trigonous, cocci keeled. Seeds 4-angled, transversely rugose.

Fls. & Frts. : August–November.

Distrib. : Rare, on moist grounds. 168490.

Euphorbia erythroclada Boiss. in DC. Prodr. 15(2) : 25.1862; Hook. f. Fl. Brit. India 5: 247.1887; Cooke, Fl. Pres. Bombay 3: 63.1958 (Repr. ed.); Billore in Indian Forester 95: 576.1969.

Herbs, 15–30 cm tall; stems dichotomously branched, reddish-brown. Leaves 1.0–2.2 × 0.6–0.8 cm, opposite, oblong, obovate or elliptic-oblong, oblique at base, obtuse at apex, margins serrulate. Flowers unisexual, in turbinate involucre. Capsules ca. 0.3 cm across, depressed-globose. Seeds angular, transversely ridged.

Fls. & Frts. : August–November.

Illus. : Billore, *op. cit.* 577, f. 1–5.

Distrib. : Borivli, P. S. Herbert, 2015–7, 1898 (BLAT).

Euphorbia geniculata Orteg. Nov. Rar. Pl. Matr. Decad. 18.1797; Hook. f. Fl. Brit. India 5: 239.1887; Cooke, Fl. Pres. Bombay 3: 66.1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8: 5(1954) 1955.

Herbs, 20–50 m tall; stems erect. Leaves 4.5–10.5 × 3–5 cm, obovate, rhomboid or oblanceolate, alternate or opposite below, seldom whorled above. Flowers unisexual, in terminal clusters of cyathia.

Capsules 3-lobed. Seeds obovoid, truncate at one end, acute at other end.

Fls. & Frts. : Throughout the year.

Distrib. : Borivli, P. S. Herbert, 1263, 1659, 1763 (BLAT). A native of N. America, usually growing in gardens as an escape.

Euphorbia heyneana Spr. Syst. 3: 791.1826; Panigr. in Kew Bull. 29(4) : 695.1974. *E. microphylla* Heyne ex Roth, Nov. Pl. Sp. 229.1821 non Lam.1788; Hook. f. Fl. Brit. India 5: 252.1887; Cooke, Fl. Pres. Bombay 3: 65.1958 (Repr. ed.). *E. bombaiensis* Sant. in Bull. Bot. Soc. Bengal 8: 17.1954.

Glabrous, annual herbs; stems slender, leafy, prostrate, spreading, branched. Leaves opposite, 0.4–0.6 cm and nearly as broad as long, obliquely oblong, ovate-oblong, cuneate at base, rounded, subtruncate or retuse at apex, margins usually entire, tinged pink. Involucres numerous, axillary, broadly campanulate. Capsules ca. 0.15 cm across, glabrous, keeled. Seeds obtusely granular, bluntly pointed.

Fls. & Frts. : April–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 553.1988.

Distrib. : Salsette, Shah (1969).

Euphorbia hirta L. Sp. Pl. 454.1753; Sant. in Bull. Bot. Soc. Bengal 8: 14 or 15 (1954) 1955; Carter in Kew Bull. 39: 643.1984. *E. pilulifera auct. non L.*1753; Hook. f. Fl. Brit. India 5: 250.1887; Cooke, Fl. Pres. Bombay 3: 64.1958 (Repr. ed.). 'Dudhi'.

Herbs up to 30 cm tall; branches ascending, hispid. Leaves 0.5–2.8 × 0.4–1.5 cm, broadly oblong or elliptic-lanceolate, obliquely truncate at base, acute at apex, margins serrulate to serrate. Cyathia ca. 20, aggregated in single or paired axillary clusters. Involucres campanulate; glands of limb 5, red. Flowers unisexual. Capsules ca. 0.2 cm across. Seeds 4-angled, finely furrowed.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi f.193.1966.

Distrib. : Very common in waste places, moist grounds and fields etc. 167237.

Euphorbia ligularia Roxb. Fl. Ind. 3: 465.1832; Cooke, Fl. Pres. Bombay 3: 58.1958 (Repr. ed.); Airy Shaw in Kew Bull. 26: 265.1972. *Euphorbia nerifolia* sec. Boiss. in DC. Prodr. 79.1862; Hook. f. Fl. Brit.

India 5: 255.1887; Cooke, Fl. Pres. Bombay 3: 59.1958 (Repr. ed.), 'Nivadung', 'Sabar'.

Shrubs 1.5–3.0 m tall; stems fleshy, angular, angles spirally twisted. Leaves 10–20 × 3–6 cm, alternate, clustered towards the ends of the branches, obovate, to obovate-oblong, tapering towards the base, sessile or nearly so, deciduous. Involucres hemispheric, 3-nate, forming solitary or twin pedunculate cyathia; limbs of the glands large, fimbriate. Flowers unisexual. Capsules ca. 0.5 cm across, 3-lobed. Seeds 4-angled, smooth.

Fls. & Frts. : November–April.

Illus. : Mahesh. Illus. Fl. Delhi f.191.1966.

Distrib. : Common on rocky terrain of Kanheri Caves & Mulund hills, 168954.

Euphorbia parviflora L. Syst. (ed. 10), 2: 1047.1759; Sant. in Bull. Bot. Soc. Bengal 8: 13. (1954) 1955. *E. hypericifolia* L. Sp. Pl. 454.1753 *p.p. tantum*; Hook. f. Fl. Brit. India 5: 249.1887. *E. hypericifolia* L. var. *parviflora* (L.) Prain, Bengal Pl. 2: 924.1903. & [2: 692.1963 (Repr. ed.)]; Cooke, Fl. Pres. Bombay 3: 63.1958 (Repr. ed.).

Herbs, 10–25 cm tall; stems erect or spreading. Leaves 0.6–2.0 × 0.4–1.5 cm, elliptic-oblong, margins serrulate, obliquely rounded at base, obtuse at apex. Cyathia axillary or terminal, pedunculate, many-flowered. Involucral lobes lanceolate, limbs of the gland white, orbicular, flowers unisexual. Capsules subglobose, hairy.

Fls. & Frts. : July–February.

Distrib. : Common. 167782.

Euphorbia pycnostegia Boiss. Cent. Euphorb. 9: 1860; Hook. f. Fl. Brit. India 5: 246.1887; Cooke, Fl. Pres. Bombay 3: 60.1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8: 11 (1954) 1955.

Herbs; stems 30–60 cm tall, tinged with purple. Leaves opposite, 2.5–3.0 × 1.2–1.5 cm, oblong, obtuse to subacute at apex, sessile; floral leaves distichously imbricating, ovate-cordate to suborbicular. Flowers in stalked involucres; limbs white. Capsules glabrous. Seeds oblong, tuberculate.

Fls. & Frts. : September–November.

Distrib. : Salsette, Law, s. n. (BLAT).

Euphorbia thymifolia L. Sp. Pl. 454.1753; Hook. f. Fl. Brit. India 5: 252.1887; Cooke, Fl. Pres. Bombay 3: 64.1958 (Repr. ed.); Sant.

in Bull. Bot. Soc. Bengal 8 (1&2) : 16. (1954) 1955; Airy Shaw in Kew Bull. 26: 267.1952. '*Dhakti dudhi*'.

Herbs; stems prostrate, radially spreading, hispid. Leaves 0.3–1.0 × 0.1–0.7 cm, oblong to suborbicular, obliquely cordate at base, obtuse at apex, margins serrulate. Flowers unisexual, in axillary, solitary or clustered cyathia; limb of the gland stipitate. Capsules ca. 0.15 cm across, obovoid. Seeds 4–angular, minutely tuberculate.

Fls. & Frts. : Almost throughout the year.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 562.1988.

Distrib. : Borivli, P. S. Herbert, 541, 1743, 1840–1 (BLAT).

EXCOECARIA L.

Excoecaria agallocha L. Syst. Nat (ed. 10), 2: 1288.1759 & Sp. Pl. (ed. 2), 1451.1763; Hook. f. Fl. Brit. India 5: 472.1888; Cooke, Fl. Pres. Bombay 2: 122.1958 (Repr. ed.); Airy Shaw in Kew Bull. 26: 168.1972. '*Surund*'.

Shrubs or trees, 2–6 m tall, evergreen. Leaves 5–10 × 3–4 cm, alternate, ovate, elliptic or oblong–elliptic, acute at base, acuminate at apex, petioles 2–3 cm long. Flowers unisexual; male flowers bracteate, numerous, sessile, in 3–8 cm long spikes; female flowers pedicellate, in ca. 4 cm long spikes. Capsules ca. 1 cm across, depressed–globose, lobed. Seeds subglobose, smooth.

Fls. & Frts. : February–November.

Illus. : Wight, Ic. t.1865 B.1852; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 638.1982.

Distrib. : Frequent along marshy creeks at Ghodbundar, 167379.

GLOCHIDION J. R. & J. G. A. Forst. (*nom. cons.*)

- | | | |
|---|-----|-----------------------|
| 1. Stipules triangular; styles glabrous | ... | <i>G. sinicum</i> |
| 1. Stipules lanceolate–subulate; styles pubescent | ... | <i>G. malabaricum</i> |

Glochidion malabaricum Bedd. Fl. Sylv.194.1872; Hook. f. Fl. Brit. India 5: 319.1887; Cooke, Fl. Pres. Bombay 3: 74.1958 (Repr. ed.).

Trees or shrubs 3–5 m tall, monoecious, evergreen. Leaves 6–15 × 4–8 cm, elliptic–oblong or elliptic–lanceolate, subacute at base, acuminate at apex, margins entire. Flowers unisexual; male flowers pedicellate, female flowers sessile, in axillary clusters. Capsules ca. 1 cm across, depressed–globose, 3–5–lobed, pubescent, shortly stalked.

Fls. & Frts. : January-February.

Distrib. : Occasional. 167453.

Glochidion sinicum (Graham) Almeida in Fl. Savantwadi 1: 387. 1990. *Bridelia sinica* Graham, Cat. Bombay Plants 184. 1839. *G. hohenackeri* (Muell.-Arg.) Bedd. Fl. Sylv. 193. 1873; Cooke, Fl. Pres. Bombay 3: 75. 1958 (Repr. ed.).

Trees, 3-9 m tall, evergreen, monoecious. Leaves 5-8 × 2-4 cm, elliptic-oblong to elliptic-lanceolate, often obliquely acute at base, acuminate at apex, shortly petiolate. Flowers unisexual; male flowers greenish-yellow with capillary pedicels; female flowers few, subsessile, in clusters. Capsules 0.5-0.8 cm across, 6-8-lobed, depressed-globose. Seeds red, smooth.

Fls. & Frts. : February-March.

Illus. : Wight, *op. cit.* ; Matthew, *Illus. Fl. Tamilnadu Carnatic*, 2: t. 640. 1982.

Distrib. : Occasional. 167442, 167472.

HOMONOIA Lour.

Homonoia riparia Lour. Fl. Cochinch. 637. 1790; Hook. f. Fl. Brit. India 5: 455. 1887; Cooke, Fl. Pres. Bombay 3: 118. 1958 (Repr. ed.). 'Sherni'.

Shrubs ca. 2 m tall. Leaves 8-15 × 1.0-2.0 cm, linear to linear-lanceolate, tapering at base, margins entire. Flowers unisexual, in bracteate, axillary, 6-10 cm long, separate spikes. Capsules ca. 4 cm across, globose, tomentose, 3-ribbed with persistent style. Seeds rounded on back, angular.

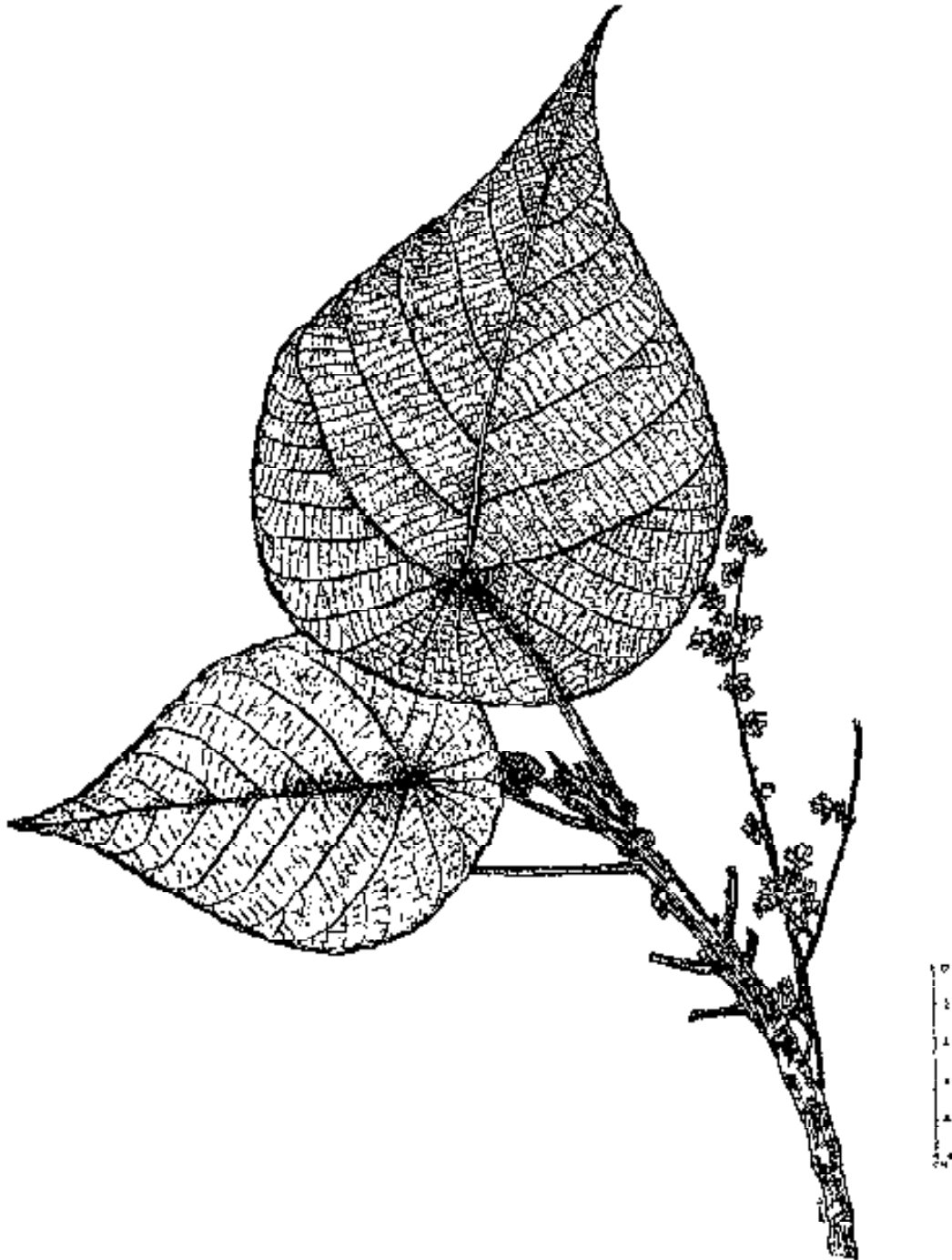
Fls. & Frts. : November-April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 641. 1982.

Distrib. : Abundant in stream beds. 168901.

MACARANGA Thou.

Macaranga peltata (Roxb.) Muell-Arg. in DC. Prodr. 15 (2) : 1010. 1866; Whitmore in Gard. Bull. Singapore 31: 55. 1978. *Osyris peltata* Roxb. Fl. Ind. ed. 2, 3: 755. 1832. *Macaranga roxburghii* Wight, Ic. 5: 23, 1852 & 6: t. 1949; f. 4. 1853; Hook. f. Fl. Brit. India 5: 448. 1887;



f.79. *Macaranga peltata* (Roxb.) Muell.-Arg.

M. tomentosa Wight, *op. cit.* f. 1; Cooke, Fl. Pres. Bombay 3: 117.1958 (Repr. ed.). 'Chandada'.

Trees, 5-12 m tall. Leaves 12-20 × 9-15 cm, ovate or deltoid-ovate, orbicular, rounded at base, acute to acuminate at apex, margins entire or minutely toothed, glabrous above and pubescent beneath. Flowers numerous, in sessile heads, in rusty-tomentose panicles, bracteate, bracteolate. Capsules 0.6-0.8 cm across, globose, hairy. Seeds globose.

Fls. & Frts. : January-June.

Illus. : Wight, *op. cit.* ; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 644.1982.

Distrib. : Occasional, scattered. 168968.

MALLOTUS Lour.

Mallotus philippensis (Lam.) Muell.-Arg. in *Linnaea* 34: 196.1865; Hook. f. *Fl. Brit. India* 5: 442.1887; Cooke, *Fl. Pres. Bombay* 3: 113.1958 (Repr. ed.); Airy Shaw in *Kew Bull.* 36: 328.1981. *Croton philippense* Lam. *Encycl.* 2: 206.1786. 'Kumkum', 'Shendri'

Trees, 8-12 m tall. Leaves 5-15 × 2-8 cm, ovate-lanceolate, rounded or acute at base, acute to acuminate at apex, margins entire or sparsely serrate; petioles up to 5 cm long. Flowers unisexual, greenish-yellow; male flowers clustered, sessile or shortly pedicelled, in terminal spikes. Capsules ca. 1 cm across, globose, 3-lobed, covered with red powder of stellate hairs. Seeds subglobose, black.

Fls. & Frts. : July-March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 645.1982.

Distrib. : Occasional. 167247, 167766.

PHYLLANTHUS L.

- | | | |
|--|-----|---------------------------|
| 1. Tepals 5 : | | |
| 2. Stamens 3, anthers dehiscent transversely | ... | <i>P. amarus</i> |
| 2. Stamens 5, anthers dehiscent vertically | ... | <i>P. reticulatus</i> |
| 1. Tepals 6 : | | |
| 3. Fruits ca. 3 cm across, indehiscent | ... | <i>P. emblica</i> |
| 3. Fruits 0.3-0.4 cm across, dehiscent : | | |
| 4. Capsules smooth | ... | <i>P. maderaspatensis</i> |

4. Capsules verrucose or warty :
5. Stipules peltate, subsagittate;
anthers dehiscing transversely ... *P. virgatus*
5. Stipules not peltate, linear or subulate;
anthers dehiscing vertically ... *P. urinaria*

Phyllanthus amarus Schum. & Thonn. in Kongl. Dansk. Vidensk. Selsk. Skr. 4: 195.1829; Airy Shaw in Kew Bull. 26 (2) : 317.1972. *P. niruri* auct. non L.1753 p.p.; Hook. f. Fl. Brit. India 5: 298.1887; Cooke, Fl. Pres. Bombay 3: 84.1958 (Repr. ed.). 'Bhui-avali'.

Herbs, 15–40 cm tall. Leaves 0.6–1.0 × 0.3–0.6 cm, subsessile, distichous, oblong, rounded at base, obtuse or subacute at apex, shortly petiolate. Flowers numerous, unisexual, axillary; male flowers 1–3; female flower solitary. Capsules ca. 0.2 cm across, depressed–globose, dry, dehiscent. Seeds trigonous, vertically muriculate.

Fls. & Frts. : July–August.

Illus. : Wight, Ic. t.1894.1852 (*Phyllanthus niruri*).

Distrib. : Frequent in open areas. 167327.

Phyllanthus emblica L. Sp. Pl. 982.1753; Hook. f. Fl. Brit. India 5: 289.1887; Cooke, Fl. Pres. Bombay 3: 81.1958 (Repr. ed.); Airy Shaw, Euphorb. Borneo 183.1975. *Emblica officinalis* Gaertn, Fruct. 2: 122.1791. 'Avala'.

Trees, 8–10 m tall, deciduous. Leaves compound; leaflets 1.0–1.5 × 0.2–0.4 cm, oblong, truncate or subcordate at base. Flowers unisexual, in axillary fascicles; flowers of both the sexes mixed or upper male and lower female; male flowers shortly pedicelled; female flowers subsessile. Drupes depressed–globose, fleshy. Seeds trigonous.

Fls. & Frts. : February–May.

Illus. : Wight, Ic. t.1896.1852; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 648.1982.

Distrib. : Occasional. 167779.

Phyllanthus maderaspatensis L. Sp. Pl. 982.1753; Hook. f. Fl. Brit. India 5: 292.1887; Cooke, Fl. Pres. Bombay 3: 82.1958 (Repr. ed.); Londhe in Singh et al. Fl. Maharashtra 2: 900. 2001. 'Manocha'

Annual herbs, 20–40 cm tall. Leaves 0.8–1.0 × 0.3–0.8 cm, obovate to oblanceolate, cuneate at base, obtuse, retuse at apex. Flowers creamy–white, unisexual, pedicellate, axillary; male flowers above, female flowers below. Capsules 0.3–0.4 cm across, depressed–globose, 3-lobed. Seeds triquetrous, longitudinally muricate.

Fls. & Frts. : July–September.

Illus. : Wight, Ic. t.1895, f.3.1852.

Distrib. : Versova, H. Santapau, 63.48.

Phyllanthus reticulatus Poir. in Lam. Encycl. 6: 298.1804; Hook. f. Fl. Brit. India 5: 288.1887; Cooke, Fl. Pres. Bombay 3: 81.1958 (Repr. ed.); Airy Shaw in Kew Bull. 26: 322.1972. *Kirganelia reticulata* (Poir.) Baill. Etude Gen. Euphorb. 613.1874.

Shrubs, 2–4 m tall; branches straggling. Leaves 1.5–3.0 × 1.0–1.5 cm, elliptic-oblong, acute or obtuse. Flowers unisexual, axillary; male flowers 3–6, female flower solitary. Berries 0.5–0.6 cm across, globose. Seeds trigonous, finely granulate, superposed.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t.1899.1852; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 643.1982.

Distrib. : Occasional bushes along Tulsi lake & water courses 167364.

Phyllanthus urinaria L. Sp. Pl. 982.1753; Hook. f. Fl. Brit. India 5: 293.1887; Cooke, Fl. Pres. Bombay 3: 83.1958 (Repr. ed.); Webster in J. Arnold Arbor. 38: 194.1957.

Herbs, 10–40 cm tall. Stems erect, Leaves 0.5–1.5 × 0.2–0.4 cm, oblong, rounded at base, rounded and apiculate at apex, distichously imbricate. Flowers in axillary cymes, unisexual, minute; male flowers in upper axils, female flowers in lower axils. Capsules ca. 0.4 cm across, 3-valved, globose, verrucose. Seeds triquetrous, transversely furrowed.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t.1895, f. 4, 1852; (*P. leprocarpus*).

Distrib. : Frequent annuals during monsoon. 167818.

Phyllanthus virgatus Forst. f. Fl. Inst. Austr. Prod. 65.1786; Rau in Bull. Bot. Surv. India 10 (Suppl. 2) : 72.1969; Airy Shaw in Kew Bull. 36. 338.1981. *P. simplex* Retz. Obs. Bot. 5: 29.1788; Hook. f. Fl. Brit. India 5: 295.1887; Cooke, Fl. Pres. Bombay 3: 83.1958 (Repr. ed.).

Erect herbs, 50–60 cm tall, perennials with taproots. Leaves 1.0–1.5 × 0.3–0.6 cm, linear-oblong, obtuse, apiculate at apex, subsessile, distichous. Flowers usually solitary, axillary, pedicelled,

unisexual. Capsules ca. 0.3 cm across, globose, 3-lobed, warty. Seeds triquetrous, minutely tubercled.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t.1902, f. 1.1852. (*Macraea oblongifolia*); Mahesh. *Illus. Fl. Delhi* f.199.1966 (*Phyllanthus simplex*).

Distrib. : Frequent in fallow fields and open areas. 167812, 168000.

RICINUS L.

Ricinus communis L. Sp. Pl. 1007.1753; Hook. f. *Fl. Brit. India* 5: 457.1887; Cooke, *Fl. Pres. Bombay* 3: 125.1958 (Repr. ed.). 'Erand'.

Shrubs up to 4 m tall, evergreen, monoecious. Leaves palmatifid, 6–10-lobed; lobes 8–16 × 3–6 cm, lanceolate, acuminate at apex, margins serrate. petioles up to 20 cm long. Flowers unisexual, in terminal, paniculate racemes; male flowers below female flowers. Capsules ca. 2 cm across, 3-lobed, prickly. Seeds oblong, smooth, carunculate, marbled.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 652.1982.

Distrib. : Near forest villages. 167292.

SAUROPUS Bl.

Sauropus quadrangularis (Willd.) Muell.–Arg. in *Linnaea* 32 : 73.1863; Hook. f. *Fl. Brit. India* 5: 335.1887; Cooke, *Fl. Pres. Bombay* 3: 78.1958 (Repr. ed.); Airy Shaw in *Kew Bull.* 26:337.1972 p.p; T. Chakrab. & Gang. in *J. Econ. Tax. Bot.* 20 : 534. t. 9 A–D, 1996. *Phyllanthus quadrangularis* Willd. Sp. Pl. 4: 585.1805. 'Chikli'.

Shrubs or undershrubs. Leaves 1.0–2.2 × 0.8–1.2 cm, elliptic oblong or obovate, obtuse or acute at base, apiculate at apex. Male flowers greenish–yellow, in axillary clusters, pedicellate, female flower from upper axils, solitary. Capsules ca. 0.5 cm across, depressed–globose, 3-gonous.

Fls. & Frts. : June–August.

Illus. : Wight, Ic. t.1900.1852 (*Ceratogynum rhamnoides*).

Distrib. : Vihar lake, R. D. Acland, 1136 (BLAT).

SECURINEGA Commers. ex A. L. Juss. (*nom. cons.*).

1. Plants armed; pistillodes 2 ... *S. leucopyrus*
 1. Plants unarmed; pistillodes 3 ... *S. virosa*

Securinega leucopyrus (Willd.) Muell.—Arg. in DC. Prodr. 15 (2) : 451.1866; Airy Shaw in Kew Bull. 25: 193.1971 & 26:(2) 340.1972. *Fluggea leucopyrus* Willd. Sp. Pl. 4: 757.1805; Hook. f. Fl. Brit. India 5: 328.1887; Cooke, Fl. Pres. Bombay 3:77, 1958 (Repr. ed.). 'Pandharphalli'.

Shrubs, 1.5–2.0 m tall, branchlets thorn like, stiff. Leaves 1.5–3.0 × 1.2–5.0 cm, elliptic-obovate or obovate-oblong, rounded or obtuse at apex. Flowers greenish-yellow, unisexual, in axillary fascicles. Capsules 0.5–0.7 cm across, spherical, white; seeds trigonous.

Fls. & Frts. : April–October.

Illus. : Wight, Ic. t.1875.1852 (*Fluggea leucopyrus*); Mahesh. Illus. Fl. Delhi f.198.1966.

Distrib. : Borivli, P. S. Herbert, 2713–5 (BLAT).

Securinega virosa (Roxb. ex Willd.) Baill. in Adansonia 6:334.1866; Airy Shaw in Kew Bull. 26: (2) 340.1972. *Phyllanthus virosus* Roxb. ex Willd. Sp. Pl. 4: 578.1805. *Fluggea microcarpa* Bl. Bijdr. 580.1825; Hook. f. Fl. Brit. India 5: 328.1887; Cooke, Fl. Pres. Bombay 3:77.1958 (Repr. ed.), 'Pandharphalli'.

Shrubs, 2–3 m tall; bark grey, lenticular. Leaves 1–3 × 1.0–2.5 cm, elliptic or obovate to rounded, acute at base, obtuse at apex, thinly pubescent, petioles up to 0.5 cm long. Flowers in axillary clusters, greenish-yellow, pedicellate. Capsules ca. 0.4 cm across, globose. Seeds minutely punctate, rounded on back with angular faces.

Fls. & Frts. : April–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 655.1985.

Distrib. : Occasional bushes. 167922.

TREWIA L.

Trewia polycarpa Bth. in Bth. & Hook. f. Gen. Pl. 3: 318 1880; Hook. f. Fl. Brit. India 5: 424.1887; Cooke, Fl. Pres. Bombay 3: 112.1958 (Repr. ed.).

Trees, 8–12 m tall, deciduous. Leaves 8–20 × 5–15 cm, broadly ovate, cordate at base, acuminate at apex, petioles 5–8 cm long. Flowers unisexual, in racemes; male flowers in ca. 15 cm long racemes; female

flowers in ca. 10 cm long racemes. Drupes ca. 1.5 cm across, globose, ovoid. Seeds rounded on back with flat faces, smooth.

Fls. & Frts. : January–May.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2. t. 660.1982.

Distrib. : Frequent on hills and plains. 167437.

CULTIVATED SPECIES :

Euphorbia pulcherrima Willd. ex Klotz. in Otto. & Dietr. *Deutsche Gartn.* 2: 27.1834; Cooke, *Fl. pres. Bombay* 3: 66.1958 (Repr. ed.).

Shrubs, 2–3 m tall; Stems woody below, slender above. Leaves : upper floral leaves crimson-coloured, compound. Flowers yellow or red in terminal racemes.

Fls. & Frts. : August–January.

Distrib. : Borivli, P. S. Hebert, 344 (BLAT) Native of Mexico, cultivated as ornamental plant.

Euphorbia tirucalli L. Sp. Pl. 452.1753; Hook. f. *Fl. Brit. India* 5: 254.1887; Cooke, *Fl. Pres. Bomay* 3: 66.1958 (Repr. ed.). 'Sher'.

Shrubs or trees 2–4 m tall; branchlets terete, green, succulent. Leaves linear to lanceolate, obtuse, or subacute, deciduous. Cyathia terminal, few, involucre cupular; glands of the limb circular to angular. Capsule globose; seeds globose, carunculate, smooth.

Fls. & Frts. : August–September.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 2: 435, f. 487, 1911.

Distrib. : Koppikar (1974). (cultivated); Salsette, Shah (1984). Native of Africa, cultivated as hedge plant.

Jatropha curcas L. Sp. Fl. 1006.1753; Hook. f. *Fl. Brit. India* 5: 383.1887; Cooke, *Fl. Pres. Bombay* 3: 95.1958 (Repr. ed.); Airy Shaw in *Kew Bull.* 26: 283.1972. 'Mogali-erand'.

Shrubs, 3–4 m tall. Leaves entire or shallowly 5-lobed, cordiform, truncate to cordate at base, acute at apex. Flowers unisexual, in cymes, bracteate. Capsules oblong-globose, 3-lobed. Seeds carunculate.

Fls. & Frts. : Mostly throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 467, f. 502.1911.

Distrib. : Commonly planted along hedges. 168938.

Jatropha gossypifolia L. Sp. Pl. 1006.1953; Hook. f. Fl. Brit. India 5: 383.1887; Cooke, Fl. Pres. Bombay 3: 94.1958 (Repr. ed.); Airy Shaw in Kew Bull. 26: 283.1972.

Shrubs. Stems and branches glandular. Leaves palmately 3-5-lobed, shining brown when young; turning green with age. Flowers red.

Fls. & Frts. : Throughout the year.

Distrib. : Salsette, G. L. Shah (1962).

Manihot esculenta Crantz in Inst. Res. Herb. 1: 67.1766; Airy Shaw in Kew Bull. 26(2): 308.1972 & Euphorb. Borneo 174.1975. *M. utilissima* Pohl. Pl. Bras. Ic. & Descr. 1: 32, t. 24.1827; Hook. f. Fl. Brit. India 5: 239.1886; Cooke, Fl. Pres. Bombay 1: 125.1958 (Repr. ed.).

Shrubs. Leaves palmatifid; lobes oblanceolate to rhomboid, cuneate at base, shortly acuminate at apex, margins entire or distantly dentate. Flowers unisexual in subterminal panicles. Capsules 3-winged, globose. Seeds biconvex, carunculate.

Fls. & Frts. : August-December.

Distrib. : Borivli, P. S. Hebert, 1262 (BLAT) (ornamental).

Pedilanthus tithymaloides (L.) Poir. in Ann. Mus. Natl. Hist. Nat. Paris 19: 390, t.19.1912; Hook. f. Fl. Brit. India 5: 239.1886; Cooke, Fl. Pres. Bombay 3: 124.1958 (Repr. ed.). *Euphorbia tithymaloides* L. Sp. Pl. 453.1753.

Undershrubs; stems erect or scandant, zigzag, subsucculent. Leaves elliptic-ovate, attenuate at base, acute at apex, alternate, distichous, subsessile, variegated. Cyathia stalked, terminal, cymose, subtended by petaloid, lanceolate bracts, involucre obliquely bilateral, scarlet, red. Flowers unisexual.

Fls. : Flowers in January.

Distrib. : Koppikar (1974). (ornamental).

Phyllanthus acidus (L.) Skeels in U. S. Dept. Agric. Bur. Fl. Ind. Bull. 148.17.1909; Airy Shaw, *op. cit.* 315, R.R 324. *Averrhoa acida* L. Sp. Pl. 428.1753; *Phyllanthus distichous* (L.) Muell.-Arg. in D. C. Prod. 15: 413.1866; Hook. f. Fl. Brit. India 5. 304.1887; Cooke, Fl. Pres. Bombay 3. 85.1958; (Repr. ed.).

Deciduous trees. Leaves pinnate, distichous, obliquely ovate acute. Flowers small, reddish, densely clustered. Fruits globose, lobed, edible.

Native of Malaya Islands & Madagascar. Grown for edible fruits.

Distrib. : Selsette, *G. L. Shah* (1984).

Sapium sebiferum Roxb. Fl. Ind. 3: 693.1832; Hook. f. Fl. Brit. India 470.1988; Cooke, Fl. Pres. Bombay 3: 121.1958. (Repr. ed.) 'Pipalyank'.

Trees. Leaves rhomboid, entire, petioles slender. Flowers in terminal, spiciform racemes. Capsules subglobose, coriaceous.

Fls. & Frts. : June.

Distrib. : Salsette, *Graham* 1839 (BLAT)

ULMACEAE

- | | | |
|---|-----|------------|
| 1. Fruits winged, leaves deciduous | ... | HOLOPTELEA |
| 1. Fruits not winged, leaves persistent | ... | TREMA |

HOLOPTELEA Planch.

Holoptelea integrifolia (Roxb.) Planch. in Ann. Soc. Nat. Bot. ser. (3) 10 : 266.1848; Hook. Fl. Brit. India 5: 482. 1888; Cooke, Fl. Pres. Bombay : 128.1958 (Repr. ed.). *Ulmus integrifolia* Roxb. Pl. Cor. 1. 56. t. 78.1795. 'Vavla'.

Trees, 15–20 m tall; young parts pubescent. Leaves 6–15 × 5–7 cm, distichous, elliptic-ovate, rounded to subcordate at base, acute at apex, pubescent below. Flowers polygamous, in fascicles, on old shoots. Fruits samaroid, 1.0 × 0.6–0.7 cm, winged; wings membranous, 3 cm across. Seeds flat.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t.1968.1853; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 672.1982.

Distrib. : Frequent in deciduous forests. 168969, 168999.

TREMA Lour.

Trema orientalis (L). Bl. Mus. Bot. 2: 61.1856; Hook. f. Fl. Brit. India 5: 484.1888; Cooke, Fl. Pres. Bombay 3: 129.1958 (Repr. ed.). *Celtis orientalis* L. Sp. Pl. 1044.1753. 'Gol'.

Trees, 5–10 m tall, young parts pubescent. Leaves 8–13 × 2–4 cm, ovate-lanceolate, obliquely subcordate at base, acute to acuminate at apex, margins serrulate, appressed-hirsute below. Flowers unisexual, subsessile, in axillary, cymose clusters. Drupes 0.4–0.5 cm across, globose, mucronate by style base. Seeds ovoid to globose.

Fls. & Frts. : More or less throughout the year. (January–October).

Illus. : Wight, Ic. tt. 602 and 603.1842 (*Celtis orientalis*).

Distrib. : Frequent. 167243.

URTICACEAE

- | | | |
|---|-----|-----------|
| 1. Flowers in axillary clusters : | | |
| 2. Leaves 0.3–0.5 cm long | ... | PILEA |
| 2. Leaves 1–6 cm long | ... | POUZOLZIA |
| 1. Flowers in erect spikes or racemes : | | |
| 3. Plants with stinging hairs | ... | LAPORTEA |
| 3. Plants without stinging hairs | ... | BOEHMERIA |

BOEHMERIA Jacq.

Boehmeria macrophylla Hornem. Hort. Bot. Hofn. 2: 890.1815; Frilis & Marais in Kew Bull. 37: 164.1982. *B. platyphylla* D. Don, Prodr. Fl. 60.1825; Hook. f. Fl. Brit. India 5: 578: 1888. *B. scabrella* (Roxb.) Gaud. in Bot. Freyc. Voy. 500.1826; Cooke, Fl. Pres. Bombay 3: 135, 1958 (Repr. ed.); Balakr. in Bull. Bot. Surv. India 6: 92. (1964) 1965. *B. platyphylla* var. *scabrella* Wedd. Monogr. Urtic. 265.1869; Hook. f. *op. cit.*

Shrubs or undershrubs 0.8–2.0 m tall; stems erect, strigose. Leaves 10–18 × 8–13 cm, ovate, rounded at base, acuminate or caudate at apex, margins sharply serrate. Flowers unisexual, in erect spikes, 10–18 cm long. Achenes compressed with persistent perianth.

Fls. & Frts. : April–October.

Illus. : Wight, Ic. t. 691.1843 (*Urtica scabrella*).



f. 80. *Boehmeria macrophylla* Hornem.

Distrib. : Common as forest undergrowth. 167357, 167873.

LAPORTEA Gaud. (*nom. cons.*)

Laportea interrupta (L.) Chew in Gard. Bull. Singapore 21: 200.1965. *Urtica interrupta* L. Sp. Pl. 985.1753. *Fleurya interrupta* (L.) Gaud. in Freyc. Voy. Bot. 497. t. 8.1826; Hook. f. Fl. Brit. India 5: 548.1888; Cooke, Fl. Pres. Bombay 3: 131.1958 (Repr. ed.).

Annual herbs up to 50 cm tall, monoecious. Leaves 2.5–8.0 × 1.5–6.8 cm, elliptic-ovate, attenuate, acute at base, shortly acuminate at apex, margins coarsely serrate. Flowers in short cymose clusters, arranged in slender, lax, axillary spikes up to 15 cm long. Achenes ca. 0.3 cm across, ovoid, compressed. Seeds flattened.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t.1975.1853 (*Fleurya interrupta*).

Distrib. : Common as forest undergrowth. 167221, 167340, 167808.

PILEA Lindl.

Pilea microphylla (L.) Liebm. in Kongel, Danske Vidensk, Selsk. Skr. ser. 5 (2). 296.1851; Cooke, Fl. Pres. Bombay 3: 160.1958 (Repr. ed.). *Parietaria microphylla* L. Syst. Nat. (ed. 10), 1308.1759. *Pilea muscosa* Lindl. Coll. Bot. t. 4.1821; Hook. f. Fl. Brit. India 5: 551.1888.

Herbs, monoecious; stems slender, trailing, up to 20 cm long, branched. Leaves 0.2–0.5 × 0.1–0.2 cm, elliptic-ovate, or oblong spatulate, acute at base, subacute to obtuse at apex. Flowers unisexual, minute, in axillary, stalked, umbellate clusters. Achenes ellipsoid.

Fls. & Frts. : Throughout the year.

Distrib. : Ghodbundar, B. Balowani, 405. (BLAT).

POUZOLZIA Gaud.

Pouzolzia zeylanica (L.) Benn. Jav. Rar. 67.1838; Sant. in Rec. Bot. Surv. India 16 (ed. 3), (1) : 255. 1967; *Parietaria zeylanica* L. Sp. Pl. 1052.1753. *Pouzolzia indica* (L.) Gaud. in Freyc. Voy. Bonite Bot. 503.1826; Hook. f. Fl. Brit. India 5: 581.1888; Cooke, Fl. Pres. Bombay 3: 137.1958 (Repr. ed.).

Herbs, perennial. Stems erect or prostrate, 15–45 cm high, stout or slender. Leaves 0.8–3.0 × 0.8–2.5 cm, elliptic-ovate to

ovate-lanceolate, rounded at base, acute at apex, sparsely hairy. Flowers unisexual, in subsessile clusters. Achenes ovoid.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. tt.1980, f. 1. & 2100 f. 40.1853. (*Pouzolzia indica*).

Distrib. : Frequent as forest undergrowth. 167329, 167829.

MORACEAE

- | | | |
|---|-----|------------|
| 1. Flowers hidden in hollow receptacles | ... | FICUS |
| 1. Flowers patent, not hidden : | | |
| 2. Leaf margins toothed | ... | STREBLUS |
| 2. Leaf margins smooth | ... | ARTOCARPUS |

ARTOCARPUS J. R. & J. G. A. Forst. (*nom. cons.*).

Artocarpus gomezianus Wall. ex Trecul ssp. **zeylanicus** Jarrett in J. Arnold Arbor. 41: 90.1960; Corner in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 216 f. 1.1981. *A. lakoocha sensu* Gamble, Fl. Madras 3: 1369.1928 & [3: 958.1957. (Repr. ed.)]; *non* Roxb.1832; Cooke, Fl. Pres. Bombay 3: 158.1958 (Repr. ed.). 'Otamb'.

Trees, 15–20 m tall, evergreen. Leaves 10–15 × 5–15 cm, elliptic to elliptic-oblong, rounded or subcordate at base, obtuse, cuspidate at apex, glabrous and shining above, pubescent below. Flowers unisexual; male flowers in axillary peduncled heads, female flowers stouter stigmas 2-fid. anthocarps united. Fruits 5–8 cm across, lobulate. Seeds oblong.

Fls. : March–September.

Frts. : June–February.

Distrib. : Salsette, Graham (1839).

FICUS L.

- | | | |
|---|-----|----------------------|
| 1. Leaves opposite | ... | <i>F. hispida</i> |
| 1. Leaves alternate : | | |
| 2. Leaves caudate at apex : | | |
| 3. Leaf base cordate; cusps 3 cm long | ... | <i>F. arnottiana</i> |
| 3. Leaf base truncate : cusps 6 cm long | ... | <i>F. religiosa</i> |

2. Leaves obtuse, acute or acuminate at apex :
4. Leaves scabrid above :
5. Fig solitary ... *F. exasperata*
5. Figs paired ... *F. tinctoria* subsp. *parasitica*
4. Leaves not scabrid above :
6. Basal bracts 3-6-lobed :
7. Figs stalked ... *F. caulocarpa*
7. Figs sessile ... *F. tsiela*
6. Basal bracts not lobed :
8. Plants cauliflorous ... *F. racemosa*
8. Plants not cauliflorous :
9. Leaves obtuse at apex ... *F. benghalensis*
9. Leaves acuminate at apex :
10. Figs 0.5-1.2 cm across :
11. Figs in axillary pairs; 0.8-1.2 cm across ... *F. virens*
11. Figs in groups of 2-8 in the axils of old leaves and on new developing shoots, 0.5-0.8 cm across ... *F. caulocarpa*
10. Figs 1.5 cm or more across :
12. Leaves densely tomentose beneath ... *F. drupacea* var. *pubescens*
12. Leaves glabrous beneath ... *F. amplissima*

Ficus amplissima J. E. Sm. in Rees Cyclop. 14: n. 68.1810; Corner in Gard. Bull. Singapore 21: 11.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 242, f. 9.1981. *F. tsiela* Roxb. ex Buch.-Ham. in Trans. Linn. Soc. London 15: 149.1826; King in Ann. Roy. Bot. Gard. Calcutta 1: 59. p. 153, 74.1887 & in Hook. f. Fl. Brit. India 5: 515.1888; Cooke, Fl. Pres. Bombay 3: 150.1958 (Repr. ed.). 'Pimpri'.

Trees, 15-20 m tall. Leaves 6-12 × 4-7 cm, alternate, ovate-oblong, truncate or rounded at base, acute or cuspidate at apex, coriaceous. Flowers unisexual. Figs 0.8-1.3 cm across, monoecious, axillary, subsessile, 1-3, on leafless branches, depressed-globose, basal bracts 3, ovate. Achenes smooth.

Fls. & Frts. : April-November.

Illus. : Wight, Ic. t. 668.1843 (*Ficus tsiela*); Corner, *op. cit.*

Distrib. : Infrequent. 167714.

Ficus arnottiana (Miq.) Miq. in Ann. Mus. Bot. Lugd. Bat. 3: 287.1867; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 56. t. 68. & 84v.1887 & in Hook. f. Fl. Brit. India 5: 513.1888; Cooke, Fl. Pres. Bombay 3: 149.1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21: 11.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 244, f. 10.1981. *Urostigma arnottiana* Miq. in Hook. Lond. J. Bot. 6: 564.1847. 'Pair'.

Trees, 10–20 m tall. Leaves 8–14 × 5–10 cm, alternate, cordiform, rarely elliptic-ovate, rounded or cordate at base, acuminate at apex, subcoriaceous. Flowers unisexual, in axillary, paired or apically crowded figs, 5.5–6.8 cm across, sessile. Achenes smooth.

Receptacles : August–February.

Illus. : King, *op. cit.*; Corner, *op. cit.*

Distrib. : Frequent in forest. 167884.

Ficus benghalensis L. Sp. Pl. 1059.1753; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 18 t. 13.1887 & in Hook. f. Fl. Brit. India 5: 499.1888; Cooke, Fl. Pres. Bombay 3: 145.1958 (Repr. ed.); Corner in Gard. Bull. Singapore 17: 381.1960 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 251, f. 13.1981. 'Wad'.

Trees up to 18 m tall. with aerial roots from radially spreading branches. Leaves 8–20 × 7–15 cm, elliptic-ovate, rounded to subcordate at base, glabrous above, puberulous below. Flowers unisexual, 1–2, monoecious, 1.5–2.0 cm across, in globose, axillary, paired, puberulous, sessile figs., Achenes globose-ellipsoid.

Receptacles : April–June.

Illus. : King, *op. cit.*; Corner, *op. cit.*

Distrib. : Koppikar (1974).

Ficus caulocarpa Miq. Ann. Bot. Lugd. Bat. 3: 268.1867; Corner in Gard. Bull. Singapore 21: 10.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 240, f. 8.1981. *F. infectoria* Roxb. var. *caulocarpa* (Miq.) King in Ann. Roy. Bot. Gard. Calcutta 1: 63, t. 79.1887.

Trees, 20–25 m tall, deciduous, often with bunches of aerial roots. Leaves 10–20 × 5–8 cm, elliptic-oblong, ovate-lanceolate, rounded at base, shortly acuminate at apex, margins undulate, spirally arranged, coriaceous. Flowers unisexual in axillary, paired, peduncled, globose figs.

Receptacles : October–August.

Illus. : Corner, *op. cit.*

Distrib. : Borivli, *P. S. Herbert*, 1863–4 (28. 7. 56) (*BLAT*).

Ficus drupacea Thunb. var. ***pubescens*** (Roth) Corner in *Gard. Bull. Singapore* 17: 381.1960 & in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 3: 247, f. 11.1981. *F. mysorensis* Heyne ex Roth var. *pubescens* Roth, in Roem. & Schult. *Syst. Veg.* 1: 508.1817; King in Hook. f. *Fl. Brit. India* 5: 500.1888; Cooke, *Fl. Pres. Bombay* 3: 146.1958 (Repr. ed.). ‘*Burali-Wad*’.

Trees, 20–25 m tall with aerial roots around the trunk; branchlets tomentose. Leaves 11–23 × 5–12 cm, broadly elliptic–ovate, rounded or subcordate at base, abruptly acuminate at apex, subcoriaceous. Flowers unisexual, in 1.5–2.0 cm across, ellipsoid–globose, sessile, solitary or paired, axillary, monoecious figs. Achenes smooth.

Receptacles : March–May.

Illus. : King in *Ann. Roy. Bot. Gard. (Calcutta)* 1: t. 14.1887. (*F. mysorensis*); Corner, *op. cit.*

Distrib. : Koppikar (1974).

Ficus exasperata Vahl, *Enum. Pl.* 2: 197, 402.1806; Corner in *Gard. Bull. Singapore* 21: 74.1965 & in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 3: 274, f. 25.1981. *F. asperrima* Roxb. *Fl. Ind.* 3: 554.1832; King in *Ann. Roy. Bot. Gard. (Calcutta)* 2: 80, t. 100.1888 & in Hook. f. *Fl. Brit. India* 5: 522.1888; Cooke, *Fl. Pres. Bombay* 3: 153.1958 (Repr. ed.). ‘*Gandya umbar*’.

Shrubs or small trees up to 8 m tall. Leaves 10–18 × 5.5–8.5 cm, broadly oblong–elliptic, rounded to acute at base, acute to acuminate at apex, margins entire, sparsely toothed or 3-lobed, scabrid; subcoriaceous, alternate, upper ones opposite. Flowers unisexual, in dioecious, solitary, axillary, globose or ellipsoid figs 0.8–1.5 × 1.0–1.5 cm, pubescent. Achenes oblong, faintly keeled, reticulate.

Receptacles : February–April.

Illus. : Wight, *Ic. t.* 633.1840 (*F. asperrima*); Corner, *op. cit.*

Distrib. : Occasional, 167765, 167771.

Ficus hispida L. f. *Suppl. Pl.* 442.1781; King in *Ann. Roy. Bot. Gard. (Calcutta)* 2: 116, f. 154.1888 & in Hook. f. *Fl. Brit. India* 5: 522.1888; Cooke, *Fl. Pres. Bombay* 3: 154.1958 (Repr. ed.); Corner in

Gard. Bull. Singapore 21: 89.1958 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 277, f. 27.1981. '*Kala umbar*'.

Trees up to 9 m tall; branchlets hispid. Leaves 8–20 × 6–11 cm, ovate-oblong to elliptic-lanceolate, cordate to truncate at base, abruptly acute at apex, margins entire or finely toothed, scabrid, hispid below. Flowers unisexual, in 1.5–2.0 cm across, depressed-globose, dioecious, pubescent figs. Achenes lenticular, keeled, with hilum.

Receptacles : February–July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 528, f. 530.1911. King, *op. cit.*; Corner, *op. cit.*

Distrib. : Frequent. 167495.

Ficus racemosa L. Sp. Pl. 1060.1753; Corner in Gard. Bull. Singapore 21: 34.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 266, f. 21.1981. *F. glomerata* Roxb. Pl. Cor. 2: 13, t. 1, 23.1798 & Fl. Ind. 3: 558.1832; King in Ann. Roy. Bot. Gard. (Calcutta) 2: 173, t. 218A & 219.1888 & in Hook. f. Fl. Brit. India 5: 535.1888; Cooke, Fl. Pres. Bombay 3: 154.1958 (Repr. ed.). '*Umbar*'.

Trees, 10–14 m tall. Leaves 8–10 × 3–5 cm, alternate, oblanceolate, ovate-oblong or elliptic-lanceolate, rounded to acute at base, acute at apex, coriaceous. Flowers unisexual, in 1.5–2.0 cm across, globose, reddish, pilose, monoecious figs. Achenes lenticular, obscurely keeled or smooth.

Receptacles : February–June.

Illus. : Wight, Ic. t.1967.1853; King, *op. cit.* (*F. glomerata*). Corner *op. cit.*

Distrib. : Frequent. 167420.

Ficus religiosa L. Sp. Pl. 1059.1753; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 55, t. 67.1887 & in Hook. f. Fl. Brit. India 5 : 513.1887; Cooke, Fl. Pres. Bombay 3: 149.1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21: 6.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 236.1981. '*Pimpal*'.

Trees, 10–20 m tall. Leaves 6–16 × 5–12 cm, broadly ovate, truncate at base, caudate-acuminate at apex, coriaceous, petioles up to 3 cm long. Flowers unisexual, in 0.4–0.7 cm across, ovoid or globose, sessile, monoecious, axillary, paired figs. Achenes smooth.

Receptacles : December–July.

Illus. : Wight, Ic. t.1967.1853; *Urostigma religiosum* (L.) Gasp. Ric. Capritico 82, t. 7, ff. 1-5.1845; King, *op. cit.*

Distrib. : Occasional, 167895.

Ficus tinctoria Forst. f. ssp. ***parasitica*** (Willd.) Corner in Gard. Bull. Singapore 17: 476.1960 & in Dassan. Fosb. Rev. Handb. Fl. Ceylon 3: 276, f. 26 : 1981. *F. parasitica* Willd. Mem. Acad. Roy. Sci. Hist. (Berlin) 2: 102, t. 3.1798. *F. gibbosa* Bl. var. *parasitica* (Willd.) King, in Ann. Roy. Bot. Gard. (Calcutta) 1: 6, t. 2.1887 & in Hook. f. Fl. Brit. India 5: 497.1888; Cooke, Fl. Pres. Bombay 3: 144.1958 (Repr. ed.). 'Datir'.

Trees up to 5 m tall, epiphytic with copious aerial roots often enclosing the host plant. Leaves 6-15 × 3-10 cm, elliptic-ovate or ovate-lanceolate, acute and oblique at base, obtuse, acute or acuminate at apex, oblique. Flowers unisexual, in 5-8 cm across, dioecious, axillary, paired globose figs. Achenes keeled or not.

Receptacles : February-May.

Illus. : King, *op. cit.* (*Ficus gibbosa* Bl. var. *parasitica*).

Distrib. : Koppikar (1974), very common in park often encircling *Borassus flabelifer* trees.

Ficus tsjahela Burm. f. Fl. Ind. 227.1768 ('*tjakela*'); King in Ann. Roy. Bot. Gard. (Calcutta) 1: 57, t. 70.1887 & in Hook. f. Fl. Brit. India 5:514.1888; Cooke. Fl. Pres. Bombay 3: 150.1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21 : 7.1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3 : 237.1981. 'Kel'.

Trees up to 15 m tall, deciduous. Leaves 8-20 × 2.5-8.5 cm, elliptic-oblong, ovate-oblong, rounded to subcordate at base, abruptly acuminate at apex. Flowers unisexual, in monoecious, 2-6, depressed-globose, 0.4-0.6 cm across, axillary receptacles on leafless branches. Gall flowers similar to fertile ones.

Receptacles : March-May.

Illus. : King, *op. cit.*

Distrib. : Borivli, P. S. Herbert, 2746-7 (BLAT).

Ficus virens Ait. Hort. Kew 3: 451.1789; Corner in Gard. Bull. Singapore 17: 376.1960 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 238, f. 7.1981. *F. infectoria* Roxb. Fl. Ind. 3: 551.1832 non Willd.1806; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 60, t. 75.1887 & in Hook. f.

Fl. Brit. India 5: 515.1888, Cooke, Fl. Pres. Bombay 3: 151.1988. (Repr. ed.).

Trees, 10–25 m tall with aerial roots. Leaves 6–13 × 4–8 cm, oblong-ovate to ovate, rounded to truncate at base, abruptly acuminate at apex. Flowers unisexual, in 1.0–1.5 cm across, obconical or globose, sessile, monoecious, whitish, axillary, paired figs. Achenes smooth.

Receptacles : October–June.

Illus. : Wight, Ic. t. 665.1840 (*Ficus infectoria*); Corner, *op. cit.*

Distrib. : Frequent. 167845, 168942.

STREBLUS Lour.

Streblus asper Lour. Fl. Cochinch. 2:615.1790; Hook. f. Fl. Brit. India 5: 489.1888; Cooke, Fl. Pres. Bombay 3: 141.1958 (Repr. ed.); Corner in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3 : 281. f.28.1981. 'Kharoti'.

Evergreen trees up to 10 m tall, much branched, bushy. Leaves 2–7 × 1.5–3.5 cm, elliptic-rhomboid or elliptic-obovate, cuneate at base, acute at apex, scabrid. Flowers unisexual; male flowers in stalked, globose heads, female flowers axillary, solitary or in fascicles, stalks elongated in fruits. Drupes enclosed by enlarged perianth, orange yellow when ripe, 1-seeded, edible.

Fls. & Frts. : January–May.

Illus. : Corner, *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 679.1982.

Distrib. : Frequent in forest. 167740, 168480.

CULTIVATED SPECIES :

Artocarpus heterophyllus Lam. Encycl. 3: 10.1789; Corner in Gard. Bull. Singapore 10 : 56.1939 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3 : 217.1981. *A. integrifolius auct. non L.* f.1781; Cooke, Fl. Pres. Bombay 3: 158.1958 (Repr. ed.). 'Phanas'

Trees, 12–15 m tall. Leaves broadly elliptic-ovate, coriaceous, rounded to acute at base, obtuse to acute at apex. Flowers unisexual, in cauliflorous inflorescence as well as from main branches. Syncarps, large, oblong. Seeds elliptic to oblong.

Fls. & Frts. : January–August.

Illus. : Wight, Ic. t. 678.1843.

Distrib. : Cultivated in forest village. 167483.

Ficus elastica Roxb. ex Horn. Hort. Bot. Hafn. Suppl. 7: 1819; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 45. t. Pl. 54.1887 & in Hook. f. Fl. Brit. India 5: 508.1888; Corner in Gard. Bull. Singapore 21: 24.1965 & in Dassan. & Fosb. Rev. Hand. Fl. Ceylon 3: 261, f.18.1881; Naik Fl. Marathwada 2: 810.1998.

Cultivated in juvenile stage as potted plant for decoration, but is a large evergreen tree in wild state. Leaves elliptic-ovate, rounded or truncate at base, acute, obtuse or shortly apiculate at apex, coriaceous, dark-green, glossy. Figs ca. 1.2 cm long.

Illus. : Wight, Ic. t. 663.1843; Corner, *op. cit.*

Distrib. : Koppikar (1974). (ornamental).

Morus alba L. Sp. Pl. 986.1753; Hook. f. Fl. Brit. India 5: 492.1888; Cooke, Fl. Pres. Bombay 3: 159.1958 (Repr. ed.). 'Tuti'.

Trees, 8–10 m tall, deciduous. Leaves broadly-ovate, margins entire or lobed. Flowers in axillary, pendulous spikes. Fruits pale to deep violet or purple. Achenes brown.

Fls. & Frts. : July–December.

Distrib. : Borivli, P. S. Herbert, 1650 (BLAT).

CASUARINACEAE

CASUARINA Adans.

Casuarina equisetifolia L. Amoen. Acad. 4: 143.1759; Hook. f. Fl. Brit. India 5: 598.1888; Cooke, Fl. Pres. Bombay 3: 161.1958 (Repr. ed.); Frilis in Taxon 29: 499.1980. 'Suru'.

Trees, 15–20 m tall; branchlets 10–15 cm. Leaves ca. 7 at nodes, scaly, 0.05–0.1 cm long, acute. Flowers unisexual, in separate inflorescences; male spikes ca. 1–3 × 0.3 cm; female spikes 0.5–0.8 × 0.3 cm, shortly stalked. Carpophores 1.5–3.0 × 1.0–1.3 cm, ovoid, oblong, cylindric. Nutlets flat, winged.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 681.1982. & Rogers in J. Arnold Arbor. 63: 356, f. 1a–n.1982.

Distrib. : Koppikar (1974). Found near Ghodbundar creek and also cultivated.

CERATOPHYLLACEAE

CERATOPHYLLUM L.

Ceratophyllum demersum L. Sp. Pl. 992.1753; Hook. f. Fl. Brit. India 5: 639.1888; Cooke, Fl. Pres. Bombay 3: 165.1958 (Repr. ed.); Wilmot-Dear in Kew Bull. 40 : 257.1985.

Aquatic, submerged herbs; stems much branched; branchlets forming tangled masses. Leaves 7–12, in close verticils, ca. 2.5 cm long, forked, margins denticulate, acute segments 2, 3 or 5. Flower solitary, mostly in upper axils, unisexual, on separate nodes. Nutlets ellipsoid, ca. 0.45 × 0.35 cm, with three horns. Seeds globose.

Fls. & Frts. : January–March.

Illus. : Subram. Aquat. Ang. 52. f. 36. 1962; Matthew, Illus. Fl. Tamilnadu Carnatic t. 683.1982.

Distrib. : Koppikar (1974).

HYDROCHARITACEAE

- | | | |
|--|-----|----------|
| 1. Leaves in whorls of 3–4 at the nodes. | ... | HYDRILLA |
| 1. Leaves not as above : | | |
| 2. Leaves sessile, linear | ... | BLYXA |
| 2. Leaves petiolate, oblong to orbicular | ... | OTTELIA |

BLYXA Noron. ex Petit. Thou.

Blyxa echinosperma (C.B.Cl.) Hook. f. Fl. Brit. India 5: 661.1888; Cooke, Fl. Pres. Bombay 3: 172.1958 (Repr. ed.); Hartog in Steenis, Fl. Males. 1, 5: 391. f. 6a.1957; Subram. Aquat. Ang. 59.1962. *Hydrotrophus echinospermus* C. B. Cl. in J. Linn. Soc. Bot. 14: 8, t. 1.1875. *Blyxa lancifolia* Hook. f. *op. cit.* *B. talbotii* Hook. f. *op. cit.*

Aquatic, submerged sheathing herbs. Leaves 10–20 × 0.4–0.8 cm, with broad base and tapering, acuminate apex. Flowers white, minute, solitary, with peduncled spathe. Fruits 5–7 cm long, linear, torulose, finely ribbed. Seeds many, ellipsoid–ovoid, tailed, spinescent.

Fls. & Frts. : August–October.

Illus. : Hartog in Steenis, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : 684.1982.

Distrib. : Vihar lake, Tulsi lake.

HYDRILLA L. C. Rich.

Hydrilla verticillata (L.f.) Royle, *Ill. Bot. Himal. t.* 376.1839; Hook. f. *Fl. Brit. India 5*: 659.1888; Cooke, *Fl. Pres. Bombay 3*: 170.1958 (Repr. ed.); Hartog in Steenis, *Fl. Males. 1, 5*: 385, f. 1. 1957; Subram. *Aquat. Ang. 55*: 1962. *Serpicula verticillata* L. f. *Suppl.* 416.1781.

Slender, submerged, free floating, herbs rooting at nodes, forming entangled masses. Leaves 0.6–0.8 × 0.2–0.3 cm, sessile, in whorls of 4–8 (the lowest opposite), linear to linear-oblong, margins entire or serrulate. Flowers 0.4–0.6 cm long, unisexual; male flowers shortly pedicellate, solitary in subsessile, muricate spathes; female flower solitary, sessile, in cylindrical spathes. Fruits smooth or muricate. Seeds oblong.

Fls. & Frts. : August–December.

Illus. : Hartog in Steenis, *op. cit.*; Subram. *op. cit.* 149. f. 37; Mahesh. *Illus. Fl. Delhi f.* 200 : 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : t. 685.1982.

Distrib. : Salsette, Shah (1962).

OTTELLA Pers.

Ottelia alismoides (L.) Pers. *Syn. Pl.* 1: 400.1805; Hook. f. *Fl. Brit. India 5*: 662.1888; Cooke, *Fl. Pres. Bombay 3*: 173.1958 (Repr. ed.); Hartog in Steenis, *Fl. Males. 1,5*: 398, f. 10.1957; Subrab. *Aquat. Ang. 61*.1962. *Stratiotes alismoides* L. *Sp. Pl.* 535.1753.

Annual herbs, acaulescent; roots usually fibrous. Leaves radical, submerged and floating, submerged ones 6–8 × 0.6–3.0 cm, oblong, tapering at both ends, floating ones 5–20 × 4–15 cm, oblong or orbicular, cordate or rounded at base, obtuse at apex; petioles 10–20 cm long. Flowers unisexual and/or bisexual, white with yellow bloched base. Fruits 3–4 cm long, oblong-ellipsoid, rostrate, covered by persistent sepals.

Fls. & Frts. : September–April.

Illus. : Hartog in Steenis, *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 688, 1982.

Distrib. : Frequent in lakes and ponds. 169488.

ORCHIDACEAE

1. Plants terrestrial :
 2. Leaves petioled :
 3. Leaves cordate at base; lip crenulate ... NERVILIA
 3. Leaves not cordate at base; lip pectinate ... MALAXIS
 2. Leaves not petioled :
 4. Inflorescences lateral, on separate shoot from leaves ... EULOPHIA
 4. Inflorescences terminal, on the same shoot as leaves :
 5. Sepals subequal, more or less concave ... PERISTYLUS
 5. Sepals unequal; lateral ones spreading or reflexed ... HABENARIA
1. Plants epiphytic :
 6. Inflorescence of drooping racemes; peduncles weak :
 7. Lip 3-lobed ... CYMBIDIUM
 7. Lip entire ... RHYNCHOSTYLIS
 6. Inflorescence of erect racemes or panicles; peduncles stout :
 8. Sepals and petals transversely barred with red ... ACAMPE
 8. Sepals and petals not barred with red :
 9. Pseudobulbs present ... DEDROBIUM
 9. Pseudobulbs absent ... AERIDES

ACAMPE Lindl.

Acampe praemorsa (Roxb.) Blatt. & McC. in J. Bombay nat. Hist. Soc. 35: 495.1932; Sant. & Kapad. Orch. Bombay 233, t : 54.1966. *Epidendrum praemorsum* Roxb. Pl. Cor. 1:34 t. 43.1795. *Acampe wightiana* Lindl. Fol. Orchid. 2.1853; Cooke, Fl. Pres. Bombay 3. 209.1958 (Repr. ed). *Saccolabium praemorsum* (Roxb.) Hook. f. Fl. Brit. India 6. 62.1890. *S. wightianum* (Lindl.) Hook. f. *op. cit.*

Epiphytic herbs; stems elongate, monopodial. Leaves 20–25 × 2–3 cm, linear, acute at base, obtuse at apex, coriaceous, distichous. Flowers fleshy, fragile, maroon-streaked, shortly spurred, in 6–8 cm long inflorescence. Capsules 5–6 × 1–1.5 cm, oblong-elliptic.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 718.1982.

Distrib. : Common epiphyte on tree. 168408, 169122.

AERIDES Lour.

- | | | |
|--|-----|---------------------|
| 1. Lip deflexed, lateral sepal ca. 0.1 cm long | ... | <i>A. ringens</i> |
| 1. Lip horizontal or inflexed, lateral sepal ca. 1 cm long | ... | <i>A. maculosum</i> |

Aerides maculosum Lindl. in Edgew. Bot. Reg. t. 58.1845; Hook. f. Fl. Brit. India 6: 45.1890; Cooke, Fl. Pres. Bombay 3 : 203.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 120, t. 30.1966.

Epiphytic herbs with leafy stems; stems 2.5–8.0 cm long with leaf sheaths and long roots. Leaves 15–20 × 1.5–2.0 cm, linear-oblong, 2-lobed at apex. Flowers numerous, showy, inodorous, in paniculately branched, 10–25 cm long inflorescence; sepals and petals rose-coloured, petals spotted with darker colour, crenulate, mid-lobe retuse at apex, spur incurved like a hook. Capsules 2.0–2.5 cm long, ellipsoid, 3-ribbed.

Fls. & Frts. : April–June.

Illus. : Wight, Ic. tt. 1675–76.1851. (*Saccolabium speciosum*); Sant. & Kapad. *op. cit.*; Sald. in Sald. & Nicols. Fl. Hassan Dt. 813, f. 122.1976.

Distrib. : Salsette, *Blatter* (1932).

Aerides ringens (Lindl.) C. E. C. Fischer in Kew Bull. Misc. Inform. Kew 1928; 284.1928 & Fl. Madras 3: 1442 (1008) 1928; Sant. & Kapad. Orch. Bombay 119, t. 29.1966. *Saccolabium ringens* Lindl. Gen. Sp. Orchid. Pl. 221.1833. *Aerides radicosum* A. Rich. Ann. Sci. Nat. Bot.

(Ser. 2), 15: 65.1841; Hook. f. Fl. Brit. India 6: 46.1890; Cooke, Fl. Pres. Bombay 3: 204.1958 (Repr. ed.). *A. linearis* Hook. f. *op. cit.* 47.

Herbs. Stems 3–8 cm long, covered with sheaths. Leaves 10–25 × 1.0–2.5 cm, linear-oblong, coriaceous, unequally 2-lobed at apex. Flowers rose-coloured, pedicellate, bracteate; peduncles of the cymes 3–7 cm long. Capsule ca. 1.5 cm long prominently, ribbed, ovoid-oblong.

Fls. & Frts. : March–July

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 713.1982.

Distrib. : Salsette, Dalzell & Gibson, 1861; Salsette, Sant. & Kap. *op. cit.*

CYMBIDIUM Swartz

Cymbidium aloifolium (L.) Swartz, in Nov. Act. Reg. Soc. Sci. Upsal. 2, 6: 73.1799; Hook. f. Fl. Brit. India 6: 10.1890; Cooke, Fl. Pres. Bombay. 3 : 199.1958 (Repr. ed.); Sant. Kapad. Orch. Bombay 206.1966; Seth in Kew Bull. 37 : 399.1982; *Epidendrum aloifolium* L. Sp. Pl. 958.1753.

Epiphytic herbs with pseudostems. Leaves 20–50 × 1.5–3.0 cm, linear-oblong, obtuse and slightly notched at apex, petioled. Flowers yellowish-red, in many-flowered, 15–30 cm long, bracteate, pendulous racemes. Capsules 5.0–6.0 cm long, ellipsoid, longitudinally grooved.

Fls. & Frts. : April–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 721 & 977b.1982.

Distrib. : Salsette, Dalzell & Gibson (1861).

DENDROBIUM O. Swartz (*nom. cons.*)

- | | | |
|--|-----|----------------------|
| 1. Lateral sepal ca. 0.8 cm long, oblong. | ... | <i>D. ovatum</i> |
| 1. Lateral sepal ca. 1.8 cm long, lanceolate | ... | <i>D. barbatulum</i> |

Dendrobium barbatulum Lindl. Gen. Sp. Orchid, 84.1830; Hook. f. Fl. Brit. India 5 : 719.1830; Cooke, Fl. Pres. Bombay 3: 184.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 23, t. 22.1966.

Epiphytic herbs; stems 20–30 cm long, swollen at base, tapering towards apex. Leaves 6–10 × 1.0 cm, lanceolate, acute. Flowers white, tinged with pink, bracteate, pedicelled, in lateral and terminal

peduncled racemes; mid lobe of the lip with yellow hairs at the base. Fruits ca. 3 cm long.

Fls. & Frts. : April–May.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Kanheri Caves, Kanitkar, Sant. & Kapad. (1966).

Dendrobium ovatum (Willd.) Kranzl. in Engl. Pflanzenr. 45: 71.1910; Sant. & Kapad. Orch. Bombay 91, t. 21.1966. *Cymbidium ovatum* Willd. Sp. Pl. 4: 101.1805. *Dendrobium chlorops* Lindl. in Edw. Bot. Reg. 44.1844; Hook. f. Fl. Brit. India 5: 719.1890; Cooke, Fl. Pres. Bombay 3: 184.1958 (Repr. ed.).

Epiphytic herbs. Stems 30–45 cm high. Leaves on old branches 5–10 × 0.6–1.2 cm, lanceolate, acute, leaves absent on lateral shoots which are flower bearing. Flowers cream-coloured, ca. 1.8 cm across, scented, bracteate, pedicelled, in lateral and terminal, 7–5 cm long racemes; anthers white. Capsules ca. 1.8 × 0.08 cm, oblong-ovoid, ribbed.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 910.1844. 45 non Lindl.1830. (*Dendrobium barbatulum*); Sant. & Kapad. *op. cit.*

Distrib. : Salsette, Shah (1969).

EULOPHIA R. Br. ex Lindl. (nom. cons.)

- | | | |
|---|-----|--------------------|
| 1. Sepals 2.3–3.1 cm long; lateral lobes of lip present | ... | <i>E. herbacea</i> |
| 1. Sepals ca. 1.2 cm long; lateral lobes of lip absent. | ... | <i>E. ochreate</i> |

Eulophia herbacea Lindl. Gen. Sp. Orchid. 182.1833; Hook. f. Fl. Brit. India 6: 2.1890; Cooke, Fl. Pres. Bombay 3: 196.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay. 111.1966.

Herbs, terrestrial. Stems 8–15 cm tall with pseudobulbs. Leaves 15–20 × 2.5–8.0 cm, linear-lanceolate to elliptic-lanceolate. Flowers white, pedicellate, in lax racemes on stout, 60–80 cm long scapes. Capsules 3.5–4.0 cm long, ellipsoid, slightly ribbed.

Fls. & Frts. : July–August.

Distrib. : Borivli, Z. J. Kapadia, 1252. 15660 (BLAT).

Eulophia ochreate Lindl. in J. Linn. Soc. 3: 24.1858; Hook. f. Fl.

Brit. India 6: 2.1890; Cooke, Fl. Pres. Bombay 3: 196.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 109, t. 27.1966.

Herbs, terrestrial. Pseudobulbs ca. 4.0 × 2.5 cm, ovoid, conical. Leaves 10–30 × 3.5–8.0 cm, elliptic-lanceolate, sessile, acuminate at apex. Flowers delicate, membranous, in dense, many-flowered, cylindric, 8–15 cm long racemes ca. 2.6 × 1.2 cm, ovoid, ridged on 20–30 cm tall scapes.

Fls. & Frts. : June–October.

Distrib. : Borivli, H. Santapau, 787 & Kanheri Caves, 1051 R. R. Fernandez, 1840–1 (BLAT).

HABENARIA Willd.

1. Petals 2-partite :
 2. Sepals filiform at apex; lateral lobes of lip less than half as long as mid lobe. ... *H. stenopetala*
 2. Sepals acute to acuminate at apex; lobes of lip subequal :
 3. Inflorescences 1–4-flowered. ... *H. grandifloriformis*
 3. Inflorescences many-flowered :
 4. Lower segments of petals filiform, usually less than half as long as upper ones; spur scarcely clavate ... *H. digitata*
 4. Lower segments of petals not filiform, more or less subequal; spur distinctly clavate. ... *H. foliosa*
1. Petals entire :
 5. Lip 3-partite, segments filiform; sepals beaked. ... *H. commelinifolia*
 5. Lip 3-lobed, segments not filiform; sepals acute to acuminate :
 6. Lateral lobes of lip broader than mid lobe. ... *H. plantaginea*
 6. Lateral lobes of lip not broader than mid lobe :
 7. Leaves subradical, clustered near the base of the stem; flowers yellow. ... *H. marginata*
 7. Leaves clustered about the middle of the stem; flowers green. ... *H. ovalifolia*

Habenaria commelinifolia (Roxb.) Wall. ex Lindl. Gen. & Sp. Orchid. 325.1835; Hook. f. Fl. Brit. India 6: 143.1890; Cooke, Fl. Pres. Bombay 3: 224.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 25, t. 4. f. 11–12.1966. *Orchis commelinifolia* Roxb. Fl. Ind. 3: 415.1832.



f. 81. *Habenaria commelinifolia* (Roxb.) Wall. ex Lindl.

Terrestrial herbs. Stems 60–70 cm tall, bearing tubers. Leaves 6–15 × 2–3 cm, oblong–lanceolate, sheathing at base. Flowers greenish–white, sessile, in 8–15 cm long, terminal, spicate racemes. Capsules ca. 3.5 cm long, fusiform, beaked.

Fls. & Frts. : August–October.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 2649–50 (BLAT).

Habenaria digitata Lindl. Gen. & Sp. Orchid. Pl. 307.1835; Hook. f. Fl. Brit. India 6: 134.1890; Cooke, Fl. Pres. Bombay 3: 220.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 10, t. 3, f. 7–8.1966.

Terrestrial herbs. Stems 30–60 cm tall. Leaves pentastichous, 5–11 × 2–3 cm, ovate–oblong, sheathing at base, acute to acuminate at apex. Flowers greenish–white, in many–flowered, lax, spicate racemes. Capsules ellipsoid or oblong.

Fls. & Frts. : July–December.

Illus. : Wight, Ic. t.1701.1851 (*Habenaria trineriva*).

Distrib. : Borivli, P. S. Herbert, 2813–6 (BLAT).

Habenaria foliosa A. Rich. in Ann. Sci. Nat. 2, 15: 71, t. 3A.1841. *H. digitata* Lindl. var. *foliosa* (A. Rich.) Hook. f. Fl. Brit. India 6: 135.1890; Cooke, Fl. Pres. Bombay 3: 220.1958 (Repr. ed.). *H. gibsonii* var. *foliosa* (A. Rich.) Sant. & Kapad. in J. Bombay nat. Hist. Soc. 56: 194, t. 2, f. 6. 1959 & Orch. Bombay 14, t. 2, f. 6.1966.

1. Dorsal sepal 1.0–1.2 × 0.9 cm; lateral sepal 1.8–2.0 × 0.7–0.8 cm. ... var. *gibsonii*

1. Dorsal sepal broader than long 0.7 × 0.8 cm; lateral sepal ca. 0.9 × 0.6 cm. ... var. *foetida*

var. **foetida** (Blatt. & McC.) Bennet in J. Econ. Tax. Bot. 5: 452.1984. *H. gibsonii* var. *foetida* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36 : 16.1932; Sant. & Kapad. *Ibid.* 56.194, t. 2, f. 5.1959 & Orch. Bombay 13, t. 2, f. 5.1966.

Terrestrial herbs, 15–45 cm tall. Leaves ovate–lanceolate, narrowed at base, acute to rarely subacuminate at apex. Racemes 6–8–flowered; upper segment of the sepal slightly longer than lower one. Flowers foetid. Capsules ellipsoid.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Salsette, Ghodbundar, *Santapau & Kapadia* 1959 & 1966.

var. *gibsonii* (Hook. f.) Bennet in J. Econ. Tax. Bot. 5. 452.1984.
H. gibsonii Hook. f. Fl. Brit. India 6: 135.1890; Sant. & Kapad. Orch. Bombay 12, t. 2, f. 3-4.1966.

Terrestrial herbs, 15-45 cm high; tuber usually one, cylindrical, ca. 2.5 cm across. Leaves ovate to oblong, lanceolate, acute to rarely subacuminate at apex, margins wavy. Flowers white, bracteate, pedicellate, on 5-15 cm long, lax, secund to subsecund inflorescence. Capsules ellipsoid, shortly beaked.

Fls. & Frts. : July-September.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Vihar lake vicinity, *Santapau & Kapadia* (1959 & 1966).

Habenaria grandifloriformis Blatt. & McC. in J. Bombay nat. Hist. Soc. 36 : 17.1932, *emend.* Sant. & Kapad. *Ibid.* 56:195.1959 & Orch. Bombay 17, t. 1. f. 2-2.1966. *H. grandiflora* Lindl. ex Dalz. & Gibs. Bombay Fl. 267.1861 *non* Torr. ex Beck.1823; Hook. f. Fl. Brit. India 6:136.1890; Cooke, Fl. Pres. Bombay 3: 221.1958 (Repr. ed.); 'Chickurkanda'.

Herbs, 4-15 cm tall with globose tubers. Leaves 2.5-5.0 × 2.0-5.5 cm, solitary, or 2 subradical, ovate to suborbicular, cordate at base; acute to apiculate at apex. Flowers white, pedicellate, bracteate, in few flowered, lax racemes. Scapes 4-10 cm tall.

Fls. & Frts. : July-August.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Salsette, G. L. Shah (1962).

Habenaria marginata Coleb. in Hook. Exot. Fl. 2, 17: t. 136.1824; Hook. f. Fl. Brit. India 6: 150.1890; Cooke, Fl. Pres. Bombay 3: 226.1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 33, t. 5. f.17.1966.

Herbs, 10-25 cm tall; tubers ovoid or ellipsoid. Leaves usually 3.5-10 × 1.2-3.0 cm, subradical, sessile, oblong, elliptic or oblong, ovate-lanceolate, acute at apex. Flowers yellow, in numerous, 3.5-8 cm long spikes, bracts ovate-lanceolate, acuminate. Capsules ca. 1 cm long, fusiform, turgid.

Fls. & Frts. : July-November.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Vihar lake, *Blatter* (1932); Salsette. *Sant. & Kap.* (1959); Salsette, *G. L. Shah* (1962).

Habenaria ovalifolia Wight, *Ic.* t.1708.1851; Hook. f. *Fl. Brit. India* 5: 149.1890; *Sant. & Kapad. Orch. Bombay* 37, t. 5, f.18.1966. *H. modesta* Dalz. in Hook. *Kew J. Bot.* 2 : 262.1850; Hook. f. *op. cit.* 166.

Terrestrial herbs, 20–75 m tall; tubers irregularly ellipsoid. Leaves 4–6, 5–15 × 1.5–7.0 cm, oblong, oblong-lanceolate, or obovate to oblanceolate, acute at apex, clustered beneath the middle of the stem. Flowers bracteate, shortly pedicellate, in lax, many flowered, 15–40 cm long, peduncled racemes. Capsules 13–15 × 3–4 cm, broadly fusiform, prominently ribbed, minutely beaked.

Fls. & Frts. : August–November.

Illus. : Wight, *op. cit.*; *Sant. & Kapad. op. cit.*

Distrib. : Borivli, *Z. J. Kapadia*, 623 & *R. R. Fernandez*, 1919, 2136 (BLAT).

Habenaria plantaginea Lindl. *Gen. Sp. Orchid. Pl.* 323.1835; Hook. f. *Fl. Brit. India* 6: 141.1890; *Cooke, Fl. Pres. Bombay* 3: 224.1958 (Repr. ed.); *Sant. & Kapad. Orch. Bombay* 28; t. 6, f. 25.1966.

Terrestrial herbs; 20–30 cm tall; tubers 2, unequal, ellipsoid. Leaves 3–16 × 1–6 cm, usually radical, elliptic-lanceolate, tapering at base, acute at apex. Flowers 0.15–0.25 cm long, white, spurred in racemes on ca. 20 cm long scapes. Capsules elliptic, fusiform, turgid.

Fls. & Frts. : August–December.

Illus. : Wight, *Ic.* t.1710.1851; *Sant. & Kapad. op. cit.*

Distrib. : On plains and hills, amidst thickest. 167867.

Habenaria stenopetala Lindl. *Gen. & Sp. Orchid.* 319.1835; Hook. f. *Fl. Brit. India* 6: 184.1890; *Cooke, Fl. Pres. Bombay* 3: 219.1958 (Repr. ed.); *Sant. & Kapad. Orch. Bombay* 9, 1966.

Herbs. Stems 30–60 cm tall, stout; tubers 1–2, ovoid. Leaves cauline, 7–20 × 2.5–5.0 cm, oblong-lanceolate, to ovate-lanceolate, amplexicauled or narrowed at base, acute at apex, margins undulate. Flowers greenish, pedicellate, bracteate, in many-flowered, 7–15 cm long racemes. Capsules 1.2–1.6 cm long, linear-oblong, shortly beaked, stalked.

Fls. & Frts. : August–December .

Distrib. : Salsette, Dalzell & Gibson (1961).

MALAXIS Soland. ex Swartz

Malaxis rheedii Swartz in Kongl. Vet. Acad. Nya Handl. 21: 235.1800; Nair & Ansari in Taxon 30 : 475.1981. *Microstylis versicolor* Lindl. Gen. Sp. Orchid. 21.1830 non Wight, 1644-45; Cooke, Fl. Pres. Bombay 3: 179.1958 (Repr. ed.). *Malaxis versicolor* (Lindl.) Abeywickr. in Ceylon J. Sci. (Biol. Sci.) 2: 147.1959; Sant. & Kapad. Orch. Bombay 141, t. 33.1966. *Microstylis rheedii* (Swartz) Wight, Ic. t. 902.1944; Hook. f. Fl. Brit. India 5: 690.1890.

Terrestrial herbs, 7-15 cm tall, stoloniferous, sheathed. Leaves 5-17 × 3-7 cm, broadly ovate or elliptic, oblique at base, acute to acuminate at apex. Flowers fragrant, yellow with pale purple tinge when young, becoming reddish with age; sepals ovate, oblong; petals narrowly linear. Lip fan-shaped, pectinate. Capsules ca. 1.0 × 0.6 cm, obovoid, pyriform, shortly stacked.

Fls. : July-August.

Frts. : September-March.

Illus. : Wight, *op. cit.*; Sant. & Kapad. *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 707.1982.

Distrib. : Hills West of Mulund. Santapau & Kapadia (1966).

NERVILIA Commers. ex Gaud. (nom. cons.)

Nervilia aragoana Gaud. in Freyc. Voy. Bot. 421. t. 35.1829; Sant. & Kapad. Orch. Bombay 134.1966. *Pogonia flabelliformis* Lindl. Gen. & Sp. Orchid. 415.1840; Hook. f. Fl. Brit. India 6: 121.1890. *P. carinata* (Roxb.) Lindl. *op. cit.* 414; Hook. f. *op. cit.*; Cooke, Fl. Pres. Bombay 3: 211.1958 (Repr. ed.).

Terrestrial herbs. Tubers 1.5-2.0 cm across, subglobose. Leaves appearing after flowers, 10-12 × 8-11 cm, broadly ovate to almost orbicular, cordate at base, acute, acuminate or apiculate at apex; petioles 10-20 cm long. Flowers green, drooping, shortly pedicellate, bracteate, in few to many-flowered, lax, 30-25 cm long racemes. Capsules ca. 0.5 cm long, pendulous.

Fls. & Frts. : May-September.

Illus. : Wight, Ic. t.172.1851 (*Pogonia carinata*).

Distrib. : Borivli, R. R. Fernandez, 1287 & 1838 (BLAT); Santapau & Kapadia 23. 2344, Borvili.

PERISTYLUS Bl. (*nom. cons.*)

1. Spur as long as or longer than the sepals, subclavate. ... *P. stocksii*
 1. Spur shorter than the sepals, ellipsoid to globose. ... *P. plantagineus*

Peristylus plantagineus Lindl. Gen. & Sp. Orch. Pl. 300.1835; Cooke, Fl. Pres. Bombay 3: 216.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 51, t. 10 A-B.1966. *Habenaria wightii* Trim. Cat. Ceyl. Pl. 91.1885; Hook. f. Fl. Brit. India 3: 162.1890.

Herbs, 30-60 cm tall, robust. Leaves 10-20 × 2-8 cm, clustered about the middle of the stem, oblong, oblong-lanceolate, elliptic or elliptic-ovate, sessile. Flowers white, sessile, bracteate, in 10-23 cm long, compact, terminal, many-flowered spikes. Capsules ca. 1.0 × 0.2 cm, ellipsoid-oblong, curved at apex.

Fls. & Frts. : August-December.

Illus. : Wight, Ic. t. 921, 1844-45; Sant. & Kapad. *op. cit.*

Distrib. : Frequent on plains and hills in shady moist thickets. 167889, 167965.

Peristylus stocksii (Hook. f.) Kranzl. Orchid. Gen. Sp. 1: 513.1898; E. Blatter in J. Bombay nat. Hist. Soc. 35 (4) : 735.1932; Cooke, Fl. Pres. Bombay 3: 215.1958 (Repr. ed.); Sant. & Kapad. Orch. Bombay 48, t. 9, C-D, 1966. *Habenaria stocksii* Hook. f. Fl. Brit. India 6: 158.1890.

Terrestrial herbs, 15-40 cm tall; stems slender sheathed, tubers 1-2, 1.7-3.0 × 1.2-2.0 cm, oblong or ellipsoid. Leaves clustered towards the middle. 7-10 × 1-8 cm, obovate or elliptic to lanceolate, obtuse to acuminate at apex. Flowers yellowish, bracteate, sessile, in many-flowered, subsecund, twisted spikes, 7-15 cm long. Capsules ribbed, green slightly curved.

Fls. & Frts. : July-October.

Illus. : Sant. & Kapad. *op. cit.*

Distrib. : Tulsi lake, McCann, 801-5(BLAT); Molland, Blatter (1951).

RHYNCHOSTYLIS Bl.

Rhynchostylis retusa (L.) Bl. Bijdr. 286, t. 49.1825; Hook. f. Fl. Brit. India 6: 32.1890; Cooke, Fl. Pres. Bombay 3: 202.1958. (Repr. ed.);

Sant. & Kapad. Orch. Bombay 211.1966. *Epidendrum retusum* L. Sp. Pl. 953.1753.

Herbs. Stems 7–12 cm long, stout, covered with leaf-sheaths; roots branched. Leaves 10–30 × 1–2 cm, lorate, obliquely lobed at apex; one lobe truncate and other rounded. Flowers pale-pink, dotted with dark coloured spots, in dense, cylindric racemes. Capsules 2.5–3.5 cm long, clavate, 3-angled, 6-ribbed; pedicels stout.

Fls. & Frts. : May–July.

Illus. : Wight, Ic. tt.1745–46.1851. (*Saccolabium rheedii*).

Distrib. : Salsette, Dalzell & Gibson (1861).

ZINGIBERACEAE

- | | | | |
|----|--|-----|-----------|
| 1. | Stems twisted; leaves apparently spirally arranged. | ... | COSTUS |
| 1. | Stems not twisted; leaves not spirally arranged : | | |
| 2. | Corolla funnel-shaped; connectives spurred at base. | ... | CURCUMA |
| 2. | Corolla slender, narrow, not funnel-shaped; connectives not spurred at base. | ... | HEDOYCHUM |

COSTUS L.

Costus speciosus (Koen.) J. E. Sm. in Trans. Linn. Soc. London 1: 249.1791; Backer in Hook. f. Fl. Brit. India 6: 249.1892; Cooke, Fl. Pres. Bombay 3: 243.1958 (Repr. ed.). *Banksea speciosa* Koen. apud Retz. Obs. Bot. 3: 75.1783. 'Kosht'.

Herbs, 1.5–2.5 cm tall; rootstock tuberous. Leaves 10–25 × 4–8 cm, oblong or oblanceolate-oblong, tapering at base, acute to acuminate at apex, pubescent beneath. Flowers white, numerous, in dense, globose or ovoid, terminal spikes. Capsules ca 1.8 cm across, globose, 3-gonous, red. Seeds black with white aril.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 2014.1853; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t.726.1982.

Distrib. : Abundant common during monsoon. 167213, 167801.

CURCUMA L.

1. Flowering spikes rising later in the centre of a previously formed tuft of leaves :

2. Flowers yellow ... *C. pseudomontana*
 2. Flowers purple ... *C. decipiens*
1. Flowering spikes lateral, rising with leafy shoots
 or before leafy shoots :
3. Flowering spikes rising together with leafy shoots;
 tubers white inside, odourless. ... *C. inodora*
3. Flowering spikes rising with or before leafy shoots;
 tubers yellow inside, aromatic ... *C. aromatica*

Curcuma aromatica Salisb. Parad. Lond. 20 : t. 96.1807 & in
 Trans. Hort. Soc. 1: 285.1812; Baker in Hook. f. Fl. Brit. India 6:
 210.1890; Cooke, Fl. Pres. Bombay 1: 236.1958 (Repr. ed.) '*Ambe-halad*'.

Herbs with underground, branched, aromatic rhizomes. Leaves
 30-50 × 10-20 cm, oblong-elliptic or oblong-lanceolate, deltoid at base,
 caudate-acuminate at apex, pubescent beneath. Flowers pale rosy and
 yellow, fragrant, in 15-30 cm long spikes. Capsules globose, 3-valved.

Fls. & Frts. : May-August.

Illus. : Wight, Ic. t. 2005.1953.

Distrib. : Borivli, H. Santapau, 7059. (BLAT).

Curcuma decipiens Dalz. in Hook. Kew J. Bot. 2: 144.1850;
 Baker in Hook. f. Fl. Brit. India 6: 215.1890; Cooke, Fl. Pres. Bombay 3:
 237.1958 (Repr. ed.).

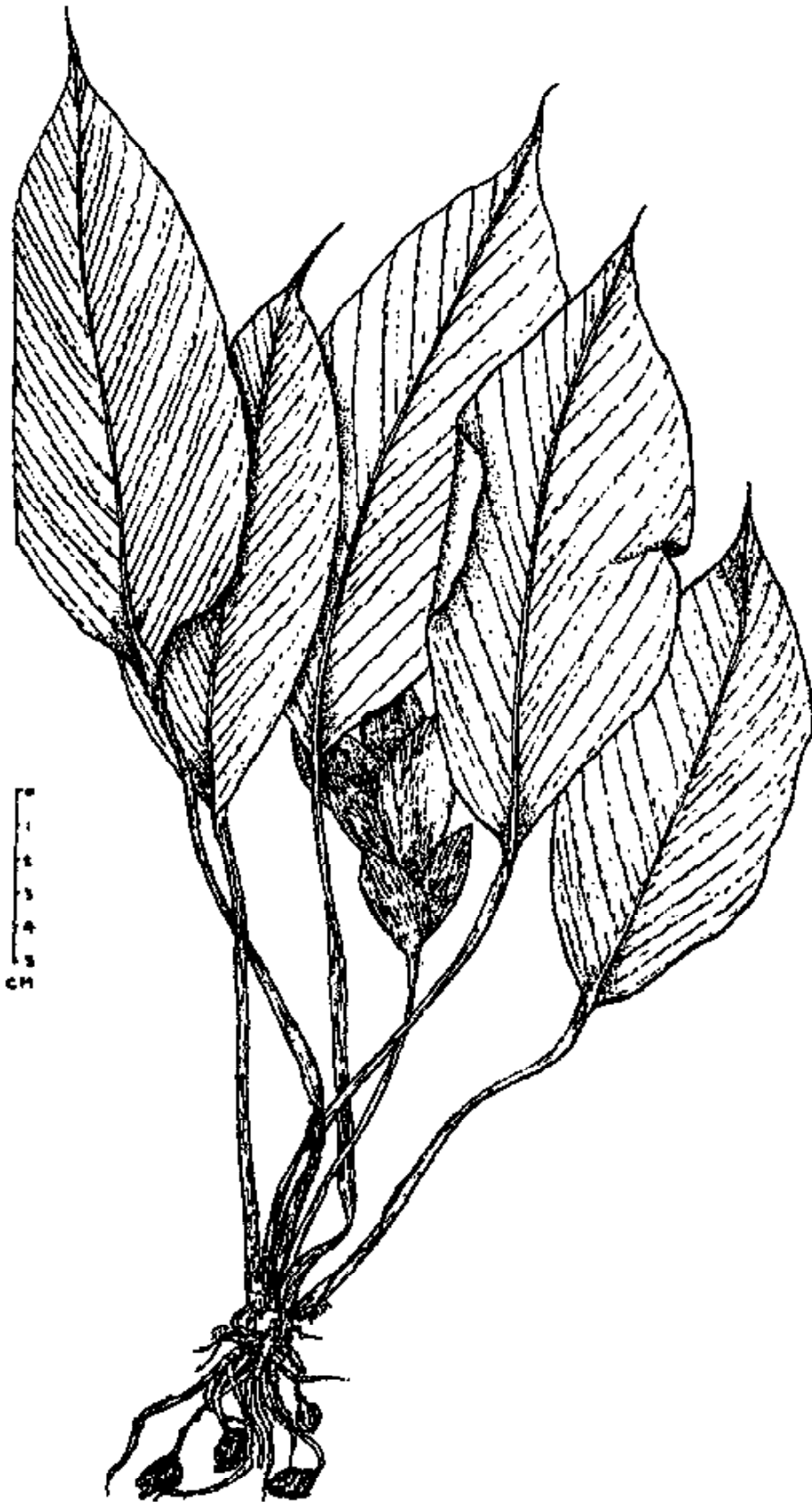
Herbs, 15-25 cm high. Rootstock tuberous. Leaves 12-20 × 8-10
 cm, broadly elliptic, rounded or subcordate at base, acuminate at apex.
 Flowers purple, in 4-10 cm long spikes. Fruits 3-valved, globose,
 capsular, hairy. Seeds ovoid, oblong.

Fls. & Frts. : August-September.

Distrib. : Frequent as forest undergrowth. 167882.

Curcuma inodora Blatt. in J. Proc. Asiat. Soc. Bengal (N. S.) 26:
 357.1930; Sant. in J. Bombay nat. Hist. Soc. 51. 135.1952;
 Lakshminaras. in Sharma *et al.*, Fl. Maharashtra (Monocots) 75. 1996.

Rhizomatous herbs; roots fibrous, tuberiferous, tubers ovoid,
 2.0-2.5 × 1.5-2.0 cm. Leaves radical, elliptic, lanceolate, acuminate at
 apex, 15-30 × 10-15 cm, plicate; petioles up to 15 cm long, concave,
 winged. Flowers bracteate; calyx tubular, widening, irregularly, shortly
 3-lobed, pubescent; corolla 3-5 cm long, 3-lobed, purplish, in 30 cm
 long spikes. Staminodes oblong, truncate, purplish-red with a yellow
 band; anthers white with pink base. Ovary 0.3-0.2 cm across, densely



f.82. *Curcuma decipiens* Dalz.

hairy; styles pink, stigma oblique, white, bilobed. Capsules 3-valved, Seeds arillate.

Fls. & Frts. : July–October.

Illus. : Sant. *op. cit.* opp. page 136, f. 1.

Distrib. : Infrequent. 167855.

Curcuma pseudomontana Grah. Cat. Bombay Pl. 210.1839; Cooke, Fl. Pres. Bombay 3: 236.1958 (Repr. ed.); Sant. in J. Bombay. nat. Hist. Soc. 45: 618.1945. *C. montana* Baker in Hook. f. Fl. Brit. India 6: 214.1890 p. *non* Rosc.1828. 'Shindalvan'.

Herbs, stemless with tuberous rootstock bearing subglobose tubers at the ends of fibres. Leaves 50–60 cm long including petiole, 10–15 cm broad, oblong-lanceolate, acuminate at apex. Flowers, bright yellow, 4–6 cm long, 2–3 in a bract, in oblong spikes ca. 10 cm long. Capsules ca. 1.4 × 1.0, subglobose, 3-valved. Seeds arillate.

Fls. & Frts. : September–November.

Illus. : Sant. in J. Bombay nat. Hist. Soc. 51. opp. page 136. f. 2.1952.

Distrib. : Salsette. Graham (1839).

HEDYCHUM Koen.

Hedychium coronarium Koen. in Retz. Obs. Bot. 3: 73.1783; Baker in Hook. f. Fl. Brit. India 6: 225.1892; Cooke, Fl. Pres. Bombay 3: 234.1958 (Repr. ed.). 'Sonattakka'.

Herbs. Stems 1.0–1.5 m tall, erect, with stout, horizontal rhizome. Leaves sessile, 20–35 × 3–8 cm, lanceolate or oblong-elliptic, cuneate-subacute at base, caudate-acuminate at apex, distichous. Flowers white, fragrant, in dense, 10–20 cm long spikes. Capsules oblong. Seeds many, arillate.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 730 & 978 b.1982.

Distrib. : Vihar lake, B. Rukmini, 50–1 & 251 (BLAT).

CULTIVATED SPECIES :

Curcuma zedoaria (Christm.) Rosc. in Trans. Linn. Soc. 8: 354.1862; Baker in Hook. f. Fl. Brit. India 6: 210.1890; Cooke, Fl. Pres.

Bombay 3: 238.1958 (Repr. ed.). *Amomum zedoaria* Christm. in Christm. Panzer in Linn. Pflanzen. Syst. 5: 12.1779.

Plants with tuberous rootstock. Leaves green, mottled with purple. Flowers white with red bracts. Capsules ovoid, trigonous. Seeds oblong, arillate.

Fls. & Frts. : July–September.

Illus. : Holtum. in Gard. Bull. Singapore 13: 271, f. 5.1950.

Distrib. : Kanheri Forests, *Graham* (1893) cultivated.

Elettaria cardamomum (L.) Manton, Trans. Linn. Soc. London 10 : 254, t. 5.1811; Baker in Hook. f. Fl. Brit. India 6: 251.1892; Cooke, Fl. Pres. Bombay 3: 251.1958 (Repr. ed.). *Amomum cardamomum* L. Sp. Pl. 1.1753. 'Velchi'.

Herbs, stout; rootstock woody. Stems 1.5–2.0 m tall. Leaves oblong, lanceolate or elliptic-oblong, caudate at apex. Flowers white, streaked with violet, in bracteate panicles. Capsules subglobose to oblong.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 728.1982.

Distrib. : Salsette, *Graham* (1839). 'cultivated'

MUSACEAE

ENSETE Horan.

Ensete superbum (Roxb.) Cheesman in Kew Bull.1947 : 100.1948; Sant. in Rec. Bot. Surv. India 16 (1) : 277.1967 (3rd. Rev. ed.). *Musa superba* Roxb. Pl. Cor. t. 223.1811 & Fl. Ind. 1: 667.1832; Baker in Hook. f. Fl. Brit. India 6: 261.1892; Cooke, Fl. Pres. Bombay 3: 247.1968 (Repr. ed.); 'Rankel'.

Herbs, ca. 3 m tall. Leaves 1.5–3.0 × 0.6–1.0 cm, oblong, narrowed at base. Flowers in spikes. Fruits ca. 8 × 3 cm, oblong; seeds subglobose, many.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. tt. 2017–18, 1853.

Distrib. : Borivli. *B. Rukmini*, 176 (BLAT).

CULTIVATED SPECIES :

Musa paradisiaca L. Sp. Pl. 1043.1753; Cooke, Fl. Pres. Bombay 3: 249.1958 (Repr. ed.). *M. cliffortiana* L. Sp. Pl. 1043.1753. *M. sapientum* L. var. *paradisiaca* Backer in Hook. f. Fl. Brit. India 6: 262.1892. *M. paradisiaca* ssp. *sapientum* (L.) K. Schum. in Engl, pflanzenr. 4. 45: 20.1900; Cooke, Fl. Pres. Bombay 3: 249.1988 (Repr. ed.). 'Keli'.

Herbs; pseudostems ca. 6–7 m tall, cylindric, stoloniferous. Leaves oblong, obtuse. Flowers unisexual in pendulous inflorescence of spathaceous bracts. Fruits cylindric-oblong, slightly curved, somewhat angular.

Fls. & Frts. : Throughout the year.

Distrib. : Versova, B. Rukmini, 447 (cultivated).

CANNACEAE**CULTIVATED SPECIES :**

Canna indica L. Sp. Pl. 1.1753; Cooke, Fl. Pres. Bombay 3: 251.1958 (Repr. ed.). Bailey, Man. Cult. Pl. 291.1949. *C. indica* var. *orientalis* (Rosc.) Baker in Hook. f. Fl. Brit. India 6 : 260.1892. 'Kardali'.

Herbs, 1.0–1.5 m tall. Stems erect with creeping rhizomes. Leaves ovate-elliptic or elliptic-lanceolate, acuminate. Flowers yellow, orange, red, showy. Capsules warty. Seeds globose.

Fls. & Frts. : Throughout the year.

Distrib. : Borivli, B. Rukmini, 83. cultivated. (BLAT).

AMARYLLIDACEAE

- | | | |
|---|-----|------------|
| 1. Filaments united at base by a coronal membrane in to a cup | ... | PANCRATIUM |
| 1. Filaments not united by a coronal membrane | ... | CRINUM |

CRINUM L.

Crinum latifolium L. Sp. Pl. 291.1753; Hook. f. Fl. Brit. India 6: 283.1892; Cooke, Fl. Pres. Bombay 3: 258.1958 (Repr. ed.); Lakshminaras. in Sharma et al. Fl. Maharashtra (monocots); 95.1996

Herbs; bulbs underground, subglobose, 10–15 cm across. Leaves 40–75 × 6–12 cm, linear-oblong or strap-shaped, acuminate at apex,

margins slightly scabrous. Flowers fragrant, white, streaked with purple, in 10–20-flowered, scapigerous umbels. Fruits 3–6 cm across, subglobose.

Fls. & Frts. : May–June.

Illus. : Wight, Ic. tt. 2019–20 1853; Matthew. *Illus. Fl. Tamilnadu Carnatic 2* : t. 732.1982.

Distrib. : Borivli, H. Santapau, 15630, 18805 (BLAT).

PANCRATIUM L.

- | | | |
|---|-----|-----------------------|
| 1. Bulbs without neck; perianth tube 3–5 cm long | ... | <i>P. triflorum</i> . |
| 1. Bulbs with long neck; perianth tube 7–10 cm long | ... | <i>P. parvum</i> |

Pancratium parvum Dalz. in Hook. *Kew J. Bot.* 2: 144.1850; Hook. f. *Fl. Brit. India* 6: 286.1882; Cooke, *Fl. Pres. Bombay* 3: 260.1958 (Repr. ed.).

Perennial herbs; bulbs underground, globose. Leaves 10–20 × 0.6–2.0 cm, linear or linear-lanceolate. Flowers white, 2–4 in scapigerous umbels. Capsules 3-lobed, ovoid, few-seeded. 3-valved. Seeds many, black.

Fls. & Frts. : June–August.

Distrib. : Borivli, R. R. Fernandez, 1266–7, 1858. 1305 (BLAT).

Pancratium triflorum Roxb. *Fl. Ind.* 2: 126.1832; Hook. f. *Fl. Brit. India* 6: 285.1892; Cooke, *Fl. Pres. Bombay* 3: 259.1958 (Repr. ed.).

Herbs; bulbs globose, underground, 3–5 cm across. Leaves 15–40 × 1.0–2.5 cm, linear-lanceolate, acute at apex. Flowers white, fragrant 3–8 in scapigerous umbels; scapes 15–23 cm long. Fruits 3-angled, 3-valved, ovoid capsules. Seeds many, angular.

Fls. & Frts. : May–June.

Illus. : *Pancratium verecundum sensu* Wight, Ic. t. 2023.1853 auct. non Ait.1781.

Distrib. : Kaneri Caves, H. Santapau, 18822 (BLAT).

CULTIVATED SPECIES :

Crinum asiaticum L. *Sp. Pl.* 292.1753; Hook. f. *Fl. Brit. India* 6: 280.1892; Cooke, *Fl. Pres. Bombay* 3: 256.1958 (Repr. ed.). ‘Nagdamanf.’.

Herbs; bulbs stout, large, tunicated. Leaves 20–30 × 10–15 cm, linear-lanceolate. Flowers white, in umbels, pedicellate. Fruits 5.0 cm across, subglobose, beaked.

Fls. & Frts. : May–September.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 732.1982.

Distrib. : Borivli, H. Santapau, 224.2 (cultivated) (BLAT).

HYPOXIDACEAE

CURCULIGO Gaertn.

Curculigo orchoides Gaertn. *Fruct. Sem. Pl.* 1: 63. t. 13.1788; Hook. f. *Fl. Brit. India* 6: 279.1892; Cooke, *Fl. Pres. Bombay* 3: 255.1958 (Repr. ed.).

Perennial herbs, rootstock stout, elongate, woody with root fibres. Leaves 5–20 (45) × 1.0–2.5 cm, linear or linear-lanceolate, plicate, glabrous or sparsely villous. Flowers pedicellate, yellow, on short scapes. Capsules ca. 1 cm long, hypogaeous, 1–4 seeded. Seeds oblong, black, shining.

Fls. & Frts. : June–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 733.1982.

Distrib. : Common on the open grounds during monsoon. 167834.

AGAVACEAE

AGAVE L.

Agave cantula Roxb. *Fl. Ind.* 2 : 167.1832; Cooke, *Fl. Pres. Bombay* 3: 261.1958 (Repr. ed.). *A. americana sensu* Hook. f. *Fl. Brit. India* 6: 277.1892 non L.1753. 'Ghaipat'.

Shrubs; rhizomatous. Leaves 1–2 m long. 5–10 cm broad, linear-lanceolate, arranged in a rosette, margins distantly antrorsely spinulose. Flowers greenish, fleshy, on 1.5–2 m long, upwardly branched scape. Flowers greenish in terminal umbels, anthers 1.0–1.3 cm long; stigma clavate.

Fls. & Frts. : July–November.

Distrib. : Salsette, *Burkhill s. n.* (BLAT)

TACCACEAE

TACCA J. R. & J. G. A. Forst. (*nom. cons.*)

Tacca leontopetaloides (L.) O. Ktze. Rev. Gen. Pl. 2: 704.1891; Drenth in Blumea 20 : 375.1972. *Leontice leontopetaloides* L. Sp. Pl. 313.1753. *Tacca pinnatifida* J. R. & J. G. A. Forst. Char. Gen. 35 : t. 35.1775; Hook. f. Fl. Brit. India 6: 287.1892; Cooke, Fl. Pres. Bombay 3: 262.1958'. (Repr. ed.). 'Deva-kanda'.

Perennial herbs, rootstock globose, 15–20 cm across. Leaves 1 to 3, up to 90 cm across, 3-partite; segments pinnatifid; petioles 0.3–0.9 m long, hollow. Flowers greenish, tinged with purple, bracteate, drooping; pedicellate, on scapes longer than petioles. Fruits, ca. 2.5 cm across, subglobose. Seeds angular.

Fls. & Frts. : July–October.

Illus. : Hepper, Fl. W. Trop. Afr. 3 (1) : 177, f. 379.1968.

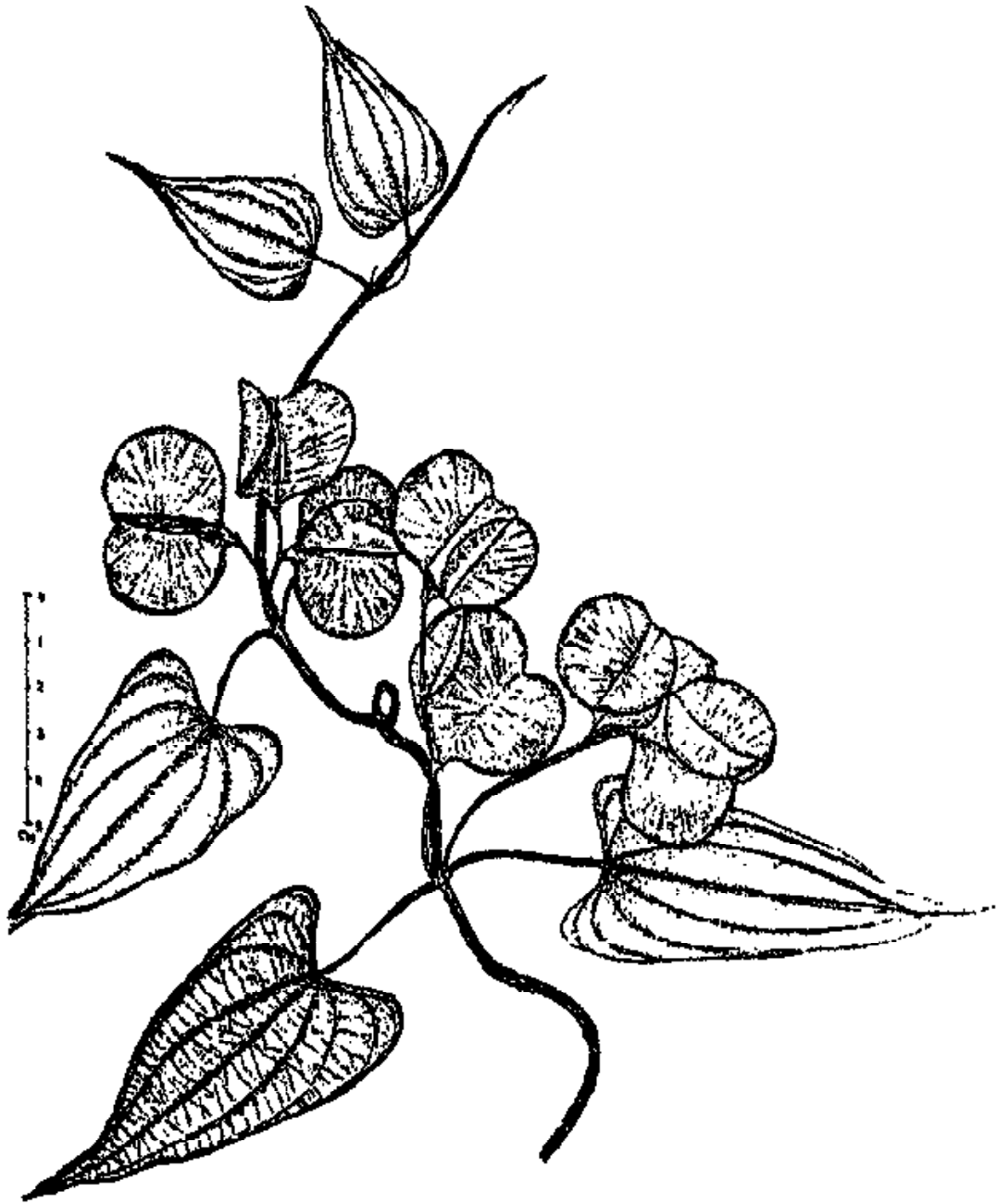
Distrib. : Occasional as undergrowth. 167369.

DIOSCOREACEAE

DIOSCOREA L.

1. Leaves simple :
 2. Leaves cordate at base with shallow or deep sinus :
 3. Fruits ca. 4 cm across, broader than long :
 4. Leaves usually much longer than broad, special flowering branches usually longer than the leaves and much longer than the spikes. ... *D. belophylla*
 4. Leaves orbicular or nearly so, about as broad as long; special flowering branches short, sometimes much shorter than the spikes. ... *D. wallichii*
 3. Fruits ca. 1.5 cm across, longer than broad ... *D. bulbifera*
 2. Leaves rounded or acute at base ... *D. oppositifolia*
1. Leaves compound :
 6. Leaves 3-foliate; fertile stamens 6, staminodes absent ... *D. hispidia*
 5. Leaves 3–5-foliate; fertile stamens 3, staminodes 3 ... *D. pentaphylla*

Dioscorea belophylla (Prain) Haines, For. Fl. Chota Nagpur 530.1910; Sant. in J. Bombay nat. Hist. Soc. 49; 634, t. 2.1951. *D. nummularia* Lam. var. *belophylla* Prain, Bengal Pl. 2: 1066, 1067.1903 [2: 802.1963 (Repr. ed.)]. *D. glabra* Hook. f. Fl. Brit. India 6: 294.1892 non Roxb. 1832. p. p.



f.83. *Dioscorea belophylla* (Prain) Haines

Twining unarmed shrubs; tubers 6-3, subfusiform. Leaves simple, 6.5-12.0 × 2-8.5 cm, upper cordate, ovate or sagittate-ovate, usually opposite, lower often alternate. Flowers unisexual; male flowers in 3-4 cm long spikes, female flowers in solitary, 6-10 cm long spikes. Capsules 1.5-2.0 cm × 1-3 cm, broader than long, with retuse apex. Seeds winged.

Fls. & Frts. : September-December.

Illus. : Sant. *op. cit.*; Siddiqi in Nasir & Ali. *Fl. W. Pak.* 53: 2. f. 1. B-E. 1973.

Distrib. : Salsette, *Shah* (1969).

Dioscorea bulbifera L. *Sp. Pl.* 1033. 1753; Hook. *f. Fl. Brit. India* 6: 296.1892; Cooke, *Fl. Pres. Bombay* 3: 265.1958 (Repr. ed.); Sant. in *J. Bombay nat. Hist. Soc.* 49: 628.1951; Burkill in Steenis, *Fl. Males.* 1, 4: 311, f. 4a-b, 5f.1951. '*Kadu-Karanda*'.

Herbaceous twiners; root-tubers in leaf axils; bulbis warted, large, globose or oblong. Stems terete, bulbiferous. Leaves 8-15 × 6-10 cm, broadly ovate-orbicular, cordate at base, acuminate or caudate at apex. Flowers unisexual; male flowers sessile, axillary, solitary or fascicled, in pendulous, 10-25 cm long spikes. Capsules oblong, broader upwards, truncate or subcordate at base. Seeds winged.

Fls. & Frts. : July-October.

Illus. : Wight, *Ic. t.* 878.1844-45.

Distrib. : Abundant everywhere. 167251, 167387, 168421.

Dioscorea hispida Dennst. *Schl. Hort. Malab.* 15.1818; Sant. in *J. Bombay nat. Hist. Soc.* 49. 629. t. 2.1951; Burkill in Steenis, *Fl. Males.* 1, 4: 318, f. 5k-n, 6.1951. *D. daemonia* non Roxb.1832; Hook. *f. Fl. Brit. India* 6: 289.1892; Cooke, *Fl. Pres. Bombay* 3: 264.1958 (Repr. ed.).

Twiners. Stems extensive, prickly. Leaflets 10-20 × 6-15 cm, ovate-oblong to elliptic-oblong, lateral leaflets oblique. Flowers unisexual, greenish-yellow; male flowers in dense, cylindrical, pedunculate, spikes, female spike solitary, distant. Capsules 2.0-2.5 × 1.0-1.5 cm, oblong, winged.

Fls. & Frts. : July-October .

Illus : Wight, *Ic. t.* 811.1844 (*D. daemonia*).

Distrib. : Borivli, H. Santapau, 14478 (BLAT).

Dioscorea oppositifolia L. Sp. Pl. 1033.1753; Hook. f. Fl. Brit. India 6: 292.1892; Cooke, Fl. Pres. Bombay 3: 266.1958 (Repr. ed.); Sant. in J. Bombay nat. Hist. Soc. 49: 632 t. 1.1951. 'Paspoli'.

Twiners. Stems slender with long underground, cylindrical tubers. Leaves opposite or subopposite, 3-5-7-foliolate; leaflets 4-12 × 3-10 cm, ovate or suborbicular, obtuse, subacute-obtuse, mucronate at apex. Flowers unisexual; male flowers in shortly pedunculate spikes in leaf axils or axillary clusters on 10-25 cm long rachis; female flowers in solitary or paired spikes. Capsules 3.0-3.5 cm across, obovoid, stipitate. Seeds ca. 6, orbicular, winged.

Fls. & Frts. : July-November.

Illus. : Wight, Ic. t. 813.1844. Sant. *op cit.*

Distrib. : Borivli, R. R. Fernandes, 1297, 1299 (BLAT).

Dioscorea pentaphylla L. Sp. Pl. 1032.1753; Hook. f. Fl. Brit. India 6: 289.1892; Cooke, Fl. Pres. Bombay 3: 264.1958 (Repr. ed.); Sant. in J. Bombay nat. Hist. Soc. 49: 631, t. 3.1951; Burkill in Steenis, Fl. Males. 1, 4: 315; f. 5y. 6c.1951. 'Shend-vel'.

Herbaceous twiners. Root-tubers oblong, large up to 2 m long. Stems prickly towards the base, bulbiferous in the leaf-axils. Leaves alternate, 5(7)-foliolate; terminal lobe 5-8 × 1.5-4.0 cm, elliptic-ovate; lateral ones 3.0-6.5 × 1.5-3.0 cm, subacute to attenuate at base, acute at apex. Flowers unisexual; male flowers axillary, solitary or clustered, in 5-12 cm long racemes, female flowers in solitary or paired, in 5-13 cm long spikes. Capsules ca. 2 × 1 cm, twice as long as broad, angled, winged. Seeds 6 subquadrate, winged.

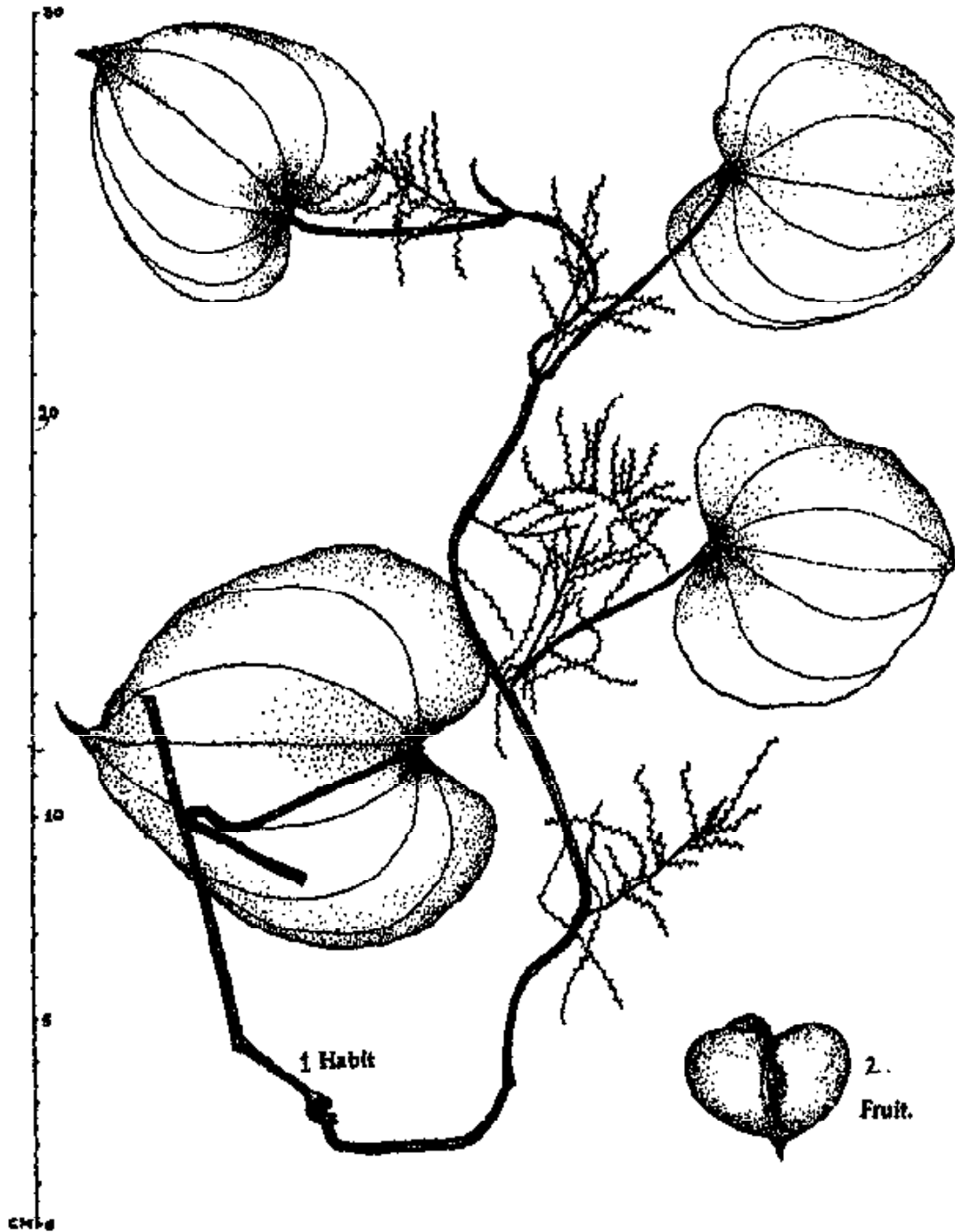
Fls. & Frts. : August-November.

Illus. : Wight, Ic. t. 814.1844. Sant. *op. cit.*

Distrib. : Common on trees and bushes. 167267. 167323.

Dioscorea wallichii Hook. f. Fl. Brit. India 6: 295.1892; Sant. in J. Bombay nat. Hist. Soc. 49 : 633, t. 1.1951. Lakshminaras. in Sharma *et al.* Fl. Maharashtra (monocots) 113.1996 'Kadukand'.

Twiners. Stems prickly at base. Leaves alternate, 7.0-15.5 × 5.5-1.0 cm, ovate-orbicular or ovate, cordate at base, acuminate at apex. Flowers unisexual; male flowers in spikes on leafless branches, 5 cm long. Female flowers in decurved, slender spikes. Capsules 2.5-3.0 cm long. Seeds orbicular, winged.



f.84. *Dioscorea wallichii* Hook. f.

Fls. & Frts. : September–November.

Distrib. : Borivli, P. S. Herbert, 1011, & H. Santapau, 30312–3 (BLAT).

LILIACEAE

- 1. Leaf apices tendrilar. ... GLORIOSA
- 1. Leaf apices not tendrilar :
 - 2. Leaves cauline. ... IPHIGENIA
 - 2. Leaves radical :
 - 3. Plants with tunicated bulbs :
 - 4. Perianth segments stellate; seeds subglobose ... SCILLA
 - 4. Perianth segments not stellate; seeds flattened. ... DRIMIA
 - 3. Plants with tubers :
 - 5. Capsules coriaceous, deeply 3-angled or winged. ... CHLOROPHYTUM
 - 5. Capsules membranous, deeply sulcate ... DIPCADIA

CHLOROPHYTUM Ker–Gawl.

- 1. Tubers attached at the end of root fibres. ... *C. tuberosum*
- 1. Tubers sessile, not attached at the end of root fibres. ... *C. borivilianum*

Chlorophytum borivilianum Sant. & Fernand. in J. Bombay nat. Hist. Soc. 52. 898, t. 1.1955; Narasim. in Sharma *et al.* Fl. Maharashtra (Monocots.) 125.1996.

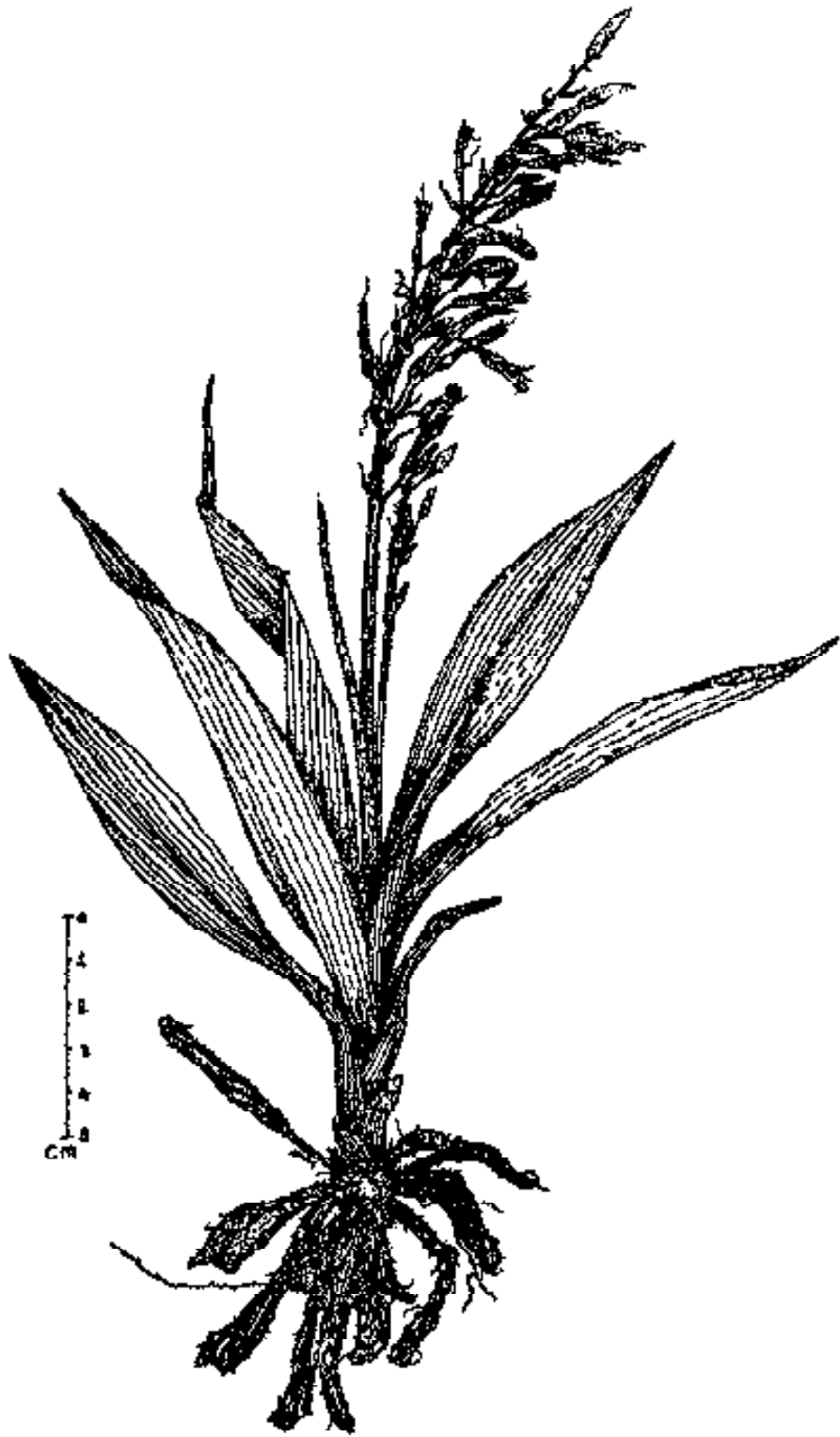
Herbs, 20–30 cm tall, scapigerous, with root tubers. Leaves radical, 10–20 × 1.5–1.8 cm, lorate or ensiform, flat or longitudinally folded. Flowers white, bracteate, pedicellate, ca. 25 cm across, in 3-nate racemose clusters, on scape 15–30 cm long. Capsules 0.5–0.8 cm across, obovoid, acute, trigonous, broadly obcordate. Seeds discoid, orbicular.

Fls. & Frts. : July–August.

Illus. : Sant. & Farnand. *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 1803, 1827 (BLAT).

Chlorophytum tuberosum (Roxb.) Backer in J. Linn. Soc. Bot. 15: 332.1876; Hook. f. Fl. Brit. India 6: 334.1892; Cooke, Fl. Pres.



f.85. *Chlorophytum borivillianum* Sant. & Fernand.

Bombay 3: 281.1958 (Repr. ed.). *Anthericum tuberosum* Roxb. Fl. Ind. 2: 149.1824. 'Kuli'.

Herbs, 25–30 cm tall; root fibres with ellipsoid tubers. Leaves 15–30 × 2.0–2.5 cm, ensiform, membranous, narrowed at base, gradually tapering and acuminate at apex. Flowers white, on 20–25 cm long, scapigerous racemes. Capsules ca. 1.5 × 1.0 cm, transversely veined, subglobose or ovoid. Seeds subquadrate, irregularly pitted.

Fls. & Frts. : July–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 742.1982.

Distrib. : Common. 167885.

DIPCADI Medik.

Dipcadi saxorum Blatt. in J. Bombay nat. Hist. Soc. 32: 736. 1928, Deb & Dasgupta, *Ibid.* 75: 62, f. 5.1928 & Fasc. Fl. India 7: 9.1981.

Herbs ca. 50 cm tall. Stems with tunicated bulbs. Leaves 4–5, 15–25 × 0.5–0.7, sheathing at base, linear, plicate. Flowers whitish, in ca. 20-flowered, ca. 20 cm long, scapigerous racemes. Capsules broader than long, stipitate, 3-valved, membranous. Seeds elliptic to orbicular, ca. 0.5 cm across, compressed, margins raised.

Fls. & Frts. : July–August.

Illus. : Deb & Dasgupta, *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 87 & H. Santapau, 15714 (BLAT).

DRIMIA Jacq. ex Willd.

Drimia indica (Roxb.) Jessop in J. S. Afr. Bot. 43(2); 272.1977. *Scilla indica* Roxb. Fl. Ind. 2: 147.1824. *Urginea indica* (Roxb.) Kunth, Enum. 4: 333.1843; Hook. f. Fl. Brit. India 6: 347.1892; Cooke, Fl. Pres. Bombay 3: 277.1958 (Repr. ed.); Deb & Dasgupta in Bull. Bot. Surv. India 16: 118. (1974) 1977 & Fasc. Fl. India 7: 17, f. 39–46.1981. 'Jangli piaz'.

Herbs; bulbs 5–10 × 4–6 cm, ovoid. Leaves appearing after flowers, 15–30 × 1.2–5.0 cm, linear-lanceolate or lorate, ensiform, acute at apex. Flowers brownish, in laxly flowered, 15–30 cm long racemes in erect scapes. Capsules 1.2–1.8 cm long, ellipsoid, tapering at ends. 6–9-seeded. Seeds elliptic, compressed.

Fls & Frts. : February–May.

Illus. : Deb & Dasgupta, *op. cit.*; Matthew *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 617.1988 (*Urginea indica*).

Distrib. : Salsette. *G. L. Shah* (1962).

GLORIOSA L.

Gloriosa superba L. Sp. Pl. 305.1753; Hook. f. *Fl. Brit. India* 6: 358.1892; Cooke, *Fl. Pres. Bombay* 3: 274.1958 (Repr. ed.). 'Kal-lavi'.

Herbaceous climbers, perennial. Stems leafy. Leaves 5–11 × 1.2–5.0 cm, sessile, alternate, oblong–lanceolate, opposite or whorled, cordate at base, acuminate, tendrillate. Flowers showy, axillary, solitary or subcorymbose towards the ends of branches; perianth segments first yellow, passing through orange and scarlet to crimson, with wavy margins. Capsules 3–5 × 1.0–2.3 cm, ellipsoid–oblong, torulose, many-seeded. Seeds dorsally compressed, warty.

Fls. & Frts. : July–October.

Illus. : Wight, *lc. t.* 2047.1853; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 743.1982.

Distrib. : Common on bushes. 167802.

IPHIGENIA Kunth

Iphigenia indica (L.) A. Gray *apud* Kunth, *Enum. Pl.* 4: 213.1843; Hook. f. *Fl. Brit. India* 6: 357.1892; Cooke, *Fl. Pres. Bombay* 3: 275.1958 (Repr. ed.); Jessop in Steenis, *Fl. Males.* 1, 9: 198.1979. *Melanthium indicum* L. *Mant.* 2: 226.1771. 'Markalai'.

Herbs, 10–15 cm tall; corms 0.5–1.0 cm across, subglobose, tunicated. Leaves alternate, 5–13 × 0.5–2.0 cm, linear to linear–lanceolate, acuminate at apex. Flowers purple, solitary or 2–3, pedicellate, in terminal racemes. Capsules 1.0–1.5 × 0.8 cm, oblong, obtuse. Seeds ellipsoid or subglobose, brown.

Fls. & Frts. : June–September.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 744.1982.

Distrib. : Borivli, *R. R. Fernandez*, 1259, 1341 (BLAT).

SCILLA L.

Scilla hyacinthina (Roth) Mac Bride Contrib. Gray Herb. 2, 56: 14.1918; Deb & Dasgupta in Bull. Bot. Surv. India 17: 46. (1975) 1978 & Fasc. Fl. India 7: 14, f. 28-33.1981. *Ledbouria hyacinthina* Roth, Nov. Fl. Sp. 195.1821. *Scilla indica* (Wight) Baker in Saunders, Refug. Bot. 3 (Append.); 12.1870 & J. Linn. Soc. Bot. 13: 250.1872 non Roxb.1832; Hook. f. Fl. Brit. India 6: 348: 1892; Cooke, Fl. Pres. Bombay 3: 276.1958 (Repr. ed.).

Herbs, 10-15 cm tall; bulbs 2-4 × 1.5-2.5 cm, globose or ovoid, tunicated. Leaves 5-10 × 2-4 cm, radical, lorate, gradually attenuate and sheathing at base, obtuse to subacute at apex, mucronate. Flowers pinkish-green, in 5-15 cm long, many-flowered, scapigerous racemes. Capsules 0.5-0.6 cm across, globose or ovoid.

Fls. & Frts. : June-July.

Illus. : Wight, Ic. t. 2040.1853 (*Ledbouria hyacinthina*).

Distrib. : Borivli, H. Santapau, 18806-7 (BLAT).

CULTIVATED SPECIES :

Allium cepa L. Sp. Pl. 300.1753; Hook. f. Fl. Brit. India 6: 337.1892; Cooke, Fl. Pres. Bombay 3: 284.1958 (Repr. ed.). 'Kanda' 'Pyaz'.

Perennial herbs with tunicated, bulbous rootstock. Leaves 30-40 cm long, fistular, acute. Scapes 30-60 cm, hollow with white-flowered, terminal umbels. Capsules ca. 0.25 cm across, membranous.

Fls. & Frts. : January-March.

Distrib. : Salsette. Shah (1869). 'Cultivated'.

ASPARAGACEAE

ASPARAGUS L.

- | | | |
|---|-----|-----------------------|
| 1. Cladodes less than 1.2 cm long; bracts 0.25-0.3 cm long. | ... | <i>A. laevissimus</i> |
| 1. Cladodes more than 1.2 cm long; bracts ca. 0.15 cm long. | ... | <i>A. racemosus</i> |

Asparagus laevissimus Steud. ex Baker in J. Linn. Soc. Bot. 14. 23.1875; Hook. f. Fl. Brit. India 6 : 317.1892; Cooke, Fl. Pres. Bombay 3: 270.1958 (Repr. ed.).

Subscandent undershrubs. Stems terete branches; prominently striate, ultimate branches ascending, angular. Leaves basally spurred

with stout, hard spines 0.8–1.0 cm long. Cladodes 3–6-nate, triquetrous 0.6–0.9 cm long. Flowers white, solitary or paired, pedicellate with pedicels jointed at / or beneath the middle, bracteate. Berries ca. 0.6 cm across, globose.

Fls. & Frts. : July–August.

Illus. : Kamble & Pradhan. Fl. Akola Dist. 222. t. 1–8.1998.

Distrib. : Malad. Shah, 6993 (BLAT).

Asparagus racemosus Willd Sp. Pl. 2: 152.1799; Hook. f. Fl. Brit. India 6: 316.1892; Jessop. in Bothalia 9 (1) : 72.1966; Gandhi in Sald. & Nicols. Fl. Hassan Dt. 795.1976. 'Sahastramuli', 'Shatavari'.

Undershrubs. Stems extensive, scandent, spinous. Rootstock tuberous. Leaves triangular, acuminate. Cladodes 1–2 × 0.5–0.8 cm, linear, spine-tipped. Flowers white, in simple, 3–6 long racemes. pedicels up to 0.15 cm long; bracts triangular. Berries 0.6 cm across, globose, red when ripe. Seeds 3–6, globose or angled.

Fls. & Frts. : July–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 741.1982.

Distrib. : Occasional. 167954.

SMILACACEAE

SMILAX L.

- | | | |
|---|-----|----------------------|
| 1. Leaf blades orbicular-ovate, 15–45 cm long, 5–7 costate. | ... | <i>S. ovalifolia</i> |
| 1. Leaf blades ovate to broadly oblong,
12–18 cm long, 3–5 costate | ... | <i>S. zeylanica</i> |

Smilax ovalifolia Roxb. Fl. Ind. 3: 794.1832; T. Koyama in Adv. Front. Pl. Sci. 4: 48, f.1963. *S. macrophylla* Roxb. *op. cit.* 793 *non* Willd.1805; Hook. f. Fl. Brit. India 6: 310.1892; Cooke, Fl. Pres. Bombay 3: 271.1958 (Repr. ed.); T. Koyama in Quart. J. Taiwan Mus. 13. 58.1960; Ghazanfar in Nasir & Ali Fl. W. Pak. 107. 5, f. 1. J.1977. 'Ghot-vel'.

Scandent shrubs; stems smooth, terete, striate, armed with distant prickles or unarmed. Leaves coriaceous, alternate, 7–16 × 3.5–12.0 cm, broadly ovate or suborbicular, petiolate, rounded at base, acuminate at apex. glabrous, polished and shining, tendrils near the base of petioles. Flowers unisexual, in many-flowered, pedunculate umbels. Berries 0.8–1.2 cm across, globose, 1–2 seeded.

Fls. & Frts. : August–September.

Illus. : T. Koyama, *op. cit.*; Ghazanfar in Nasir & Ali, *op. cit.*

Distrib. : Salsette, *Graham* (1839); Borivli, *B. Rukmini*, *s. n.* (BLAT).

Smilax zeylanica L. Sp. Pl. 1429.1753; Hook. f. Fl. Brit. India 6: 309.1892; T. Koyama in Adv. Front. Pl. Sci. 4 : 50.1963. 'Ghot-vel'.

Scandent shrubs. Stems straggling, sparsely prickled. Leaves 5–15 × 2–8 cm, elliptic-oblong or ovate-oblong, rounded or cordate at base, obtuse, shortly cuspidate at apex, coriaceous. Flowers greenish, caducous, numerous, in axillary, pedunculate umbels. Berries 0.6–0.8 cm across, globose, 3-seeded.

Fls. & Frts. : June–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 t. 746.1982.

Distrib. : Common in forest. 167355, 167750, 167981.

PONTEDERIACEAE

- | | | |
|--|-----|------------|
| 1. Petioles swollen; flowers sessile; filaments hairy | ... | EICHHORNIA |
| 1. Petioles not swollen; flowers distinctly pedicelled; filaments glabrous | ... | MONOCHORIA |

EICHHORNIA Kunth (*nom cons.*)

Eichhornia crassipes (C. Mart.) Solms in DC. Monogr. Phan. 4 : 527.1883; Backer in Steenis, Fl. Males. 1, 4: 259, f. 2 & 3.1951. *Pontederia crassipes* C. Mart. Nov. Gen. Sp. Pl. 1: 9, t. 4.1823. 'Jaiparni'.

Herbs. Stems stoloniferous, rooted or free floating. Leaves 5–10 cm long, as long as broad, broadly ovate-rhomboid, rounded or cuneate at base, obtuse at apex, petioles forming spongy floats. Flowers light purple with yellow centres, in 15–20 cm long, terminal spikes. Capsules oblong-ovoid with persistent perianth. Seeds many-ribbed.

Fls. & Frts. : January–April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2 t. 747.1982.

Distrib. : Borivli, *R. R. Fernandez* 237, 1209–10. (BLAT).

MONOCHORIA K. B. Presl

Monochoria hastata (L.) Solms in DC. Monogr. Phan. 4 : 523.1883; Haines, Bot. Bihar, Orisa 1101, 1924 (3 : 1150.1961 Repr. ed.); Baker in Steenis, Fl. Males. 1, 4: 258. f.1951; Subram. Aquat. Ang. 69. 1962. *Pontederia hastata* L. Sp. Pl. 288.1753. *Monochoria hastaeifolia* K.B. Presl, Reliq. Haenk. 1: 128.1828; Hook. f. Fl. Brit. India 6: 362.1892; Cooke, Fl. Pres. Bombay 3 : 286.1958 (Repr. ed.).

Herbs, 12–16 cm tall; rootstock tuberous. Stems creeping, rooting at lower nodes. Leaves 8–13 × 5–9 cm, triangular–ovate, sagittate, cordate or hastate at base, acute to acuminate at apex, petiolate. Flowers purplish–blue, in dense, subumbellate–racemes. Capsules ca. 1 cm long, ellipsoid. Seeds oblong, longitudinally, ribbed, finely transversely striate.

Fls. & Frts. : September–December.

Illus. : Backer in Steenis, *op. cit.*

Distrib. : Frequent in dense shady and moist places. 167983.

COMMELINACEAE

- | | | |
|---|-----|-----------|
| 1. Inflorescence enclosed in inflated leaf sheath | ... | TONNINGIA |
| 1. Inflorescence not as above : | | |
| 2. Perfect stamens 6 | ... | CYANOTIS |
| 2. Perfect stamens 2–3; staminodes 1–4 : | | |
| 3. Flowers regular | ... | MURDANNIA |
| 3. Flowers irregular | ... | COMMELINA |

COMMELINA L.

- | | | |
|---|-----|------------------------|
| 1. Capsules 3-seeded : | | |
| 2. Spathes pedunculate; capsules quadrate–oblong | ... | <i>C. paleata</i> |
| 2. Spathes sessile or nearly so, capsules trigonous–obovoid | ... | <i>C. maculata</i> |
| 1. Capsules 2 or 5-seeded : | | |
| 3. Capsules 2-seeded | ... | <i>C. suffruticosa</i> |
| 3. Capsules 5-seeded : | | |
| 4. Leaves ovate–lanceolate, ovate–oblong, linear or linear–lanceolate; capsules apiculate : | | |
| 5. Seeds tuberculate | ... | <i>C. diffusa</i> |

5. Seeds smooth ... *C. hasskarlii*
 4. Leaves elliptic-ovate or elliptic oblong;
 capsules emarginate ... *C. benghalensis*

Commelina benghalensis L. Sp. Pl. 41.1753; Hook. f. Fl. Brit. India 6: 370.1892; Cooke, Fl. Pres. Bombay 3: 291.1958; (Repr. ed.).

Herbs. Stems 60–90 cm long, slender, dichotomously branched, creeping. Leaves 2.5–8.0 × 1.3–4.0 cm, ovate or ovate-oblong, rounded, cuneate or cordate at base, obtuse at apex. Flowers blue, in 2–3-flowered, spathaceous cymes. Capsules 0.5–0.6 cm long, membranous, pyriform. Seeds 5, oblong, pitted.

Fls. & Frts. : July–December.

Illus. : Wight, Ic. t. 2065.1853; Mahesh. Illus. Fl. Delhi f. 203.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 751.1982.

Distrib. : Koppikar (1974).

Commelina diffusa Burm. f. Fl. Ind. 18, t. 7, f. 2.1768; R. S. Rao in Notes Roy. Bot. Gard. Edinburgh 25 : 179.1964; Panigr. & Kammathy in J. Indian Bot. Soc. 43. 299.1964. *C. nudiflora. sensu* Hook. f. Fl. Brit. India 6: 369.1892 non L. 1753; Cooke, Fl. Pres. Bombay 3: 290.1958 (Repr. ed.). 'Gandolgi'.

Herbs. Stems diffuse, 30–90 cm long, prostrate, rooting at nodes. Leaves sessile, 2.0–6.5 × 0.5–0.7 cm, lanceolate to ovate-lanceolate, subcordate, acuminate at apex. Flowers blue, in 1–3-flowered, spathaceous cymes, spathes 2.3–3.0 cm long, ovate or ovate-lanceolate. Capsules up to 0.8 cm long, oblong, beaked, 3-celled. Seeds reticulate.

Fls. & Frts. : July–January.

Illus. : Brenan in Hepper, Fl. W. Trop. Afr. 3(1) : 46, f. 332.1968.

Distrib. : Frequent near moist shady places. 167245, 167805.

Commelina hasskarlii C. B. Cl. Comm. & Cyrt. Beng. 13, t. 3.1874 & in DC. Mon. Phan. 3: 157.1881; Hook. f. Fl. Brit. India 6: 370.1892; Cooke, Fl. Pres. Bombay 3: 291.1958 (Repr. ed.).

Herbs. Stems branched, creeping or ascending, often rooting at nodes. Leaves 2–7 × 1–2 cm, lanceolate or ovate-lanceolate, sheathing at base. Flowers blue, in spathaceous cymes; spathes 1.0–2.5 cm long, axillary, ovate-lanceolate, cordate at base, pedunculate. Capsules ca. 0.6 × 0.3 cm, quadrate, subtruncate, apiculate. Seeds terete, truncate at one end, rounded at other end.

Fls. & Frts. : August–January.

Distrib. : Borivli, R. R. Fernandez 1504, 628, 1609. (BLAT).

Commelina maculata Edgew. in Trans. Linn. Soc. 20 : 89.1846; Rolla Rao in Blumea 14 : 353.1966. *C. obliqua* Buch.–Ham. ex D. Don, Prodr. Fl. Nepal 45.1825 non Vahl, 1806; Hook. f. Fl. Brit. India 6: 372.1892; Cooke, Fl. Pres. Bombay 3: 293.1958 (Repr. ed.); *C. paludosa* Bl. Enum. Pl. Jav. 1:2.1827; Rolla Rao & Kammathy in J. Bombay nat. Hist. Soc. 59 : 60, t. 1(B).1962.

Herbs. Stems 60–90 cm long stout, branched, procumbent. Leaves 8–15 × 2.5–5.0 cm, elliptic–lanceolate or lanceolate, acute or caudate acuminate at apex., sheaths ca. 2.5 cm long. Flowers blue, in simple racemes; spathes 2.0–2.5 cm long, as broad as long, solitary or crowded, in terminal heads, infundibuliform. Capsules ca. 0.5 cm long subglobose, 3-valved. Seeds 3, oblong or ellipsoid, smooth.

Fls. & Frts. : August–November.

Illus. : R. S. Rao & Kammathy, *op. cit.*

Distrib. : Borivli, H. Santapau, 2315. (BLAT).

Commelina paleata Hassk. in Miq. Pl. Jungh. 2 : 139.1852; Hook. f. Fl. Brit. India 6: 372.1892; Cooke, Fl. Pres. Bombay 3: 294.1958 (Repr. ed.).

Herbs. Stems stout, branched. Leaves 5–15 × 2.5–3.0 cm, elliptic or elliptic–lanceolate to ovate–lanceolate, cuneate at base, acuminate at apex. Flowers blue, in 1–4-flowered cymes; spathes 2.0–2.5 cm long, cucullate, ovate, acute or acuminate. Capsules ca. 0.6 across, 3-celled. Seeds 3, ellipsoid, rounded at ends, smooth.

Fls. & Frts. : July–September.

Distrib. : Occasional on moist ground. 167963.

Commelina suffruticosa Bl. Enum. Pl. Java 1: 3.1827; Hook. f. Fl. Brit. India 6: 374.1892; R. S. Rao & Kammathy in J. Bombay nat. Hist. Soc. 59 : 65, t. 1(E). 1962.

Herbs, 30–70 cm tall, rooting at basal nodes. Leaves 6–15 × 2.5–5.5 cm, ovate–lanceolate, elliptic, subacuminate. Flowers white, in terminally peduncled, spathes 2–3 × 1.5–2.5 cm, pubescent. Capsules ca. 0.5 × 0.5 cm, quadrate–oblong. Seeds smooth.

Fls. & Frts. : July–October.

Illus. : R. S. Rao & Kammathy, *op. cit.*

Distrib. : Borivli, H. Santapau. 2315. (BLAT).

CYANOTIS D. DON (*nom. cons.*)

- | | | |
|--|-----|-----------------------|
| 1. Plants mostly glabrous except ciliate stem; cymes scorpioid | ... | <i>C. cristata</i> |
| 1. Plants floccosely woolly; cymes not scorpioid | ... | <i>C. fasciculata</i> |

Cyanotis cristata (L.) D. Don, Prodr. Fl. Nepal 46.1825; Hook. f. Fl. Brit. India 6: 385.1892; Cooke, Fl. Pres. Bombay 3: 304.1958 (Repr. ed.). *Tradescantia cristata* L. Sp. Pl. 42.1753.

Herbs. Stems 15–45 cm long, much branched, slender, creeping, rooting and ascending. Leaves 2.5–7.0 × 0.7–1.0 cm, ovate or oblong-lanceolate, cordate at base, obtuse at apex, margins ciliate. Flowers rose to purple; cymes 2.0–2.5 × 1.0–1.5 cm, recurved, solitary; bracts ovate-lanceolate. Capsules ca. 0.2 cm long, oblong, trigonous, truncate, membranous. Seeds trigonous.

Fls. & Frts. : July–November.

Illus. : Wight, Ic. t. 2082.1853.

Distrib. : Frequent in open moist areas. 167902.

Cyanotis fasciculata (Heyne ex Roth) J. A. & J. H. Schult. in Roem. & Schult. Syst. Nat. 7: 1152.1830; Hook. f. Fl. Brit. India 6: 387.1892; Cooke, Fl. Pres. Bombay 3: 303.1958 (Repr. ed.). *Tradescantia fasciculata* Heyne ex Roth, Nov. Pl. Sp. 189. 1621.

Herbs, 15–20 cm tall. Leaves 1.5–6.0 × 0.4–2.0 cm, linear-lanceolate to ovate-lanceolate, subfleshy. Flowers pink to purple, in compact, axillary and terminal, peduncled, bracteate cymes. Capsules 0.3–0.4 × 0.2 cm long, oblong, trigonous. Seeds oblong.

Fls. & Frts. : August–November.

Illus. : Wight, Ic. t. 2086.1853.

Distrib. : Borivli, R. R. Fernandez, 501. 724. (BLAT).

MURDANNIA Royle (*nom. cons.*)

- | | | |
|-----------------------------------|-----|----------------------|
| 1. Petals yellow | ... | <i>M. versicolor</i> |
| 1. Petals blue or bluish-purple : | | |

- | | | | |
|----|--|-----|---------------------|
| 2. | Leaves all radical and ensiform. | ... | <i>M. edulis</i> |
| 2. | Leaves neither radical, nor ensiform : | | |
| 3. | Leaves ovate-lanceolate. | ... | <i>M. spirata</i> |
| 3. | Leaves linear, linear-lanceolate; or oblong-lanceolate : | | |
| 4. | Perfect stamens 2: | | |
| 5. | Flowers in terminal panicles; pedicels 0.3-0.4 cm long | ... | <i>M. nudiflora</i> |
| 5. | Flowers 1-3 in fascicles; pedicels 1.2-1.8 cm long. | ... | <i>M. vaginata</i> |
| 4. | Perfect stamens 3. | ... | <i>M. semiteris</i> |

Murdannia edulis (Stokes) Faden in Taxon 29; 77.1980. *Commelina edulis* Stokes, Bot. Materia Med. 1: 184.1812. *Aneilema scapiflorum* (Roxb.) Kostel, Allg. Med. Pharm. Fl. 1: 127.1831; Hook. f. Fl. Brit. India 6: 375.1892; Cooke, Fl. Pres. Bombay 3: 295.1958 (Repr. ed.).

Herbs. Stems tufted. Roots elongate, fusiform, tuberous. Leaves 10-20 × 1.3-1.5 cm, ensiform, acuminate at apex. Flowers blue, bracteate in erect, long panicles on terminal scapes. Capsules ca. 0.6 cm long, obovoid. Seeds 5-6, in a cell, superposed, trigonous.

Fls. & Frts. : May-June.

Distrib. : Borivli, H. Santapau, 18821 (BLAT).

Murdannia nudiflora (L.) Brenan in Kew Bull. 1952.189.1952; Sant. in J. Bombay nat. Hist. Soc. 52 : 658.1954. *Commelina nudiflora* L. Mant. 177.1767 (non L. Sp. Pl. 41.1753). *Aneilema nudiflorum* (L.) R. Br. Prodr. 271.1810; Hook. f. Fl. Brit. India 6: 378.1892; Cooke, Fl. Pres. Bombay 3: 298.1958 (Repr. ed.).

Annual herbs. Stems 15-30 cm high, branched, procumbent. Leaves 3-10 × 0.3-0.5 cm, linear or linear-lanceolate to linear-oblong, acute to acuminate at apex, rounded or cordate at base. Flowers bluish purple, in corymbose-paniculate cymes. Capsules up to 0.4 cm long, subglobose. Seeds cuboid, deeply pitted.

Fls. & Frts. : July-November.

Distrib. : Common. 167816.

Murdannia semiteres (Dalz.) Sant. in Poona Agr. Coll. Mag. 41; 284.1951 & J. Bombay nat. Hist. Soc. 52: 658.1954. *Aneilema semiteres* Dalz. in Hook. Kew J. Bot. 3: 138.1851. *A. paniculatum* Wall. ex C. B. Cl. in DC. Monogr. Phan. 3: 215.1881 non Wight, 1853; Hook. f. Fl. Brit. India 6: 381.1892; Cooke, Fl. Pres. Bombay 3: 300.1958 (Repr. ed.).



f.86. *Murdannia nudiflora* (L.) Brenan

Herbs, 4–15 cm tall. Stems slender, erect, tufted. Leaves 2.5–10.0 × 0.1 cm, narrowly linear, folded, glabrous. Flowers blue, in terminal panicles. Capsules 0.25–0.3 cm long, subglobose–ovoid, angular. Seeds 6–8, 2-seriate, flat, smooth.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 2078.1853 (*Dichaespermum juncooides*)

Distrib. : Frequent on moist, exposed rocks.

Murdannia spirata (L.) Brueck. in Engl. & Prantl, Pflanzenfam. (ed. 2), 15a : 173.1930; Sant. in J. Bombay nat. Hist. Soc. 52: 658.1954. *Commelina spirata* L. Mant.176.1767. *Aneilema spiratum* (L.) R. Br. Prodr. 271.1810; Hook. f. Fl. Brit. India 6: 377.1892; Cooke, Fl. Pres. Bombay 3: 296.1958 (Repr. ed.).

Herbs. Stems 15–20 cm high, decumbent, rooting at lower nodes. Leaves sessile, 1.5–3.5 × 0.5–0.8 cm; lower broadly linear–lanceolate; upper oblong, cordate, all amplexicaul at base, acute at apex. Flowers bluish–purple, in dichotomously branched, few-flowered panicles; peduncles solitary or twin. Capsules ca. 0.5 × 0.2 cm long, oblong, trigonous. Seeds 1-seriate, cuboid.

Fls. & Frts. : July–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 752.1982.

Distrib. : Frequent on moist, shady grounds. 167910, 167911, 167962, 168494.

Murdannia vaginata (L.) Brueck. in Engl. & Prantl, Pflanzenfam. (ed. 2), 15a : 173.1930; Sant. in J. Bombay nat. Hist. Soc. 52. 658.1954. *Commelina vaginata* L. Mant.177.1767. *Aneilema vaginatum* (L.) R. Br. Prodr. 271.1810; Hook. f. Fl. Brit. India 6: 381.1892; Cooke, Fl. Pres. Bombay 3: 300.1958 (Repr. ed.).

Herbs, 15–40 cm tall. Stems slender, rooting at lower nodes. Leaves 6–12 × 0.8–1.0 cm, linear–acuminate. Flowers with jointed pedicels. Capsules 0.3–0.4 cm across, subglobose, cuspidate. Seeds hemispheric, rugose.

Fls. & Frts. : August–September.

Illus. : Wight, Ic. t.1853.

Distrib. : Borivli, R. R. Fernandez, 2653, 2660 (BLAT).

Murdannia versicolor (Dalz.) Brueck. in Engl. & Prantl, Pflanzenfam. (ed. 2), 15a : 173.1930; Sant. in J. Bombay nat. Hist. Soc. 52: 658.1954 & Rec. Bot. Surv. India 16 (1) : 286.1967. *Aneilema versicolor* Dalz. in Hook. J. Bot. 3: 136.1851; Hook. f. Fl. Brit. India 6: 378.1892; Cooke, Fl. Pres. Bombay 3: 298.1958 (Repr. ed.).

Annual herbs, 10–20 cm tall. Stems suberect. many, striate. Leaves alternate, 2.5–5.0 × 0.7–1.0 cm, oblong-lanceolate, semi-amplexicaul at base, acuminate at apex, sheaths hispid. Flowers pedicellate, axillary, solitary or 1–3 in upper part. Capsules ca. 0.6 cm long, with persistent sepals. Seeds cubical.

Fls. & Frts. : August–November.

Distrib. : Shah (1962).

TONNINGIA Neck. ex A. H. L. Juss.

Tonningia axillaris (L.) O. Ktze. Rev. Gen. Pl. 2: 721.1891; *Commelina axillaris* L. Sp. Pl. 42.1753. *Cyanotis axillaris* (L.) D. Don, Prodr. Fl. Nepal 46.1825; Hook. f. Fl. Brit. India 6: 388.1892; Cooke, Fl. Pres. Bombay 3: 305.1958. (Repr. ed.). *Amischophacelus axillaris* (L.) Rolla Rao & Kamm. in J. Linn. Soc. Bot. 59 : 306.1966.

Annual herbs, 15–45 cm long. Stems diffusely branched, spreading with ascending branches. Leaves sessile, 5–15 × 0.6–1.2 cm, linear to linear-lanceolate, acute to acuminate, sessile. Flowers blueish-violet, fasciated, axillary. Capsules ca. 0.6 cm long, oblong-ellipsoid, beaked, stipitate. Seeds oblong, flat, truncate at base, rounded at apex, shining, mottled.

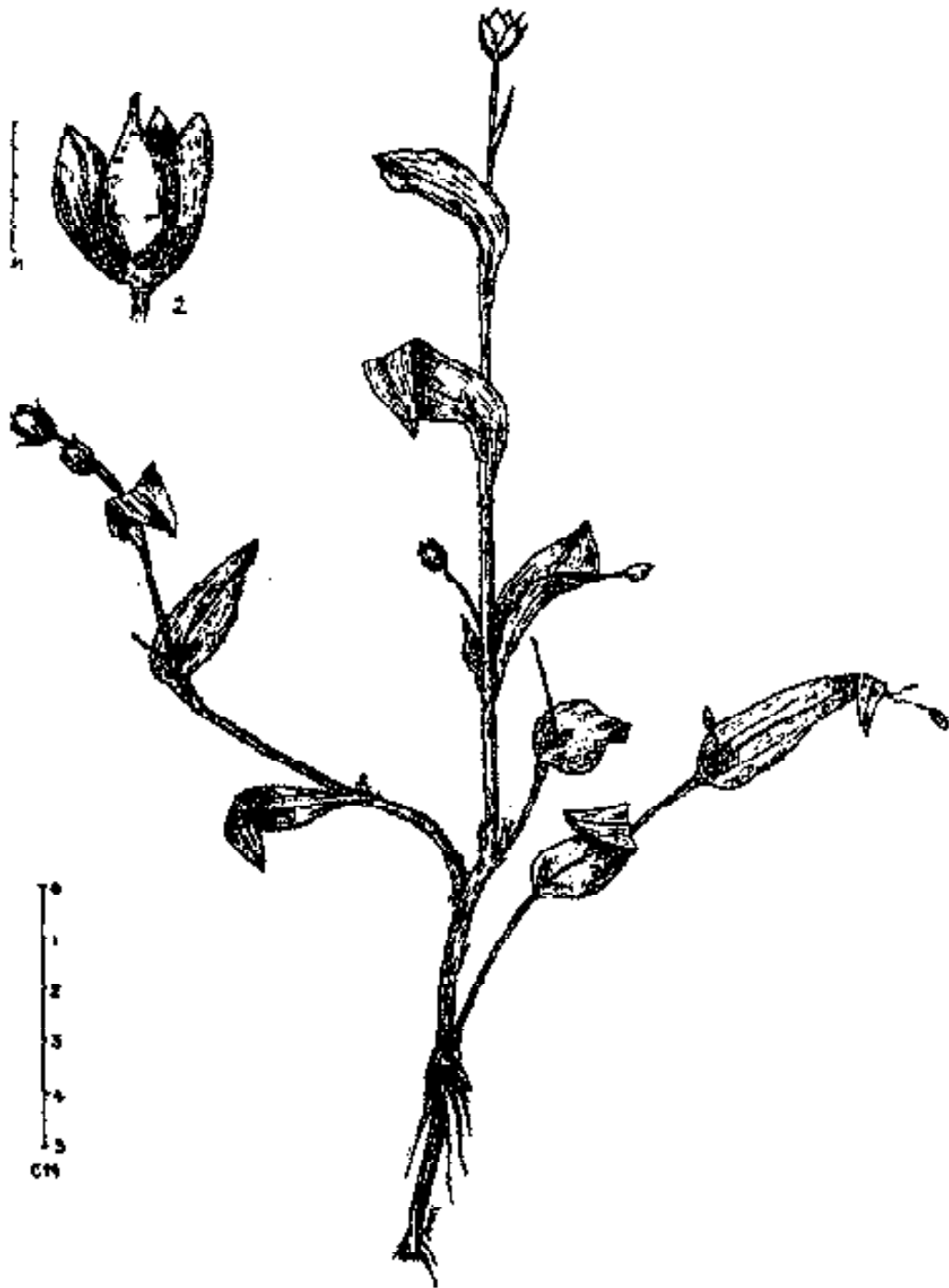
Fls. & Frts. : July–November.

Illus. : Mahesh. Illus. Fl. Delhi f. 205.1966; (*Cyanotis axillaris*); Matthew. Illus. Fl. Tamilnadu Carnatic 2 : t. 750.1982.

Distrib. : Frequent annuals. 167325, 168495.

ARECACEAE

- | | | |
|--|-----|----------|
| 1. Leaves palmate, simple. | ... | BORASSUS |
| 1. Leaves pinnate, compound : | | |
| 2. Leaves 2-pinnate apices of leaflet truncate, irregularly toothed. | ... | CARYOTA |
| 2. Leaves 1-pinnate; apices of leaflets finely acuminate. | ... | PHOENIX |



f.87. *Murdannia versicolor* (Daiz.) Brueck.

BORASSUS L.

Borassus flabellifer L. Sp. Pl. 1187.1753; Becc. & Hook. f. in Hook. f. Fl. Brit. India 6: 482.1892; Cooke, Fl. Pres. Bombay 3: 321.1958 (Repr. ed.); Blatt. Palms Brit. Ind. & Ceyl. 174, tt. 38-39.1978 (Repr. ed.); 'Tad'.

Trees up to 30 m tall. Stems unbranched, cylindrical. Leaves plicately multifid; leaflets 60-80, petiolate, stout, spinous, folded along midrib. Flowers unisexual in dioecious spadices; male flowers small, fascicled, bracteate; female flowers large, globose, fleshy. Drupes subglobose, ca. 15 cm across with 1-3 compressed pyrenes, yellow, when ripe.

Fls. & Frts. : February-April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic. 2: t. 755.1982.

Distrib. : Common on plains along coastal area. *Pradhan s. n.*

CARYOTA L.

Caryota urens L. Sp. Pl. 1189.1753; Becc. & Hook. f. in Hook. f. Fl. Brit. India 6: 422.1892; Cooke, Fl. Pres. Bombay 3: 315.1958 (Repr. ed.); Blatt. Palms Brit. India & Ceyl. 339, t. 57. & f. 48.1978. (Repr. ed.). 'Bherli-mad'.

Trees, 10-15 m tall. Stems straight, transversely annulated, cylindrical. Leaves up to 5 m long; pinnae ca. 10 pairs, subopposite, leaflets 15-18 x 5-8 cm, induplicate, clustered, alternate, cuneate at base, oblique, margins praemorse, irregularly serrate. Flowers unisexual, in interfoliar spadices; male flowers solitary or mixed with female flowers; female flowers subglobose. Fruits ca. 2.5 cm across, globose, 1-2 seeded.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. t. 757.1982.

Distrib. : Occasional. 167744.

PHOENIX L.

Phoenix sylvestris (L.) Roxb. Fl. Ind. 3: 787.1832; Becc. & Hook. f. in Hook. f. Fl. Brit. India 6: 425.1892; Cooke, Fl. Pres. Bombay 3: 311.1958 (Repr. ed.); Blatt. Palms Brit. India & Ceyl 3. t. 2 1978 (Repr. ed.). *Elate sylvestris* L. Sp. Pl. 1189.1753. 'Shindi'.

Trees, 15–25 m tall; stems cylindrical, unbranched. Leaves 3–4 m long; leaflets numerous, 10–30 × 1.2–5.0 cm, rigid, narrowed at base, acuminate at apex, spinous. Flowers unisexual, in spadices up to 1 m long; spathes up to 1 m long, coriaceous; male flowers dense, in spikes; female flowers lax, in spikes. Drupes up to 2 cm long, oblong–ellipsoid.

Fls. & Frts. : Flowers January to April; Fruits throughout the year.

Distrib. : Scattered, Pradhan *s. n.*

CULTIVATED SPECIES :

Cocos nucifera L. Sp. Pl. 1188.1753; Becc. & Hook. f. in Hook. f. Fl. Brit. India 6: 482.1892; Cooke, Fl. Pres. Bombay 3: 322.1958 (Repr. ed.); Blatt. Palms Brit. Ind. & Ceyl. 499. t. 97.1978 (Repr. ed.). 'Nara'.

Trees, 20–25 m tall. Stems unbranched, cylindrical. Leaves pinnatisect; leaflets 60–90 cm long, linear–lanceolate, narrowed at base, tapering at apex. Flowers unisexual, in interfoliar spathaceous spadices; female flowers towards the base, 20–30 cm long. Drupes trigonous, ovoid or globose, greenish–yellow with fibrous pericarp and stony endocarp.

Fls. & Frts. : Mostly throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. tt. 758. & 759.1982.

Distrib. : Koppikar (1974).

PANDANACEAE

PANDANUS Parkinson

- | | | |
|---|-----|-------------------------|
| 1. Carpels distinct, styles forked, male spathes not scented. | ... | <i>P. furcatus</i> |
| 1. Carpels connate, styles forked, male spathes scented. | ... | <i>P. odoratissimus</i> |

Pandanus furcatus Roxb. Fl. Ind. 3: 744.1832; Hook. f. Fl. Brit. India 6: 484.1893 *p.p.*; Cooke, Fl. Pres. Bombay 3: 324.1958 (Repr. ed.). 'Kevada'.

Trees, 3–8 m tall. Stems with aerial prop roots from lower part. Leaves ca. 2 m long, 10–15 cm wide, linear, ensiform, margins and dorsal midrib sharply spiny. Flowers unisexual; male flowers in compound, cylindrical spikes; female flowers in solitary spadix. Syncarpium solitary, orange–red, 15–20 cm long. Drupes obconic with convex crown.

Fls. & Frts. : August–October.

Distrib. : Ghodbundar and Ovale village on Thane–Borivli Road, 169119.

Pandanus odoratissimus L. f. Suppl. 64.1781; St. John in Taxon 12: 201.1963. *P. tectorius* auct. Pl. non Soland. ex Parkins. in J. Voy. H. M. S. Endeavour 46.1773; Cooke, Fl. Pres. Bombay 3: 324.1958 (Repr. ed.). *Pandanus fascicularis* Lam. Encycl. 1: 372, t. 1.1785; Hook. f. Fl. Brit. India 6: 485.1893. 'Ketki' 'Kevada'.

Shrubs or small trees ca. 6 m high with arial prop roots. Leaves 60–100 × 5–8 cm, linear–ensiform, glaucous–green, spiny on margins and midrib. Flowers unisexual; spadices of male flowers branched, consisting of numerous sessile, cylindric spikes, spikes of female flowers simple, sessile. Syncarpium oblong, globose, 15–25 × 15–25 cm, yellow or red. Drupes numerous each containing 6–12 carpels.

Fls. & Frts. : July–October.

Illus. : Dassan. & Fosb. Fl. Ceylon 3: 312 f. 6 & 7.1981.

Distrib. : Ghodbundar–Thane Road.

TYPHACEAE

TYPHA L.

Typha angustifolia L. Sp. Pl. 971.1753; Backer in Steenis, Fl. Males. 1, 4; 243, f. 1.1951. *T. angustata* Bory & Chaub. Exped. Sci. Moree, Bot. 2, 1: 338, 1832; Hook. f. Fl. Brit. India 6: 489.1893; Cooke, Fl. Pres. Bombay 3: 326.1958 (Repr. ed.); Subram. Aquat. Ang. 74.1962; Saha in Bull. Bot. Soc. Bengal 22(1) : 12.1968. 'Pan–kanis'.

Perennial herbs, 1.0–2.5 m tall. Stems robust, terete, green. Leaves ca. 2 m long and 2–3 cm broad, distichous, linear, sheathing at base, acute, tapering at apex. Flowers unisexual, in compact spikes; male spikes 10–20 cm long, yellow; female spikes up to 20 cm long, compact, brown, separate on the same rachis below the male spike. Nutlets ca. 0.2 cm long, ellipsoid.

Fls. & Frts. : November–June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. t. 763.1982.

Distrib : Locally abundant in nallas and Dahisar river 168456.

ARACEAE

- | | | | |
|----|---|-----|-----------------------|
| 1. | Leaves sessile, arranged in a rosette in tuft. | ... | PISTIA |
| 1. | Leaves long petiolate, not arranged as above : | | |
| 2. | Leaves undivided : | | |
| 3. | Plants tall, robust, with petioles up to 1 m long. | ... | COLOCASIA |
| 3. | Plants short, slender with petioles 10–20 cm long : | | |
| 4. | Spadices with appendages : | | |
| 5. | Ovules 1–2 | ... | TYPHONIUM |
| 5. | Ovules many | ... | THERIOPHONUM |
| 4. | Spadices without appendages | ... | ARIPSO |
| 2. | Leaves divided : | | |
| 6. | Male flowers stipitate, loosely scattered | ... | ARIBAMA |
| 6. | Male flowers sessile or nearly so, compactly arranged : | | |
| 7. | Male and female flowers remote, separated by neuters. | ... | SAUROMATUM |
| 7. | Male and female flowers contiguous, not separated by neuters. | ... | AMORPHOPHALLUS |

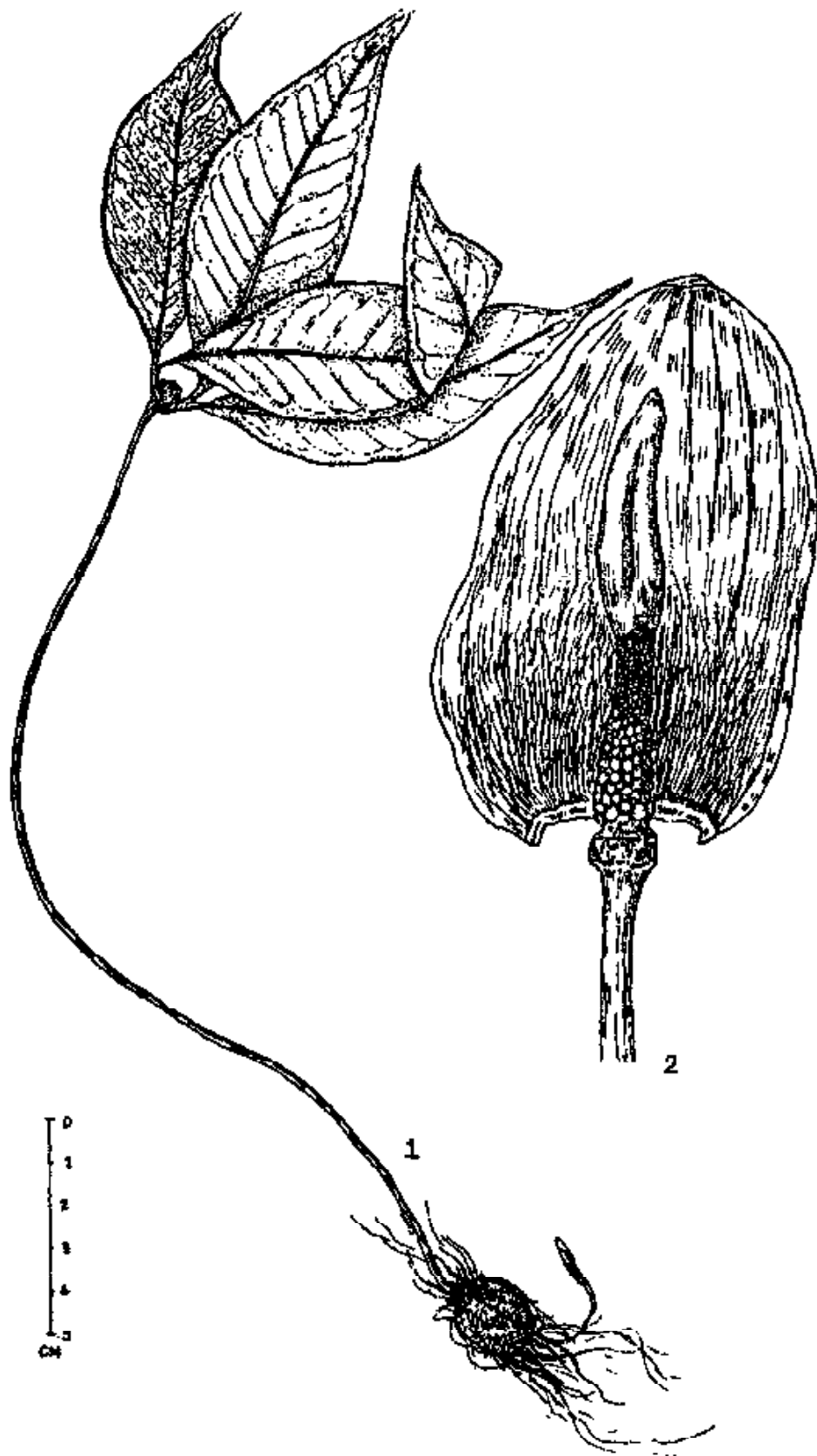
AMORPHOPHALLUS Bl. ex Decasine (*nom. cons.*).

- | | | | |
|----|---|-----|---|
| 1. | Leaves bulbiferous. | ... | A. bulbifer |
| 1. | Leaves not bulbiferous : | | |
| 2. | Styles many times longer than the ovary | ... | A. paeoniifolius
var. campanulatus |
| 2. | Styles very short or absent | ... | A. commutatus |

Amorphophallus bulbifer (Roxb.) Bl. Rumphia 1: 148.1835; Hook. f. Fl. Brit. India 6: 515.1893; Cooke, Fl. Pres. Bombay 3: 336.1958 (Repr. ed.); Blatt. in J. Bombay nat. Hist. Soc. 35 : 27.1931. *Arum bulbiferum* Roxb. Fl. Ind. 3 : 510.1832.

Herbs; tubers underground, 5–10 cm across. Leaves 30–45 cm across; leaflets 6–20 cm long, obovate or lanceolate; petioles 90–120 cm long. Flowers unisexual, on sessile spadix in spathaceous inflorescence; spathes pink or yellowish, shaded with pink or rose-pink inside. Fruits of clustered, subglobose berries.

Fls. & Frts. : April–June.



f.88. *Amorphophallus bulbifer* (Roxb.) Bl.

Distrib : Borivli, R. Fernandez, 1863. (BLAT).

Amorphophallus commutatus (Schott) Engl. in DC. Mon. Phan. 2: 319.1879 & Pflanzenr. 4, 23C, 48 : 95.1911; Hook. f. Fl. Brit. India 6: 515.1893; Cooke, Fl. Pres. Bombay 3: 337.1958 (Repr. ed.). *Conophallus commutatus* Schott in Bonplandia 7: 28.1859. 'Shevla'.

Herbs; tubers underground, depressed globose, ca. 10 cm across. Leaves, solitary, 30–45 cm across, variously lobed; lobes 4–15 × 3–7 cm, elliptic–lanceolate, petioles ca. 60 cm long. Flowers unisexual, in spathaceous, scapigerous spadices; male flowers above; female flowers beneath. Berries 0.8–1.0 cm across.

Fls. & Frts. : April–June.

Illus : Blatter in J. Bombay nat. Hist. Soc. 35: 27, t. 7.1931.

Distrib : Vihar lake, H. Santapau, 1459–60. (BLAT).

Amorphophallus paeoniifolius (Dennst.) Nicols. var. **campanulatus** (Decne.) Sivadasan in Taxon 32: 130.1983. *A. campanulatus* Decne. in Nouv. Ann. Mus. Hist. Paris 3: 366.1834; Hook. f. Fl. Brit. India 6: 513.1893; Cooke, Fl. Pres. Bombay 3: 336.1958. (Repr. ed.); Blatt. in J. Bombay nat. Hist. Soc. 35 : 26 tt. 5. & 6.1931. 'Suran'.

Herbs; tubers underground, depressed–globose, dark brown, 20–25 cm across. Leaves large, 30–90 cm broad; segments simple or forked; petioles ca. 60–90 cm long, stout, warted; leaflets 5–12 cm obovate, oblong, acute, leaves appearing long after flowers. Flowers unisexual, born on spadix; male inflorescence sub–turbinate ca. 8 cm long and 2.5–5.0 cm across; female inflorescence ca. 8 cm long, ca. 6 cm across. Spathes campanulate, pointed, with undulate margins, with purple base within. Berries red, ovoid.

Fls. & Frts. : June–September.

Illus. : Blatt. *op. cit.*

Distrib : Koppikar (1974).

ARIOPSIS Nimmo

Ariopsis peltata Nimmo in Grah. Cat. Pl. Bombay 252.1839; Hook. f. Fl. Brit. India 6: 519.1893; Cooke, Fl. Pres. Bombay 3: 338.1958 (Repr. ed.).



f.89. *Arisaema murrayi* (Grah.) Hook.

Herbs, 10–15 cm tall, delicate; tubers 2–3 cm across, subglobose or ovoid, with many root fibres. Leaves solitary, 2.5–10.0 cm across, orbicular, shallowly cordate at base, rounded or acute at apex, peltate, petioles 6–15 cm long, slender. Flowers unisexual, in pedunculate, spathaceous spadix. Berries ovoid, 3–6-angled.

Fls. & Frts. : June–September.

Illus. : *Remusatia vivipara sensu* Wight, Ic. t. 900.1847 *non* Schott 1832.

Distrib. : Kanheri caves, H. Santapau. 214–8 (BLAT).

ARISAEMA Mart.

- | | | |
|---|-----|---------------------|
| 1. Peduncles 2.5–5.0 cm long; appendage of spadix long, much exerted. | ... | <i>A. tortuosum</i> |
| 1. Peduncles 1.5–2.5 m long; appendage of spadix exerted or included. | ... | <i>A. murrayi</i> |

Arisaema murrayi (Grah.) Hook. in Bot. Mag. t. 4388 1884; Hook. f. Fl. Brit. India 6: 507.1893; Cooke, Fl. Pres. Bombay 3: 332.1958 (Repr. ed.). *Arum murrayi* Grah. Cat. Bombay Pl. 229.1839. 'Sapacha-kanda'.

Herbs, roots tuberous. Leaf solitary, appearing after flowers, peltate, divided into 5–10 segments, 7–15 × 2.5–5.0 cm, ovate, lanceolate, acuminate at apex, petioles ca. 30 cm long. peduncles reddish, spathes 7–10 cm long. Flowers unisexual; male flowers scattered with few neuters above them; ovaries representing female flowers, crowded. Fruit a berry.

Fls. & Frts. : June–October.

Distrib. : Salsette, G. L. Shah (1962).

Arisaema tortuosum (Wall.) Schott in Schott & Endl. Melet. Bot. 1: 17.1832; Hook. f. Fl. Brit. India 6: 502.1893; Cooke, Fl. Pres. Bombay 3: 331.1958 (Repr. ed.); Blatt. in J. Bombay. nat Hist. Soc. 35: 21.1931. *Arum tortuosum* Wall. Pl. As. Rar. 2: 10 t. 114.1830.

Herbs ca. 1 m high, tubers up to 8 cm across. Leaves pedatisect; leaflets ovate–lanceolate, to linear–lanceolate, 10 × 5 cm, petioles up to 40 cm long, greenish with purplish mottles. Flowers unisexual, born usually on monoecious or rarely dioecious spadices; peduncles up to 90 cm long, spathes 10–15 cm long, green out-side and pale purplish inside, ovate–oblong, acuminate. Berries orange–red.

Fls. & Frts. : August–September.

Illus. : Wight, Ic. t. 788.1844; *Arum curvatum* Roxb. Fl. Ind. 3: 506.1832).

Distrib. : Frequent during monsoon. 167832

COLOCASIA Schott (*nom. cons.*)

Colocasia esculenta (L.) Schott in Schott & Endl. Melet. Bot. 1: 18.1832. *Arum esculentum* L. Sp. Pl. 965.1753. *Colocasia antiquorum* Schott in Schott & Endl. *op. cit.*; Hook. f. Fl. Brit. India 6: 523.1893; Cooke, Fl. Pres. Bombay 3: 340.1958 (Repr. ed.); Blatt. in J. Bombay nat. Hist. Soc. 35: 29.1931. 'Alu'.

Tuberous herbs. Leaves 40 × 35 cm, peltate, ovate, acute, cordate–sagittate, petiolate. Flowers unisexual, born on monoecious spadix; male flowers above female flowers; spathes 20–35 cm long, with basal green portion and upper yellow portion around spadix. Berries ovoid, many-seeded.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 786.1844; (*Colocasia antiquorum*); Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 766 & 979c.1982.

Distrib. : Frequent, growing wild. 167826.

PISTIA L.

Pistia stratiotes L. Sp. Pl. 963.1753; Hook. f. Fl. Brit. India 6: 497.1893; Cooke, Fl. Pres. Bombay 3: 328.1958 (Repr. ed.); Subrab. Aquat. Ang. 75.1962.

Herbs, floating, stemless, stoloniferous. Roots tufted, fibrous. Leaves 3–10 × 1.5 cm, obovate–cuneate, rounded or retuse at apex, pubescent on both surfaces. Flowers unisexual, born on spadix, a whorl of stamens beneath the apex of spadix with a whorl of minute neuters beneath it forms male inflorescence followed by solitary, oblong ovary forming female inflorescence, spathes ca. 1.5 cm long, white beneath and contracted in middle. Berries ovoid, many-seeded.

Fls. & Frts. : July–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 768.1982.

Distrib. : Koppikar (1974).

SAUROMATUM Schott

Sauromatum venosum (Ait.) Schott, Prodr. Aroid. 71.1860; Nasir in Nasir & Ali, Fl. W. Pak. 120 : 14, f. 4.1978. *Arum venosum* Ait. in Hort. Kew ed. 10; 3: 315.1789. *Sauromatum guttatum* (Wall.) Schott in Schott & Endl. Melet. Bot. 1: 17.1832; Hook. f. Fl. Brit. India 6: 508.1893; Cooke, Fl. Pres. Bombay 3: 335.1958 (Repr. ed.); Blatt. in J. Bombay nat. Hist. Soc. 35; 25.1931. *S. pedatum* (Willd.) Schott in Schott & Endl. *op cit.* 'Nurki'.

Herbs bearing tubers. Leaves 15–30 cm broad, pedatisect; segments 7–15, 5–30 × 2.5–6.0 cm, elliptic, acuminate at apex, petioles stout, 30–45 cm long. Flowers unisexual, in spathaceous, pedunculate spadices. Male inflorescence above the female one. Fruits of obovoid, pyramidal, 1-seeded berries. Seeds globose or convex, strophiolate.

Fls. & Frts. : March–May.

Illus. : Nasir in Nasir & Ali, *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 1185 (BLAT).

THERIOPHONUM Bl.

Therophonum dalzellii. Schott, Aroid. 15.1853; Hook. f. Fl. Brit. India 6: 513.1893; Cooke, Fl. Pres. Bombay 3: 334.1958 (Repr. ed.); Sivadasan & Nicols. in Kew Bull. 37. 278.1982. *T. indicum* Engl. Pflanzenr. 4, 23, 73: 107.1920; McC. in J. Bombay nat. Hist. Soc. 42 C 799, t. 4.1941. *T. uniseriatum* Blatt. & McC. in J. Bombay nat. Hist. Soc. 35. 25.1931.

Perennial herbs. Stems with globose tubers. Leaves 10–15 × 4–9 cm; elliptic-oblong to linear or ovate and lanceolate, rounded, hastate or sagittate at base; acute at apex, petioles 10–15 cm long, stout. Spathes oblong, peduncled, lanceolate with white tube and flat dark purple limb; appendages terete, twice as long as inflorescence. Spadix 9–12 cm long, Male and female flowers separated by naked rachis. Fruits oblong-ovoid, angular 4–5-seeded.

Fls. & Frts. : July–September.

Illus. : McC. *op. cit.*; Sivadasan & Nicols. *op. cit.* 280, f. 1. 1E.

Distrib. : Borivli, R. R. Fernandez, 1338, 1876 (BLAT).

TYPHONIUM Schott

Typhonium flagelliforme (Roxb. ex Lodd.) Bl. in Ramph. 1: 134.1837; Blatt. in J. Bombay nat. Hist. Soc. 35; 22.1931. *Arum*

flagelliforme Roxb. ex Lodd. Bot. Cab. 4 : t. 396.1819. *Typhonium cuspidatum* (Bl.) Decne. in Nouv. Ann. Mus. Paris. 3 : 39.1834; Hook. f. Fl. Brit. India 6: 511.1893; Cooke, Fl. Pres. Bombay 3 : 334.1958 (Repr. ed.). *T. divaricatum* sensu. Hook. f. *op. cit.* 510 non Decne. 1834. *T. incurvatum* Blatt. & McC. in J. Bombay nat. Hist. Soc. 35 : 22, t. 4.1831.

Tuberous herbs; tubers 2.0–2.5 cm across, subglobose. Leaves 5–10 cm long, oblong–lanceolate, hastate at base, acuminate at apex, petiolate; petioles 5–20 cm long. Flowers unisexual, on shortly stalked, spathaceous spadix, appendage produced into a tail. Male and female inflorescences separated by neuter flowers. Berries 1–2-seeded. Seeds globose.

Fls. & Frts. : August–September.

Illus. : Wight, Ic. t. 791.1844 (*Arum flagelliforme*); Blatt. & McC. *op. cit.*

Distrib. : Salsette, Blatter. (1931).

LEMNACEAE

- | | | |
|--------------------------------|-----|-----------|
| 1. Fronds with single root | ... | LEMNA |
| 1. Fronds with 2 or more roots | ... | SPIRODELA |

LEMNA L.

Lemna gibba L. Sp. Pl. 970.1753; Hook. f. Fl. Brit. India 6: 556.1893; Cooke, Fl. Pres. Bombay 3: 343.1958 (Repr. ed.); Hartog & van der Plas in Blumea 18: 362.1970; van der Plas in Steenis, Fl. Males. 1, 7 : 231, f. 5a–e.1971; Hepper in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 400, f. 399. 3A–F.1981.

Tiny herbs, free floating. Fronds 0.6–1.2 cm across, suborbicular or obovate, thick, flat above, spongy and convex beneath, each with single root fibre. Flowers unisexual; male flowers in pair and female flower solitary. Utricles circumscissile, narrowly winged with erect seeds.

Fls. & Frts. : September–December.

Illus. : van der Plas in Steenis, *op. cit.*; Hepper in Dassan. & Fosb. *op. cit.*

Distrib. : Koppikar (1974).

SPIRODELA Schleid.

Spirodela polyrhiza (L.) Schleid. in *Linnaea* 13: 392.1839; Subram. *Aquat. Ang.* 77.1962; Hartog & van der Plas in *Blumea* 18: 360.1970; van der Plas in Steenis, *Fl. Males.* 1, 7: 224, f. 1A-B, 2.197.1971; Hepper in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon* 2: 401, f. 399, 3A-3B, 1981. *Lemna polyrhiza* L. *Sp. Pl.* 970.1753; Hook. f. *Fl. Brit. India* 6: 557.1893; Cooke, *Fl. Pres. Bombay* 3: 343.1958; (Repr. ed.)

Free floating, aquatic herbs. Fronds solitary or 2-5 together, 0.5-0.8 cm across, reniform or obovate, margins reddish-purple; roots many. Flowers minute in marginal notches of fronds; spathes 2-lipped, male flowers paired. Stamens 2; female flower, solitary with semi-anatropous, 1-2 ovules. Fruits winged on margins, 1-2-seeded.

Fls. & Frts. : September-December.

Illus. : van der Plas in Steenis, *op. cit.*; Hepper in Dassan. & Fosb. *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 1653. (BLAT).

ALISMATACEAE

- | | | |
|--|-----|-------------|
| 1. Leaves sagittate, flowers polygamous | ... | LIMNOPHYTON |
| 1. Leaves ovate to elliptic, not sagittate, flowers bisexual | ... | CALDESIA |

CALDESIA Parl.

Caldesia oligococca (F. V. Muell.) Buch.-Ham. in *Engl. Bot. Jahrb.* 2: 459.1882; Hartog in Steenis, *Fl. Males.* 1, 5: 320, f. 1-2.1957; A. S. Rao & Verma in *Bull. Bot. Surv. India* 18: 37. (1976) 1979. *Alisma oligococcum* F. V. Muell, *Fragm. Phyt. Austral.* 1: 23.1858; Hook. f. *Fl. Brit. India* 6: 560.1893; Sant. et al. in *J. Bombay nat. Hist. Soc.* 55. 481, t1.1958.

Herbs. Leaves floating, 7-12 × 5-7 cm, broadly ovate-cordate, basal lobes acute with narrow sinus between petioles, 40-60 cm long. Flowers white, bracteate, in 15-22 cm long panicles. Fruiting sepals reflexed. Achenes 2-6, whorled, dorsally keeled; keels tubercled.

Fls. & Frts. : September-October.

Illus. : Subrab. *Aquat. Ang.* 84.1962.

Distrib. : Borivli, R. R. Fernandez, s. n. (BLAT).

LIMNOPHYTON Miq.

Limnophyton obtusifolium (L.) Miq. Fl. Ind. Bat. 3: 242.1856; Hook. f. Fl. Brit. India 6: 560.1893; Cooke, Fl. Pres. Bombay 3: 345.1958 (Repr. ed.); Hartog in Steenis, Fl. Males. 1, 5: 324, f.4.1957; Subram. Aquat. Ang. 3: 86, t. 3.1962. *Sagittaria obtusifolia* L. Sp. Pl. 993.1753. 'Nalkut'.

Scapigerous, stemless herbs up to 7.5 cm long. Leaves radical, 15-30 × 10-20, reniform or deltoid, sagittate at base, acute to subobtuse at apex; basal lobes long, tapering. Panicles with angular scapes, 60-120 cm long. Flowers 0.8-1.2 cm across, white, many in whorls at the nodes of the branches of panicles. Achenes ovoid with cuneate base, 0.5-0.8 cm long, shortly beaked. Seeds ca. 0.4 cm long.

Fls. & Frts. : February-April.

Illus. : Hartog in Steenis, *op cit*; Subram. *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic 2* : tt. 773 & 978d.1982.

Distrib : Salsette, Shah (1969).

APONOGETONACEAE

APONOGETON L. f.

- | | | |
|--|-----|---------------------|
| 1. Tepals longer than 0.5 cm, caducous; plants stoloniferous | ... | <i>A. undulatus</i> |
| 1. Tepals up to 0.3 cm, persistent; plants not stoloniferous | ... | <i>A. natans</i> |

Aponogeton natans (L.) Engl. & N. Krause in Engl. Pflanzenr. 24: 11.1906; Subram. Aquat. Ang. 92, t. 5.1962; van Bruggen in Blumea 18. 477, f. 2. (11), map 1.1970. *Saururus natans* L. Mant. 2: 227.1771. *Aponogeton monostachyon* L. f. Suppl. Pl. 214.1781; Hook. f. Fl. Brit. India 6: 564.1893; Cooke, Fl. Pres. Bombay 3: 348.1958 (Repr. ed.).

Aquatic, submerged, stoloniferous herbs. Leaves floating, 4-10 × 0.8-2.5 cm; submerged ones lanceolate or oblong, floating ones linear-oblong, subcordate at base, obtuse to subacute at apex. Flowers violetish, patent, ca. 0.4 cm across, in 2.5-10.0 cm long spikes. Peduncles 10-30 cm long. Fruits 0.4-0.3 cm, subglobose, 4-8-seeded. Seeds terete, reticulately nerved.

Fls. & Frts. : July-October.

Illus. : Subram. *op. cit.*; Mahesh *Illus. Fl. Delhi* f. 209.1966; van Bruggen *op. cit.*

Distrib. : Salsette, Graham (1839).

Aponogeton undulatus Roxb. Fl. Ind. ed. Carey 2: 211.1932 (*undulatum*); van Bruggen in Blumea 18: 465, f. 2. (8), Map 2. t. I & II 1970 & in Steenis, Fl. Males. 1, 7: 213. f (1a-d, f) & f. 2.1971. *A. microphyllum* Roxb *op. cit.*; Hook. f. Fl. Brit. India 6: 565.1893.

Aquatic herbs, stoloniferous; tubers globular, ovoid, 0.6–2.5 cm across. Submerged leaves 10–25 × 0.6–2.5 cm, oblong–elliptic, linear–oblong, narrowly cuneate or rounded at base and apex, seldom emarginate, margins undulate, petioles 10–35 cm long, floating leaves rather rare, up to 20.0 × 3.5 cm with rounded or cordate base and blunt-tipped, cuneate apex, petioles up to 70 cm long. Spathes persistent or caducous. Inflorescences up to 10 cm long, laxly-flowered spikes; tepals 2, rarely 3, spatulate or obovate, white or pinkish. Fruits 0.5–0.7 × 0.4 cm with a terminal, short, curved beak.

Illus. : van Bruggen, *op. cit.* Pl. 2.

Distrib. : Borivli National Park, van Bruggen (1970).

POTAMOGETONACEAE

POTAMOGETON L.

Potamogeton nodosus Poir. in Lam. Encyl. (Suppl. 4) : 535.1816; Subram. Aquat. Ang. 95.1962; Aziz & Jaffri in Nasir & Ali Fl. W. Pak. 79. 3, f. 1, A–C.1975. *P. indicus sensu* Hook. f. Fl. Brit. India 6: 565.1893 *non* Roxb.1832; Cooke, Fl. Pres. Bombay 3: 349.1958 (Repr. ed.).

Aquatic herbs, rooted. Leaves heterophyllous, petiolate, 3–10 × 1.5–3.0 cm, upper ones floating; broadly ovate–elliptic, subacute–obtuse at ends, lower ones submerged, lanceolate, cuneate at base, acute–acuminate at apex. Flowers pink, sessile, in axillary, leaf-opposed, peduncled spikes. Drupelets 3.0–3.5 × 3.5 cm, obovoid, oblique, shortly beaked, 1-seeded.

Fls. & Frts. : October–December.

Illus. : Aziz & Jaffri in Nasir & Ali. *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 775.1892.

Distrib. : Tulsi lake, C. McCann, 313, 318.

ZANNICHELLIACEAE

ZANNICHELLIA L.

Zannichellia palustris L. Sp. Pl. 969.1753; Dandy in Rech. f. Fl. Iran. Fasc. 85 : 2.1971. *Z. palustris* ssp. *pedicellata* Hook. f. Fl. Brit. India 6: 568.1893; Cooke, Fl. Pres. Bombay 3: 351.1958 (Repr. ed.); Subram. Aquat. Ang. 97.1962.

Slender herbs, aquatic, submerged, growing in brackish or fresh water. Leaves 2.5–4.5 cm long, linear to filiform, alternate or opposite. Flowers unisexual, minute, enclosed in leaf-sheaths. Drupelets ca. 0.3 cm long, stipitate, crested.

Fls. & Frts. : December–February.

Illus. : Subram. *op. cit.* 168, f. 56, 7–9.

Distrib. : Salsette, *Shah* (1962).

ERIOCAULACEAE

ERIOCAULON L.

- | | | |
|--|-----|-----------------------|
| 1. Anthers white; receptacle glabrous. | ... | <i>E. cinereum</i> |
| 1. Anthers dark; receptacle villous : | | |
| 2. Heads snow-white. | ... | <i>E. odoratum</i> |
| 2. Heads grey or yellowish : | | |
| 3. Female sepals 2 : | | |
| 4. Floral bracts, closely imbricate;
peduncles thickened beneath head | ... | <i>E. eurypeplon</i> |
| 4. Floral bracts not closely imbricate;
peduncles not thickened beneath heads | ... | <i>E. eleonorae</i> |
| 3. Female sepals 3: | | |
| 5. Involucral bracts reflexed;
floral bracts obtuse to acute. | ... | <i>E. trilobum</i> |
| 5. Involucral bracts not reflexed;
floral bracts cuspidate : | | |
| 6. Stamens 4. | ... | <i>E. minutum</i> |
| 6. Stamens 6. | ... | <i>E. heterolepis</i> |

Eriocaulon cinereum R. Br. Prodr. 254.1810; Sant. in Rec. Bot. Surv. India 16 (ed. 3); 294.1967; Ansari & Balakr. Fam. Eriocaulaceae India 179.1994. *E. sieboldianum* Sieb. & Zucc. ex Steud. Syn. Pl. Cyp. 2: 272.1855 '*sieboldianum*'; Hook. f. Fl. Brit. India 6: 577.1893; Cooke, Fl. Pres. Bombay 3: 357.1958 (Repr. ed.); Fyson in J. Indian Bot. 3 (1) 15, t. 50 & 51.1922.

Annual herbs, scapigerous, 8–10 cm tall. Leaves 1.5–5.0 × 0.1–0.25 cm, narrowly linear, acuminate at apex. Heads spherical, ca. 0.4 cm across. peduncles 4–10 cm long, ribbed; Involucral bracts, obovate; floral bracts obovate, cuneate, grey. Flowers unisexual; male calyx spathaceous, 3-partite, petals with apical gland; female floret: sepals 3, petals 3, linear-lanceolate. Ovary stipitate. Seeds ellipsoid, transversely ribbed.

Fls. & Frts. : August–December.

Illus. : *Fyson, op. cit.* Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 621.1988; *Ansari & Balakr. op. cit.* 180 f. 64.

Distrib. : Salsette, *G. L. Shah* (1962).

Eriocaulon eleonora *Fyson* in *J. Indian Bot.* 2 : 316.1921; *Ansari* in *Balakr. Fam. Eriocaulaceae, India* 137.1994.

Herbs, stems tufted. Leaves 1.5–6.0 cm long, acicular-filiform, acuminate at apex. Flowers unisexual, in heads 0.2–0.25 cm across, terminal on 5–11 cm long scapes. Involucral bracts elliptic, acute; floral bracts slightly acuminate. Seeds 3, shining.

Fls. & Frts. : September–October.

Illus. : *Ansari & Balakr. op. cit.* 138 f. 47.

Distrib. : Borivli, *R. R. Fernandez*, 742. 1518 (BLAT).

Eriocaulon eurypeplon *Koern.* in *Linnaea* 27 : 685.1856; *Hook. f. Fl. Brit. India* 6: 585.1893; *Ansari & Balakr. Fam. Eriocaulaceae India* 86.1994. *E. vanheurckii* *Muell.-Arg.* in *van Heurck, Obs. Bot.* 2: 98.1870. *E. thomasii* *Fyson* in *J. Indian Bot.* 2.(No. 10), 318, Pl. 23.1921.

Herbs, 10–20 cm tall, stems tufted. Leaves 5–10 × 0.8 cm, lanceolate or oblanceolate, acute or mucronate. Flowers in scapigerous, globose, or truncate whitish, puberulous heads, ca. 0.6 cm across, receptacles hairy; sepals 2, boat-shaped. Seeds oblong.

Fls. & Frts. : August–October.

Illus. : *Fyson, op. cit.*; *Ansari & Balakr. op. cit.* 88 f. 27.

Distrib. : Borivli, *R. R. Fernandez*, 299 & *H. Santapau*, 2372–3. (BLAT).

Eriocaulon heterolepis *Steud.* *Syn. Pl. Cyp.* 271.1855; *Hook. f. Fl. Brit. India* 6 : 585.1893; *Ansari & Balakr. Fam. Eriocaulaceae India*

48,1994. *E. diana* var. *diana* Fyson in J. Indian Bot. (Nos. 8-9) 259, Pl. 11-12. 1921. *E. diana* var. *longibracteatum*. Fyson *op. cit.*

Annual herbs, up to 15-20 cm tall, scapigerous, erect, tufted. Leaves 6-10 × 0.5-0.6 cm, lanceolate, acute. Heads subglobose, 0.3-0.6 cm across, grey, peduncles 15-20 cm long. Flowers unisexual. Involucral bracts ca. 0.3 cm long; floral bracts oblanceolate-cuneate, hairy at apex, receptacles villous. Seeds ellipsoid, transversely striate.

Fls. & Frts. : August-December.

Illus. : Fyson, *op. cit.* (*E. diana* var. *diana*); Ansari & Balakr. *op. cit.* 49. f. 14.

Distrib. : Common in fallow fields and in moist open areas. 167824, 168465, 169104.

Eriocaulon minutum Hook. f. Fl. Brit. India 6: 579.1893; Cooke, Fl. Pres. Bombay 3: 359.1958 (Repr. ed.); Fyson in J. Indian Bot. 2 : 317, t. 36.1921; Ansari & Balakr. Fam. Eriocaulaceae India 143.1994. *E. humile* Mold. in Phytologia 3 : 162.1949; Sant. in Rec. Bot. Surv. India 16 (2) : 263.1958.

Herbs, acaulescent. Leaves 2.4 × 0.1 cm long, rosulate, linear, acute. Peduncles numerous, 5-12 cm long, heads 0.2-0.3 cm across, greyish; involucral bracts elliptic; floral bracts obovate, flowers unisexual, male flowers : sepals 2, oblanceolate, petal tube slender, anthers brown; female flowers : sepals 3, oblanceolate, petals 3, narrow, oblong, ovary subglobose, stigmas 3, floral bracts whitish, subhyaline. Seeds oblong-ellipsoid.

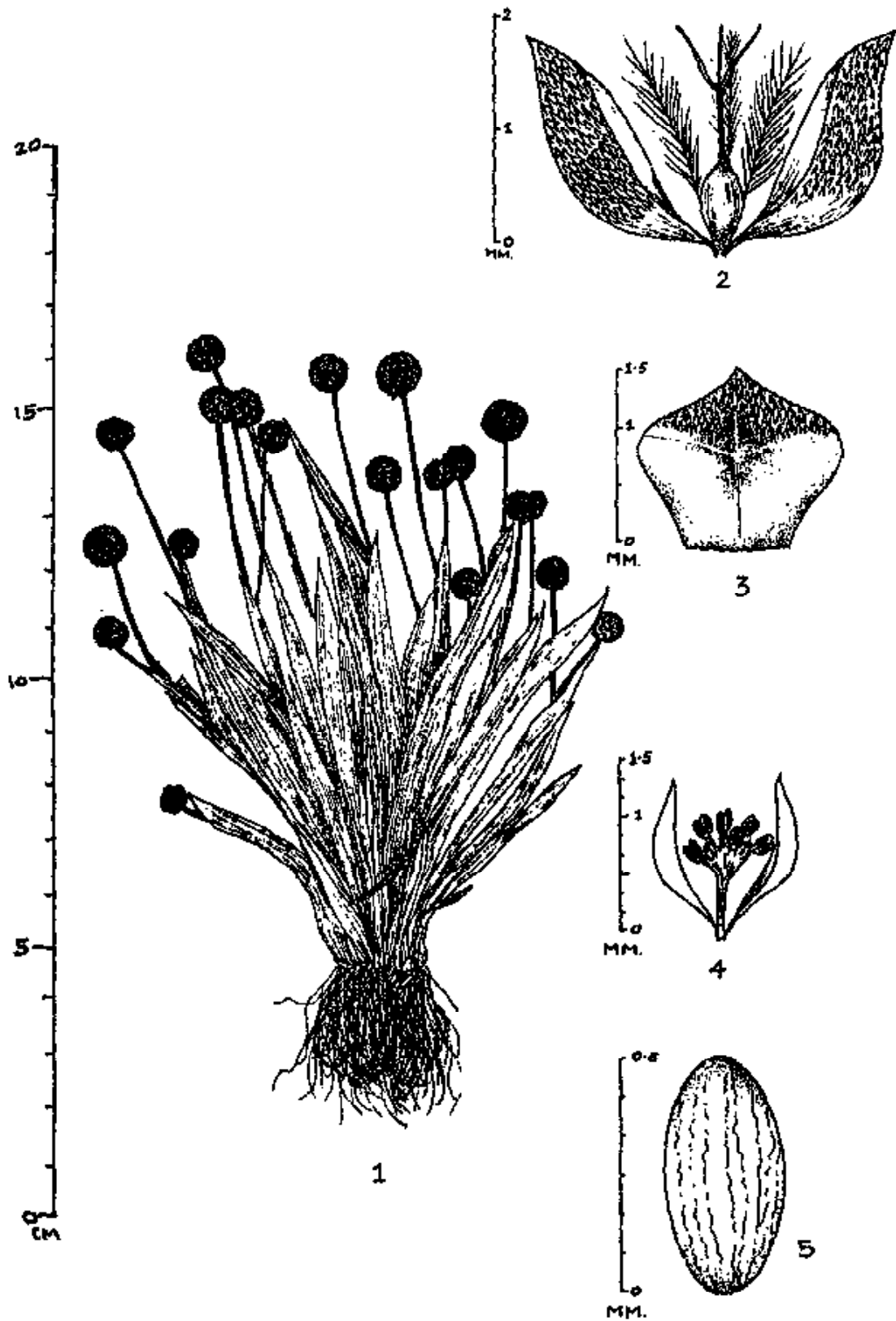
Fls. & Frts. : September-October.

Illus. : Fyson, *op. cit.* Ansari & Balakr. *op. cit.* 144. f. 50.

Distrib. : Salsette, G. L. Shah (1962).

Eriocaulon odoratum Dalz. in Hook. Kew J. Bot. 3 : 280.1851; Hook. f. Fl. Brit. India 6: 574.1893; Cooke, Fl. Pres. Bombay 3: 355.1958 (Repr. ed.); Ansari & Balakr. Fam. Eriocaulaceae India 143.1994. *E. collinum* Hook. f. Fl. Brit. India 6: 584.1893; Fyson in J. Indian Bot. 2 (Nos. 6b-7) : 206.1921.

Herbs. Leaves 1.2-3.0 × 0.3 cm, acute at apex. Scapes 12-30 cm long, slender; heads 0.6 cm across, globose, involucral bracts pubescent; floral bracts acute to cuspidate, dark, pubescent. Sepals in female flowers boat-shaped, narrow; petals broadly oblanceolate, without glands, longer than sepals.



f.90. *Eriocaulon eurypeplon* Koern.

Fls. & Frts. : September–October.

Illus. : Fyson, *op. cit.* (*E. collinum*); Ansari. & Balakr. *op. cit.* 44. f. 12.

Distrib. : Salsette, *G. L. Shah* (1962).

Eriocaulon trilobum Buch.–Ham. ex Koern. in *Linnaea* 27 : 645.1856; Hook. f. *Fl. Brit. India* 6: 583.1893; Cooke, *Fl. Pres. Bombay* 3: 361.1958 (Repr. ed.); Fyson in *J. Indian Bot.* 2 (Nos. 6b–7) : 206 : 1921; Ansari & Balakr. *Fam. Eriocaulaceae India* 46, f. 47.1994. *E. infirmum* Steud. *Syn. Pl. Glum.* 2 : 272.1855; Sald. & Nicols. *Fl. Hassan Dt.* 653.1978. *E. gracile* Mart. in *Wall. Pl. As. Rar.* 3 : 79.1932; Fyson in *J. Indian Bot.* 2 : 264, t.19.1921; Sant. in *Fl. Khandala ed.* 3 : 267.1967.

Herbs, stemless, scapigerous, 10–15 m tall. Leaves 1.6–6.0 × 0.2–9.3 cm, narrowly linear, flat, acute or subobtuse at apex. Involucral bracts linear-oblong; floral bracts, obovate, cuneate. Flowers unisexual, in terminal, ca. 0.3 cm across heads. Seeds ellipsoid, finely transversely ridged, minute.

Fls. & Frts. : August–January.

Illus. : Fyson, *op. cit.*; Ansari & Balakar. *op. cit.* 47. f. 13.

Distrib. : Borivli, *R. R. Fernandez*, 1160.1892 (*BLAT*).

CYPERACEAE

- | | | |
|--|-----|-----------------|
| 1. Flowers unisexual | ... | SCLERIA |
| 1. Flowers bisexual : | | |
| 2. Glumes all distichous; hypogynous structures absent : | | |
| 3. Rachilla articulated, deciduous : | | |
| 4. Nuts biconvex; stigmas 2 : | | |
| 5. Inflorescence of sessile spikelet forming heads | ... | KYLLINGA |
| 5. Inflorescence rayed, umbellate, spikelets not sessile | ... | QUEENSLANDIELLA |
| 4. Nuts trigonous; stigmas 3 : | | |
| 6. Nut bearing glume with winged keel | ... | COURTOISINA |
| 6. Nut bearing glume without winged keel | ... | MARISCUS |
| 3. Rachilla not articulated, persistent : | | |
| 7. Nuts biconvex with one edge against rachilla | ... | PYCREUS |

- | | | | |
|-----|--|-----|----------------|
| 7. | Nuts trigonous or if biconvex edges
not against rachilla | ... | CYPERUS |
| 2. | Glumes spirally imbricate or sometimes lower ones
distichous; hypogynous structures present or absent : | | |
| 8. | Hypogynous structures present : | | |
| 9. | Inflorescence of solitary spikelet | ... | ELEOCHARIS |
| 9. | Inflorescence of more than one spikelets : | | |
| 10. | Stigmas 2 | ... | RHYNCHOSPORA |
| 10. | Stigmas 3 : | | |
| 11. | Glumes bifid at apex | ... | BULBOSCHOENUS |
| 11. | Glumes not bifid | ... | FURENA |
| 8. | Hypogynous structures absent: | | |
| 12. | Inflorescence pseudolateral | ... | SCHOENOPLECTUS |
| 12. | Inflorescence terminal | ... | FIMBRISTYLIS |

BULBOSCHOENUS (Aschers.) Palla

Bulboschoenus maritimus Palla ssp. **affinis** (Roth) T. Koyama in Brittonia 31: 284.1979. *Scirpus affinis* Roth in Roem. & Schult. Syst. Veg. 2: 140.1817. *S. maritimus* L. var. *affinis* C. B. Cl. in Hook. f. Fl. Brit. India 6: 659.1893; Cooke. Fl. Pres. Bombay 3: 408.1958 (Repr. ed.).

Annual herbs. Stems 20–80 cm tall, rhizomatous, stout, triquetrous. Leaves as long as stems, linear. Inflorescence terminal or subterminal, umbellate; bracts 3–5, overtopping. Spikelets 3–6 or solitary, 1–2 × 0.5–0.8 cm, ovate, oblong or cylindric. Glumes ca. 0.6 cm long, broadly ovate, strongly keeled. Hypogynous bristles 3–6. Nuts 0.2–0.3 cm long, obovoid, obtusely trigonous, smooth, umbonate.

Fls. & Frts. : August–January.

Illus. : Lakshminaras. & Sharma, Fl. Nasik. Dt. 496, f. 49.1991.

Distrib. : Occasional. 167839.

COURTOISINA J. Sojak

Courtoisina cyperoides (Roxb.) J. Sojak in Cas. Nar. Muz. (Prague) 148.193. (1979) 1980; Prasad & Singh in Rheedeia 9 (2), 181.1999. *Kyllinga cyperoides* Roxb. Fl. Ind. 1: 187.1820. *Cyperus pseudokyllingioides* Kuekenh. in Engl. Pflanzenr. 4, 20, 101 : 501.1936; Rao & Verma, Cyper. N. E. India 21.1982. *Courtoisia cyperoides* (Roxb.) Nees in Linnaea 9:286.1834; Hook. f. Fl. Brit. India 6: 625.1893.

Herbs, 10–30 cm tall. Stems slender. Leaves 1–3, flaccid, as long as stems. Spikelets 1–2-flowered, 0.35 × 1.2 cm, elliptic-oblong, compressed, congested in subglobose, umbellate spikes. Nuts fusiform, trigonous, 0.23–0.25 cm long, spiculate, puncticulate, tapering at both ends.

Fls. & Frts. : September–December.

Illus. : Rao A. S. & Verma D. M. *Cyper.* N. E. India 24. Fig. 9–9a. 1982.

Distrib. : Borivli, R. R. Fernandez, 738, 1701 (BLAT).

CYPERUS L.

- | | | |
|---|-----|--|
| 1. Styles 2-fid. | ... | <i>C. pygmaeus</i> |
| 1. Styles 3-fid. : | | |
| 2. Rachilla distinctly winged : | .. | |
| 3. Wings of rachilla caducous : | | |
| 4. Leaves as long as the stem; wings of rachilla hyaline | ... | <i>C. distans</i> |
| 4. Leaves shorter than the stem; wings of rachilla dark brown | ... | <i>C. pangorei</i> |
| 3. Wings of the rachilla persistent : | | |
| 5. Stolons present with tubers and bulbils : | | |
| 6. Leaves radical | ... | <i>C. rotundus</i> |
| 6. Leaves not as above | ... | <i>C. bulbosus</i> |
| 5. Stolons absent : | | |
| 7. Stigmas shorter than the styles | ... | <i>C. exaltatus</i> |
| 7. Stigmas twice as long as the styles | ... | <i>C. nutans</i>
ssp. <i>eleusinoides</i> |
| 2. Rachilla not or obscurely winged : | | |
| 8. Spikelets in capitate or umbellate clusters : | | |
| 9. Spikelets in simple globose heads : | | |
| 10. Glumes cuspidate or with a recurved mucro | ... | <i>C. compressus</i> |
| 10. Glumes obtuse; subobtuse or apiculate : | | |
| 11. Plants rhizomatous : | | |
| 12. Stems caespitose | ... | <i>C. leucocephalus</i> |
| 12. Stems solitary, distant | ... | <i>C. arenarius</i> |
| 11. Plants not rhizomatous | ... | <i>C. difformis</i> |

9. Spikelets in simple or compound umbellate heads :
13. Spikelets 1.2–3.0 cm long ... *C. compressus*
13. Spikelets 0.3–1.0 cm long :
14. Spikelets 3–5 ... *C. tenuispica*
14. Spikelets numerous ... *C. difformis*
8. Spikelets in spicate clusters :
15. Spikelets distant; glumes spinulose on the keels ... *C. alulatus*
15. Spikelets not distant; glumes not spinulose on the keels ... *C. iria*

Cyperus alulatus Kern in Reinwardtia 1(4): 463, f. 1.1952; Shah and Suryanarayana in J. Bombay nat. Hist. Soc. 66 (2): 412.1969. *C. rectangularis* (Kuekenh.) Bennet in Indian Forester 95: 692.1969.

Herbs. Stems tufted or solitary, up to 30 cm tall, erect. Leaves 5–15 × 0.3 cm, flat, canaliculate, linear, acuminate. Inflorescence compound or decomposed, 3–8 cm long; involucre bracts overtopping. Spikes ovoid, ca. 20-flowered; spikelets oblong, 5–6 × 1.0–1.5 cm, oblong. Glumes broadly obovate, mucronate, with hyaline margins, obtuse or emarginate. Nuts ca. 0.1 cm long, ovoid or ellipsoid, apiculate, stipitate.

Fls. & Frts. : July–October.

Illus. : Kern, *op. cit.*

Distrib. : Frequent along streams, and wet places. 167838.

Cyperus arenarius Retz. Obs. Bot. 4: 9.1786; C. B. Cl. in Hook. f. Fl. Brit. India 6: 602.1893; Cooke, Fl. Pres. Bombay 3: 378.1958 (Repr. ed.); T. Koyama in Gard. Bull. Straits Settlements 30 : 144.1977 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5. 208.1985.

Herbaceous, rhizomatous sedges; stems tufted, 10–13 cm, erect, terete, Leaves 7–10 cm long, coriaceous, sulcate, acute, with brown sheaths. Involucre bracts 3, overtopping. Spikelets digitate, radiating, or in terminal inflorescence. Glumes ca. 0.4 × 0.35 cm, ovate, suborbicular, nerved. Stamens 3. Stigmas 3. Nuts 0.18 cm, biconvex, obovoid, glossy, apiculate.

Fls. & Frts. : August–November.

Illus. : T. Koyama in Dassan. & Fosb. *op. cit.* 10, f. 13; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4. t. 630.1988.

Distrib. : Salsette, G. L. Shah. (1962).

Cyperus bulbosus Vahl, Enum. Pl. 2: 342.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6: 611.1893; Cooke, Fl. Pres. Bombay 3: 384.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 17: 605.1974.

Stoloniferous, glabrous sedges; stolons up to 6 cm long, filiform with bulbils near the ends. Stems up to 30 cm tall, arising from a bulb. Leaves linear, 0.3 cm wide with membranous sheath. Spikelets 0.8–1.5 × 0.2–0.25 cm, 8–24 flowered, in umbellate spikes; glumes ca. 0.3 cm long, oblong, mucronulate, cymbiform, bright red with hyaline margins. Stamens 3. Nuts obovoid, triquetrous, obtuse, black.

Fls. & Frts. : July–December.

Illus. : Kuekenth. in Engl. Pflanzenr. 4, 20, 101. (Heft) : 125, f. 15. C–E.1936.

Distrib. : Salsette, Shah (1969).

Cyperus compressus L. Sp. Pl. 46.1753 *emend.* Dandy in Exell. Cat. S. Tomes 357.1844; C. B. Cl. in Hook. f. Fl. Brit. India 6: 605.1998; Cooke, Fl. Pres. Bombay 3: 379.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 617.1974; T. Koyama in Gard. Bull. Straits Settlements. 30 : 138.1977.

Herbs, stems 10–30 cm tall, erect, 2.5 cm wide, triquetrous. Leaves up to 15–25 × 3 cm, linear. Inflorescence compound, 5–15 cm long; involucral bracts 3–5, overtopping. Spikes racemose or digitate; spikelets 1.0–1.8 × 0.2–0.3 cm, oblong, flat, greenish–yellow, rachilla flexuous. Glumes ca. 0.4 cm long, broadly ovate, mucronate, strongly keeled, margins hyaline. Nuts 0.1–1.5 cm long, trigonous, obovoid, ellipsoid, obtuse, apiculate.

Fls. & Frts. : July–October.

Illus. : Mahesh. Illus. Fl. Delhi f. 217.1966; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 632.1988.

Distrib. : Common along streams & fallow fields. 167893.

Cyperus difformis L. Sp. Pl. 67.1753; C. B. Cl. in Hook. f. Fl. Brit. India 6: 599.1893; Cooke, Fl. Pres. Bombay 3: 376 (Repr. ed.); Kern in Steenis, Fl. Males. 1 7: 629.1974; T. Koyama in Gard. Bull. Straits Settlements. 30 : 143.1977. '*Lavala*'.

Herbs. Stems 10–30 × 0.25 cm, erect, slender, triquetrous. Leaves up to 10 cm long, linear, flat or canaliculate. Inflorescence simple or compound, up to 5 cm long; involucral bracts overtopping, 3; spikes globose or capitate, 1.0–1.2 cm across; spikelets, narrowly linear,

0.3–0.6 cm long, flat, 5–15-flowered; Glumes broadly ovate or suborbicular. Nuts ca. 0.1 cm long, triquetrous, ovoid, apiculate and stipitate.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 781.1982.

Distrib. : Common near wet and moist places. 167836.

Cyperus distans L. f. *Suppl. Pl.* 103.1781; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 607.1893; Kern in Steenis, *Fl. Males.* 1, 7: 610.1974; T. Koyama in *Gard. Bull. Straits Settlements* 30: 135.1977.

Perennial herbs, 40–60 cm tall; rhizomes stoloniferous. Stems slender, erect. Leaves flat, as long as stems. Inflorescence decomposed; involucre bracts 5–7. Spikes perpendicular to the rachis; spikelets 1–2 × 0.1–0.15 cm, 15–20-flowered, linear. Nuts ellipsoid, or obovate, triquetrous, apiculate.

Fls. & Frts. : August–November.

Illus. : Hooper in Sald. & Nicols. *Fl. Hassan Dt.* 656. f. 110 A.1976; Matthew, *Fur. Illus. F. Tamilnadu Carnatic* 4: t. 634 & 636.1988.

Distrib. : Borivli, R. R. Fernandez, 941. 863. (BLAT).

Cyperus exaltatus Retz. *Obs. Bot.* 5; 11.1789; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 617.1893; Cooke, *Fl. Pres. Bombay* 3: 386.1958 (Repr. ed.); Kern in Steenis, *Fl. Males.* 1, 7: 602.1974; T. Koyama in *Gard. Bull. Straits Settlements* 30: 129.1977.

Rhizomatous herbs. Stems up to 1.5 m tall and 1 cm wide, stout, tufted, rigid, trigonous. Leaves up to 100 × 1–1.5 cm, linear, spongy. Inflorescence decomposed, up to 30 cm long; involucre bracts 5–7, overtopping. Spikes digitate, terete, lax, at right angles to the rachis; spikelets 0.3–0.6 × 0.5–1.5 cm, oblong, acute, ca. 20-flowered, flat. Glumes up to 0.2 cm long, ovate, mucronate. Nuts 0.07–0.08 cm long, obovoid to ellipsoid, trigonous, apiculate, tapering at both ends.

Fls. & Frts. : August–December.

Illus. : Kern in *Reinwardtia* 2: 100. f. 2.1952; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4, t. 637 & 638.1988.

Distrib. : Common in streams. 167854.

Cyperus iria L. *Sp. Pl.* 45.1753; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 606.1893; Cooke, *Fl. Pres. Bombay* 3: 380.1958 (Repr. ed.);

Kern in Steenis, Fl. Males. 1, 7: 616.1974; T. Koyama in Gard. Bull. Straits Settle. 30 : 139.1977.

Herbs. Stems 15–60 cm tall, sparsely tufted, slender or rigid. Leaves 10–17 × 0.1–0.5 cm, linear, flat or canaliculate. Inflorescence compound or decomposed, 3–15 cm long; involucre bracts 3–5, slender. Spikes ovoid; spikelets 0.6–0.8 × 0.1–0.15 cm, ca. 15–20-flowered. Glumes broadly obovate, ca. 0.25 cm long, obtuse or emarginate, shortly mucronate. Nuts ca. 0.1 cm long, obovate, or ellipsoid, apiculate, stipitate.

Fls. & Frts. : June–February.

Illus. : Mahesh. Illus. Fl. Delhi 218.1966; Matthew. Illus. Fl. Tamilnadu Carnatic 4 : t. 440.1988.

Distrib. : Common near wet and moist places. 167844, 168410.

Cyperus leucocephalus Retz. Obs. Bot. 5 : 11.1789; C. B. Cl. in Hook. f. Fl. Brit. India 6: 602.1893; Cooke, Fl. Pres. Bombay 3: 377.1958 (Repr. ed.).

Herbs, rhizomes woody, short. Stems 15–30 cm tall, slender, tufted. Leaves shorter than the stem; narrowly linear, filiform. Spikes 10–20-flowered, compressed forming globose, dense terminal-heads; bracts 1–4 cm long. Spikelets 0.3–0.8 cm long. Nuts oblong–ellipsoid, trigonous, shortly apiculate, black.

Fls. & Frts. : June–October.

Illus. : Kern in Reinwardtia 3–40. f. 5a–a5–1954.

Distrib. : Borivli, R. R. Fernandez, 409, 514 (BLAT).

Cyperus nutans Vahl, ssp. **eleusinoides** (Kunth) T. Koyama in Gard. Bull. Straits Settle. 30 : 136.1977. *C. eleusinoides* Kunth Enum. Pl. 2: 39.1837; C. B. Cl. in Hook. f. Fl. Brit. India 6: 608.1893; Cooke, Fl. Pres. Bombay 3: 382.1958 (Repr. ed.). *C. nutans* Vahl var. *eleusinoides* (Kunth) Haines Bot. Bihar, Orissa 3 : 898.1924; [3 : 941.1961–(Repr. ed.)]; Kern in Steenis, Fl. Males. 1, 7 : 610.1974.

Perennial herbs. Stems up to 1.0 tall and 0.8–1.5 cm wide. Leaves as long as stem and 0.5–0.8 cm wide. Inflorescence decomposed, up to 25 cm long; involucre bracts 5–7. Spikes oblong, 10–20-flowered; spikelets 0.5–1.5 × 0.1–0.2 cm, oblong. Glumes ca. 0.2 cm long, ovate, retuse. Nuts ca. 0.15 cm long, obovoid, triquetrous.

Fls. & Frts. : July–December.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4 : t.641.1988.

Distrib. : Common in stream beds. 167956, 169196.

Cyperus pangorei Rottb. *Descr. Icon. Rar. Nov. Pl.* 31, t. 7, f.3.1773; T. Koyama in *Gard. Bull. Straits Settlem.* 30; 142.1977. & in *Dassan. & Fosb. Rev. Handb. Fl. Ceylon* 5 : 176, f. 9. 1985. *Cyperus tagetum* Roxb. *Fl. Ind.* 1: 208.1832; C. B. Cl. in *Hook. f. Fl. Brit. India* 6: 613.1893; Cooke, *Fl. Pres. Bombay* 3: 384.1958 (Repr. ed.).

Perennial herbs, stems up to 1.2 m tall and 1 cm wide, solitary or sparsely tufted, rigid, trigonous, spongy. Leaves 30 × 0.5–1.0 cm, linear, acuminate, prominently nerved. Inflorescence compound, spikelets 1.0–2.0 × 0.1–0.2 cm, spicate, narrowly oblong, acute, rachilla flexuosus. Glumes ca. 0.1–0.15 cm long, narrowly oblong, obtuse. Nuts ca. 0.15 cm long, obovoid, oblong, tapering towards base.

Fls. & Frts. : July–January.

Illus. : T. Koyama in *Dassan. & Fosb. op. cit.*

Distrib. : In stream beds. 167916.

Cyperus pygmaeus Rottb. *Descr. & Icon.* 20, t. 14, f. 5.1773; Cooke, *Fl. Pres. Bombay* 3: 372.1958 (Repr. ed.); Kern in *Backer & Bakh. f. Fl. Java* 3 : 472.1968 & in *Steenis, Fl. Males.* 1, 7: 634.1974; T. Koyama in *Gard. Bull. Straits Settlem.* 30 : 146.1977. *C. michelianus* (L.) Link. ssp. *pygmaeus* (Rottb.) Aschers. & Graebn. *Syn. Mitteleur. Fl.* 2(2) : 273.1930.

Annual herbs. Stems up to 15 cm tall, dwarf, slender, erect, triquirous. Leaves, ca. 3 × 0.15 cm, linear. Inflorescence up to 4 cm long, capitate or lobed, dialated at base. Spikelets up to 0.4 cm long, broadly ovate to lanceolate, 10–20-flowered; Glumes ca. 0.3 cm, oblong–lanceolate, strongly keeled, pellucid. Nuts ca. 0.1 cm long, ellipsoid, trigonous, apiculate, stipitate.

Fls. & Frts. : July–November.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4 : t.646.1988.

Distrib. : Banks of ponds & streams. 168932.

Cyperus rotundus L. *Sp. Pl.* 45.1753; C. B. Cl. in *Hook. f. Fl. Brit. India* 6: 614.1893; Cooke, *Fl. Pres. Bombay* 3: 385.1958 (Repr. ed.); Kern in *Steenis, Fl. Males.* 1, 7 : 604.1974. 'Nagar-motha'.

Perennial herbs, stems 10–15 cm tall, loosely tufted, erect, triquetrous. Leaves 5–15 × 0.1–0.2 cm, linear, scabrous. Inflorescence simple or compound, 4–5 cm long. Involucral bracts 3; spikes at right angles to the rachis; spikelets 0.5–1.0 × 0.1–0.2 cm, 10–30-flowered. Glume 0.3–0.5 cm long, ovate, mucronulate, subobtuse. Nuts ca. 0.15 cm long, obovate, stipitate, apiculate.

Fls. & Frts. : June–October.

Illus. : Tad. & G. V. Narayana Handb. S. Indian Weeds 420. t. 168.1955; Kern in Steenis, *op. cit.* 594, f. 49.

Distrib. : Common near wet and moist places. 167284.

Cyperus tenuispica Steud. Syn. Cyp. 2 : 11.1855; C. E. C. Fischer in Gamble Fl. Pres. Madras 1640. 1930 (3: 1139.1967. Repr. ed.); Kern in Steenis, Fl. Males. 1. 7: 625.1974; T. Koyama in Gard. Bull. Straits Settlements. 30 : 143.1977. *C. flavidus sensu* C. B. Cl. in Hook. f. Fl. Brit. India 6 : 600.1893 *non* Retz. 1789; Cooke, Fl. Pres. Bombay 3: 375.1958 (Repr. ed.).

Annual herbs, 10–15 cm tall. Stems erect, tufted, slender. Leaves flat ca. 16 cm long, linear. Spikes 20-flowered; spikelets 0.3–0.6 × 0.2 cm, linear-lanceolate. Nuts 0.1 cm long subglobose or obovoid, apiculate, stipitate, white.

Fls. & Frts. : August–October.

Illus. : Kern in Steenis, *op. cit.* 628. f. 58.

Distrib. : Borivli, P. S. Herbert, 1306 & R. R. Fernandez, 410. 1493 (BLAT).

ELEOCHARIS R. Br.

- | | | |
|--|-----|------------------------|
| 1. Stems appearing septate on drying | ... | <i>E. dulcis</i> |
| 1. Stems not appearing septate on drying : | | |
| 2. Stems stoloniferous, stout : | | |
| 3. Hypogynous bristles much shorter than the nut | ... | <i>E. spiralis</i> |
| 3. Hypogynous bristles much longer than the nut | ... | <i>E. acutangula</i> |
| 2. Stems not stoloniferous, slender | ... | <i>F. atropurpurea</i> |

Eleocharis acutangula (Roxb.) J. A. Schult. in Roem. & Schult. Mant. 2: 91.1824; Kern in Steenis, Fl. Males 1,7:525.1974. *Scirpus acutangulus* Roxb. Fl. Ind. 1: 126.1820. *Eleocharis fistulosa* Schult. in Roem. & Schult. Mant. 2: 89.1824; C. B. Cl. in Hook. f. Fl. Brit. India 6 :

626.1893; Cooke, Fl. Pres. Bombay 6: 402.1958 (Repr. ed.).

Stoloniferous, herbaceous sedges, 30–90 cm tall. Sheaths obliquely truncate, black, represented by ovate–acute or lanceolate limb. Spikelet 1.5–3.5 cm long, single, ovoid; lowest glume broadly ovate, coriaceous, margins membranous, fertile glumes ovate, oblong, striate, spotted with brown inside; bristles longer than the nut, retrorsely scabrid. Nuts ca. 0.2 cm long, obovoid, tipped with saucer-shaped style base.

Fls. & Frts. : October–December.

Illus. : Hooper in Sald. & Nicols. Fl. Hassan Dt. 656, f. 110 H.1976; A. S. Rao & Verma, Cyp. N. E. India 24, f. 9–9a.1982; Matthew, Illus. Fl. Tamilnadu Carnatic 2 : t. 786.1982.

Distrib. : Salsette, Shah (1969).

Eleocharis atropurpurea (Retz.) J. & K. Presl, Rel. Haenk. 1: 196: 1828; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 627.1893; Cooke, Fl. Pres. Bombay 3: 403.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7:536.1974. *Scirpus atropurpureus* Retz. Obs. Bot. 5: 14.1789.

Annual herbs up to 10 cm tall. Stems tufted angular, sulcate, Leaves absent. Spikelets 0.3–0.6 cm, long, globose or ovoid. Hypogynous bristles 4–6. Glumes 0.1–0.2 cm long, ovate, keeled, hyaline, spiral. Nuts ca. 0.1 cm long, obovoid, apically truncate, with short style base, stipitate, biconvex.

Fls. & Frts. : July–September.

Illus. : C. B. Cl. Illustr. Cyper. t. 36 (6–9) 1909; Mahesh. Illus. Fl. Delhi. f. 219.1966; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 652.1988.

Distrib. : Found in moist and wet places.

Eleocharis dulcis (Burm. f.) Trin. ex Henschel, Vita Rumph.186.1833; Kern in Steenis, Fl. Males. 1, 7: 529. f. 36.1974. *Andropogon dulce* Burm. f. Fl. Ind. 219.1768. *Eleocharis plantaginea* (Retz.) Roem. & Schult. in L. Syst. Veg. 2: 150.1817; C. B. Cl. in Hook. f. Fl. Brit. India 6: 625.1893; Cooke, Fl. Pres. Bombay 3: 402.1958 (Repr. ed.).

Perennial herbs ca. 80 cm tall, stoloniferous. Stems slender, terete. Sheath obliquely obtuse. Spikelets 3.0–4.5 × 0.4 cm, terete, terminal. Hypogynous bristles 7. Glumes 0.2–0.4 × 0.2–0.4 cm, oblong-ovate, obtuse, keeled, nerved. Nuts obovoid, biconvex, truncate at apex, 0.15–0.25 cm long.

Fls. & Frts. : August–November.

Illus. : Kern in Steenis, *op. cit.*; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic*. 4 : t. 653.1988.

Distrib. : Borivli, R. R. Fernandez, 1510–11,1674.1809 (BLAT).

Eleocharis spiralis (Rottb.) Roem. & Schult. in L. *Syst. Veg.* 2: 155.1817; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 627.1893; Cooke, *Fl. Pres. Bombay* 3: 403.1958 (Repr. ed.); Kern in Steenis, *Fl. Males.* 1, 7:527.1974. *Scirpus spiralis* Rottb. *Descr. & Icon. Rar.* 45, t. 15. f. 1.1773.

Herbs. Stems up to 70 cm tall, 0.3 cm across, erect, triquetrous upwards. Sheaths obliquely attenuate, mucronate. Spikelets 1.5 × 0.3–0.4 cm, terete, oblong. Glumes 0.3–0.4 cm long, many, spirally arranged, suborbicular. Hypogynous bristles 4–6. subequal. Nuts ca. 0.15 cm long, obovoid, biconvex, glossy, apically annular, fulvous.

Fls. & Frts. : August–December.

Illus. : Tad. & G. V. Narayana *Handb. S. Indian Weeds* 424. t. 169.1955; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4:t. 656.1988.

Distrib. : In marshy creeks at Ghodbandar. 167837.

FIMBRISTYLIS Vahl (nom. cons.)

1. Spikelets 1–3 :
 2. Ligules present, glumes obtuse, mucous or mucronulate :
 3. Leaves on the flowering stem reduced to sheaths; nuts planoconvex or oblong-cylindric ... *f. tetragona*
 3. Leaves on the flowering stem well-developed; nuts biconvex :
 4. Flowering glumes mucous; stamens 1–2 ... *F. polytrichoides*
 4. Flowering glumes distinctly mucronulate; stamens 3 ... *F. schoenoides*
 2. Ligules absent; glumes awned ... *F. ovata*
1. Spikelets 4 to many :
 5. Stigmas 2; nuts biconvex or cylindrical :
 6. Nuts oblong-linear or oblong-cylindric ... *F. dipsacea*
 6. Nuts elliptic to obovate :

7. Inflorescence of capitate clusters;
all spikelets sessile ... *F. argentea*
7. Inflorescence compound-umbellate;
all spikelets not sessile :
8. Ligules present :
9. Glumes hairy in the upper half; nuts faintly
striolate or nearly smooth :
10. Cauline leaves 15-35 cm long;
nuts distinctly stipitate ... *F. sieberiana*
10. Cauline leaves up to 10 cm long;
nuts shortly stipitate ... *F. ferruginea*
9. Glumes glabrous, vertically
distinctly ridged :
11. Spikelets 1.5-2.0 cm long ... *F. merrillii*
11. Spikelets 2.5 cm or more long :
12. Spikelets angular, glumes
sharply keeled ... *F. bis-umbellata*
12. Spikelets terete, glumes not or
scarcely, obscurely keeled :
13. Ridges on nuts 12-24 ... *F. albo-viridis*
13. Ridges on nuts 5-10 ... *F. dichotoma*
8. Ligules absent :
14. Annuals; styles fimbriate above, stamen-1 ... *F. aestivalls*
14. Perennials; styles not fimbriate; stamens-2 ... *F. cymosa*
5. Stigmas 3; nuts trigonous :
15. Glumes not mucronate at apex ... *F. littoralis*
15. Glumes acuminate or mucronate at apex :
16. Styles pubescent beneath trifurcation :
17. Plants rhizomatous; anthers acuminate,
nuts obscurely ribbed ... *F. falcata*
17. Plants not rhizomatous; anthers obtuse;
nuts tuberculate ... *F. miliacea*
16. Styles glabrous :
18. Stamens 1 ... *F. woodrowii*
18. Stamens 2-3 :
19. Leaves and bracts bristly;
styles nearly as long as nut ... *F. lawiana*
19. Leaves and bracts not as above;
styles longer than nut ... *F. tenera*
var. *oxyolepis*

Fimbristylis aestivalis (Retz.) Vahl, Enum. Pl. 2: 288.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6: 637.1893; Cooke, Fl. Pres. Bombay 3: 395.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7:584.1974. *Scirpus aestivalis* Retz. Obs. Bot. 4: 12.1786.

Herbs. Stems 2–6 cm tall, slender, suberect, tufted, arcuate. Leaves shorter than stem, filiform, flat or folded, pubescent, acute. Inflorescence compound, 1.5 × 4.0 cm; involucre bracts ca. 5, overtopping. Spikelets 2.0–3.5 × 0.8–1.0 cm, acute, terete, many-flowered; rachilla narrowly winged. Glumes ca. 0.15 cm long, ovate, acute, shortly mucronate. Nuts ca. 0.5 mm, obovoid, biconvex, umbonulate, shining.

Fls. & Frts. : September–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4:t.657.1988.

Distrib. : Frequent in wet and moist places. 167931.

Fimbristylis albo-viridis C.B. Cl. in Hook. f. Fl. Brit. India 6: 638.1883; Kern in Steenis, Fl. Males. 1, 7:580.1974; Rao & Verma, Cyper. N. E. India 35.1982.

Herbs, 15–20 cm tall. Stems flat, trigonous. Leaves shorter than or equal to the stem. Spikelets 0.5–1.0 × 0.2–0.25 cm, ovoid, terete, solitary in compound or decompound inflorescence. Nuts obovoid, biconvex 0.1 cm long, verruculose, stipitate.

Fls. & Frts. : September–October.

Illus. : Kern in Steenis, *op. cit.* 581, f. 46.

Distrib. : Borvli, R. R. Fernandez, 698, 1467. (BLAT).

Fimbristylis argentea (Rottb.) Vahl, Enum. Pl. 2: 294.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6: 640.1893; Cooke, Fl. Pres. Bombay 3: 395.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 586.1974. *Scirpus argenteus* Rottb. Prodr. 27.1772.

Herbs, 6–8 cm tall. Stems tufted, suberect, setaceous. Leaves up to 4 cm long, flat, involute, filiform. Spikelets 0.25–0.6 × 0.1–0.13 cm, obtuse, many-flowered, sessile, terete or angular. Glumes ca. 0.1 cm long, ovate, acute, hyaline. Nuts obovoid, biconvex, fulvus, umbonulate, faintly longitudinally striate.

Fls. & Frts. : February–March.

Illus. : T. Koyama in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5: 316. f. 24.1985; Matthew, Fur. Illus. Tamilnadu Carnatic 4: t.658.1988.

Distrib. : Borivli, R. R. Fernandez. 1234 (16. 5.1953) (BLAT).

Fimbristylis bis-umbellata (Forssk.) Bub. Dodec. 30.1850; Kern in Steenis, Fl. Males. 1, 7:579.1974. *Scirpus bis-umbellatus* Forssk. Fl. Aegypt.-Arab. 15.1775. *Fimbristylis dichotoma sensu* C. B. Cl. in Hook. f. Fl. Brit. India 6: 635.1893 *non* (L.) Vahl 1806.

Herbs. Stems 5–25 cm tall, tufted, slender, trigonous. Leaves 5–15 × 0.8–0.1 cm, linear, flat, acuminate, pubescent. Inflorescence 3–6 × 2.5 cm, decompose, involucre bracts 3–5. Spikelets 0.3–1.0 × 0.1–0.23 cm, many-flowered; rachilla winged. Glumes ca. 0.15 cm long, ovate, mucronate. Nuts ca. 0.05 cm, obovoid, biconvex, trabculate with vertical ridges, shortly stipitate.

Fls. & Frts. : July–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4:t.659.1988.

Distrib. : Common on moist grounds in open areas. 167871, 167917.

Fimbristylis cymosa R. Br. Prodr. 228.1810; Kern in Reinwardtia 6: 39.1961 & in Steenis, Fl. Males. 1, 7:557.1974. *F. spathacea* Roth, Nov. Pl. Sp. 24.1821; C. B. Cl. in Hook. f. Fl. Brit. India 6: 640.1893; Cooke, Fl. Pres. Bombay 3: 396.1958 (Repr. ed.).

Sedges with woody rhizomes; stems leafy below, 10–45 cm long, stout. Leaves much shorter than the stems, narrowly linear, obtuse to acute, coriaceous. Spikelets 0.3–0.5 × 0.2 cm, ellipsoid or ovoid in umbels, bracts shorter than umbels. Glumes loosely imbricate, ca. 0.15 cm long, ovate, obtuse, hyaline except on a reddish band on the back, keeled. Stamens usually 2. Nut minute, shortly stipitate, turbinate, biconvex, tapering at base.

Fls. & Frts. : August–December.

Illus. : C. B. Cl. Illus. Cyper t. 43 (7–11) 1909 (*F. spathacea*); Matthew, Further Illus. Fl. Tamilnadu Carnatic 4:t.662.1988.

Distrib. : Salsette, Shah (1969).

Fimbristylis dichotoma (L.) Vahl, Enum. Pl. 2: 287.1806; Kern in Steenis, Fl. Males. 1, 7:575.1974. *Scirpus dichotomus* L. Sp. Pl. 50.1753. *Fimbristylis diphylla* Vahl, *op. cit.* 289. C. B. Cl. in Hook. f. Fl. Brit. India 6: 636.1893; *excl. var. pluristriata*; Cooke, Fl. Pres. Bombay 3: 396.1958 (Repr. ed.).

Herbs. Stems up to 60 m tall, tufted. Leaves as long as or usually shorter than the stem linear, acute, canaliculate. Inflorescence 5–10 cm long, simple or compound. Spikelets ca. 0.5 cm long, solitary, ovoid, oblong-ovoid or terete, acute; rachilla winged. Glumes ca. 0.3 cm long, broadly ovate to suborbicular, mucronulate. Nuts ca. 0.1 cm long, obovoid, biconvex, shining, vertically ribbed, umbonate.

Fls. & Frts. : July–August.

Illus. : Rao, A. S. & Verma D. M. Cyper. N. E. India 33. fig.17.1982; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t.662.1988.

Distrib. : Frequent in wet and moist places. 167919, 167941.

Fimbristylis dipsacea (Rottb.) C. B. Cl. in Fl. Brit. India 6: 635.1893; Kern in Steenis, Fl. Males. 1.7 : 590.1974. *Scirpus dipsaceus* Rottb. Descr. & Icon. Pl. 56, t. 12, f. 1.1773. *Echinolytrum dipsaceum* (Rottb.) Desv. in J. Bot. 1 : 21, t.1.1808; Fernandez in J. Bombay nat. Hist. Soc. 61 : 474, t.1.1964.

Herbs, annuals. Stems slender, tufted 5–12 cm. Leaves short, filiform at the top; lower ones short-bladed; sheaths obliquely truncate. Spikelets subglobose or oblong-terete, solitary, many-flowered, 0.3–0.6 × 0.2–0.3 cm, in simple or subcompound, umbellate inflorescence. Glumes ca. 0.2 cm long, lanceolate, membranous, fulvous, awned; awn ca. 0.1 cm long. Nuts transversely faintly lineolate, biconvex.

Fls. & Frts. : May–July.

Illus. : Rao, A. S. & Verma, D. M. Cyper. N. E. India 33, fig. 16–16b.1982; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4:t.664.1988.

Distrib. : Borivli, R. R. Fernandez, 1207 abc, 1236, 1790 (BLAT).

Fimbristylis falcata (Vahl) Kunth, Enum. Pl. 2: 239.1837; Kern, in Blumea 8: 113.1955 & in Steenis, Fl. Males. 1, 7:557.1974. *Scirpus falcatus* Vahl, Enum, Pl. 2: 275.1806. *Fimbristylis junciformis* Kunth, Enum. Pl. 2: 239.1837; C. B. Cl. in Hook. & Fl. Brit. India 6: 647.1893; Cooke, Fl. Pres. Bombay 3: 400.1958 (Repr. ed.).

Glabrous sedges with woody rhizomes; stems 10–50 cm long, tufted. Leaves crowded at the base of the stem, shorter, margins scaberulous. Bracts shorter than the umbels. Spikelets 0.4–0.5 × 0.2 cm, in compound umbels. Glumes ca. 0.2 cm long, ovate, mucronate, keeled. Stamens 3. Styles pubescent above. Nuts ca. 0.1 cm long, shortly stipitate, obovoid; trigonus, faintly ribbed. whitish in colour.

Fls. & Frts. : September–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2:t. 708.1982 & Further *Illus. Fl. Tamilnadu Carnatic* 4: t. 666.1988.

Distrib. : Salsette, Shah (1969).

Fimbristylis ferruginea (L.) Vahl, *Enum. Pl.* 2: 291.1806; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 638.1893; Cooke, *Fl. Pres. Bombay* 3: 396.1958 (Repr. ed.); Kern in Steenis, *Fl. Males.* 1, 7: 572.1974. *Scirpus ferrugineus* L. *Sp. Pl.* 50.1753.

Perennial herbs, 20-30 cm tall. Stems tufted, rhizomatous. Leaves much shorter than the stem, conduplicate or triquetrous, linear. Spikelets 0.1 × 0.3 cm long, terete, acute, many-flowered, solitary, in simple or subcompound inflorescence. Glumes ca. 0.4 cm long, obovate-orbicular, puberulous at apex. Nuts biconvex, compressed, obovate or oblong, umbonate.

Fls. & Frts. : September-January.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 222.1966; Matthew, *Fur. Illus Fl. Tamilnadu Carnatic* 4: 667.1988.

Distrib. : Tulshi lake, McCann. 356. b. c., 356a. Ghodbundar, G. L. Shah; H. Santpau 17948 (BLAT).

Fimbristylis lawiana (Boeck.) Kern in Reinwardtia 4: 96.1956. *Scirpus lawianus* Boeck. in *Linnaea* 36: 497.1869-70. *Fimbristylis digitata* Boeck. in *Flora* 61: 35.1875; C. B. Cl. in Hook. f. *Fl. Brit. India* 6. 648.1893; Cooke, *Fl. Pres. Bombay* 3: 398.1958 (Repr. ed.).

Herbaceous, annual sedges, 10-15 cm tall. Stems tufted from bulbous bases. Leaves shorter than or as long as the stem, 5-8 × 0.1-0.15 cm, narrowly linear. Spikelets 0.3-0.6 × 0.1-0.5 cm, ovoid, oblong, ellipsoid, in terminally umbellately arranged heads; bracts usually 2, ovate, acute. Nuts ca. 0.1 cm long, obovoid, scarcely stipitate, faintly ribbed, trabeculate.

Fls. & Frts. : June-October.

Distrib. : Bhandup to Vihar lake, Ghatkopar, Blatter (1934).

Fimbristylis littoralis Gaud. in Freyc. *Voy. Bot.* 413.1826; Kern in Steenis, *Fl. Males.* 1, 7: 551.1974. *F. miliacea sensu* Bth. *Fl. Austral.* 316.1878; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 644.1893 *p.p. omne non* Vahl 1906 *non Scirpus miliaceus* L. (1753); Cooke, *Fl. Pres. Bombay* 3: 397.1958 (Repr. ed.).

Glabrous annual sedges up to 60 cm tall. Leaves shorter than the stem, with smooth margins. Bracts shorter than umbel. Spikelets pedicellate, in compound umbel on unequal filiform rays, 0.2–0.3 cm long, subglobose or subcylindric; rachilla not winged. Glumes closely imbricate, ovate, obtuse. Nuts minute, obovoid, obtusely trigonous, minutely stipitate, tubercled.

Fls. & Frts. : July–August.

Distrib. : Salsette, Shah (1969).

Fimbristylis merrillii Kern in *Blumea* 8: 135, t. 6.1955 & in Steenis, *Fl. Males.* 1, 7: 579.1974; Mistry & S. M. Almeida in *J. Econ. Tax. Bot.* 9: 403, t. A–G.1987. *F. ligulata* Govind. in *Proc. Indian Acad. Sci.* 76 B: 187, f. 3: 1972.

Annual herbs, 15–30 cm tall. Stems tufted. Leaves shorter than the stem, curved, capillary, abruptly acuminate. Spikelets many-flowered, ovoid, terete, acute at apex, in simple or compound inflorescence. Nuts ca. 0.1 cm long, biconvex, obovate, shortly stipitate, prominently cancellate.

Fls. & Frts. : July–October.

Illus. : Kern, *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 529. 6. 9. 52 (BLAT).

Fimbristylis miliacea (L.) Vahl, *Enum. Pl.* 2: 287.1806 *emend.* S. T. Blake in *J. Arnold Arbor.* 35: 216.1984; C. B. Cl. in *Hook. f. Fl. Brit. India* 6: 844.1893; Kern in Steenis, *Fl. Males.* 1, 7: 552.1974. *Scirpus miliaceus* L. *Syst. nat.* (ed. 10), 2: 868.1759. *Fimbristylis quinqueangularis* (Vahl) Kunth, *Enum. Pl.* 2: 229.1807; C. B. Cl. in *Hook. f. op. cit.*; Cooke, *Fl. Pres. Bombay* 3: 379.1958 (Repr. ed.).

Annual herbs. Stems 10–30 cm tall, tufted. Leaves up to 25 cm long, linear, acuminate. Inflorescence up to 2.5 cm long, compound or decomposed; involucre bracts 3–5, not overtopping. Spikelets up to 0.3 cm long, ellipsoid, ovoid; rachilla winged. Glumes ca. 1.5 mm, orbicular, mucronate. Nuts ca. 0.5 mm long, obovoid, trigonous, shining, verruculose.

Fls. & Frts. : August–December.

Illus. : Tad. & G. V. Narayana *Handb. S. Indian Weeds* 426. t.170.1955; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: 669.1958.

Distrib. : Common in open moist areas. 169107.

Fimbristylis ovata (Burm. f.) Kern in Blumea 15: 126.1967 & in Steenis, Fl. Males. 1, 7: 565.1974. *Carex ovata* Burm. f. Fl. Ind. 194.1768. *Fimbristylis monostachyos* (L.) Hassk. Pl. Java Rar. 61.1848; ('*monostachya*'); C. B. Cl. in Hook. f. Fl. Brit. India 6: 649.1898; Cooke, Fl. Pres. Bombay 3: 399.1958 (Repr. ed.).

Perennial, rhizomatous herbs. Stems 5–15 cm tall, densely tufted. Leaves up to 15 cm long, flat, margins convolute, filiform, obtuse. Inflorescence with 1–2 spikelets; involucre bracts 1–3, not overtopping. Spikelets 0.5–0.9 × 0.4–0.6 cm, terete, acute, oblong; rachilla winged. Glumes distichous at base and spiral upwards, ca. 0.4 cm long, ovate, mucronate, strongly keeled. Nuts ca. 0.2 cm long, obovoid, glossy, tubercled, stipitate.

Fls. & Frts. : July–October.

Illus. : Mahesh, Illus. Fl. Delhi f. 221.1966; (*F. monostachyos*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 670.1988.

Distrib. : Frequent near ponds and streams. 169103, 169998.

Fimbristylis polytrichoides (Retz.) Vahl, Enum. Pl. 2 : 248.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 632.1893; Cooke, Fl. Pres. Bombay 3 : 393.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7 : 586.1974. *Scirpus polytrichoides* Retz. Obs. Bot. 4 : 11.1786.

Perennial herbs, 8–30 cm tall. Stems tufted, slender. Leaves 5–20 cm long, filiform, or accicular, canaliculate, acute at apex. Spikelets solitary ca. 0.6 cm long, oblong–ellipsoid, terminal or pseudolateral. Glumes ca. 0.3 cm long, linear–oblong, cymbiform, apically puberulous, obtuse or apiculate. Nuts ca. 0.1 cm long, turbinate, biconvex, umbonate, shortly stipitate, verruculose.

Fls. & Frts. : August–October.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t 672.1988.

Distrib. : Versova, H. Santapau, s. n. 11. 10. 41 (BLAT).

Fimbristylis schoenoides (Retz.) Vahl, Enum. Pl. 2 : 286.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 634.1893; Cooke, Fl. Pres. Bombay 3 : 394.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7 : 573.1974. *Scirpus schoenoides* Retz. Obs. Bot. 5 : 14.1789.

Herbs, 10–30 cm tall. Stems tufted. Leaves shorter than or as long as stem, narrowly linear, flat or folded. Spikelets 0.6–0.7 × 0.2 cm, Glumes 0.3 cm long, ovate–orbicular or elliptic–oblong. Nuts 0.08–0.18 × 0.05 cm long, obovoid, biconvex, stipitate, umbonate.

Fls. & Frts. : August–October.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4 : t. 672.1988.

Distrib. : Borivli, R. R. Fernandez, 393. 1463 (BLAT).

Fimbristylis sieberiana Kunth, *Enum. Pl.* 2 : 237.1837; Shah & Suryanarayana in *J. Bombay nat. Hist. Soc.* 66 : 412–414.1969; Kern in Steenis, *Fl. Males.* 1, 7 : 572.1974.

Herbs. Stems up to 45 cm tall, tufted. Leaves up to 40 cm long, linear, margins involute, scabrid, obtuse, acute at apex. Inflorescence simple or subcompound umbels, involueral bracts 3–5, lowest overtopping. Spikelets ca. 0.7 cm long, solitary, ovoid, terete; rachilla slightly winged. Glumes 0.1–0.25 cm long, suborbicular, apically tomentose, mucronulate. Nuts ca. 0.15 cm long, obovoid, biconvex, stipitate.

Fls. & Frts. : August–December.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 673.1988.

Distrib. : Frequent along nallas & marshes. 167840.

Fimbristylis tenera J. A. Schult. var. ***oxyolepis*** (Steud.) C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 642.1893. *F. oxyolepis* Steud. *Syn. Cyp.* 2: 110.1855; A. S. Rao & D. M. Verma, *Cyper. N. E. India* 35.1982.

Herbs. Stems 15–20 cm tall, filiform, slender. Leaves filiform. Inflorescence 1–2 anthelate, with solitary or few spikelets. Spikelets 0.4–0.5 cm long, lanceolate, terete, acute. Glumes 0.25 cm long, ovate, acute, apiculate, glandular, keels scabrid, green. Nuts obovate, obtusely trigonous.

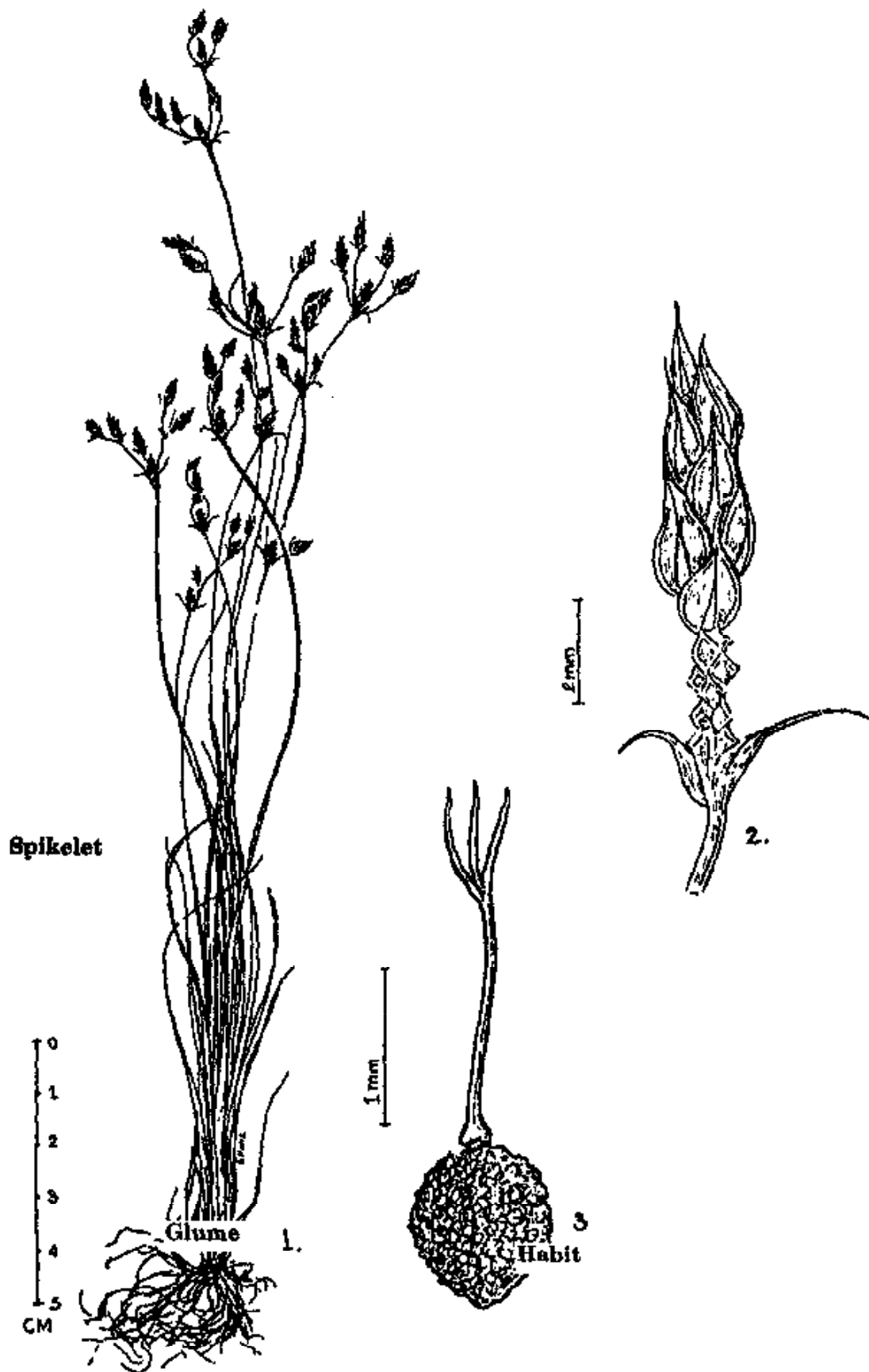
Fls. & Frts. : August–November.

Distrib. : Common near moist places. 167907.

Fimbristylis tetragona R. Br. *Prodr.* 226.1810; C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 631.1893; Cooke, *Fl. Pres. Bombay* 3: 393.1958 (Repr. ed.); Kern in Steenis, *Fl. Males.* 1; 7. 590.1974.

Perennial herbs, 20–40 cm tall. Stems densely tufted. Leaves reduced to membranous sheaths. Spikelets 0.6–0.7 cm long, ovoid, solitary, terminal. Glumes 0.35 cm long, obovate–cuneate, obtuse, many-flowered. Nuts ca. 0.3 cm long, longitudinally ridged, tuberculate, stipitate.

Fls. & Frts. : August–February.



f.91. *Fimbristylis tenera* Schult. var. *oxyolepis* (Steud.) C.B.Cl.

Illus. : Rao, A. S. & Verma, D. M. Cyp. N. E. India 33, f. 13-13a.1982; T. Koyama in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5: 322. f. 25.1985.

Distrib. : Borivli, R. R. Fernandez, 1452, 220 (BLAT).

Fimbristylis woodrowii C. B. Cl. in Kew Bull. Misc. Inform.1898: 227.1898 & J. Linn. Soc. Bot. 34: 688.1898; Cooke, Fl. Pres. Bombay 3: 398.1958 (Repr. ed.); Hooper in Sald. & Nicols. Fl. Hassan Dt. 682.1976.

Herbs, 8-18 cm tall. stems sparsely tufted, slender. Leaves up to 10 cm long, flaccid, acute. Spikelets ca. 0.5 cm long, 10-flowered, geminate, oblong, acuminate, in terminal clusters of 3 spikelets. Glumes ca. 0.5 cm long, ovate, acute, mucronate, 3-5-nerved. Nuts ca. 0.1 cm long, obvoid, trigonous, longitudinally ridged, trabeculate, umbonate, stipitate.

Fls. & Frts. : July-October.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 678.1988.

Distrib. : Borivli, R. R. Fernandez, 408, 536, 1430 (BLAT).

FUIRENA Rottb.

Fuirena ciliaris (L.) Roxb. Fl. Ind. 1: 184.1820; Kern in Steenis, Fl. Males. 1, 7: 519.1974. *Scirpus ciliaris* L. Mant. Alt.182.1771. *Fuirena glomerata* Lam. Illus. 1: 150.1791; C. B. Cl. in Hook. f. Fl. Brit. India 6: 666.1893; Cooke, Fl. Pres. Bombay 3: 412.1958 (Repr. ed.).

Annual herbs. Stems up to 30 cm tall, rigid, angular. Leaves 2-6 × 0.3-0.5 cm, linear-lanceolate. Inflorescence umbellate. Spikelets 0.4-0.8 × 0.5 cm, obtuse, terete, squarrose, many-flowered. Glumes oblong, obovate, aristate. Hypogynous bristles 4-6, filiform; scales 3. Nuts ca. 0.08 cm, smooth, fuscous, trigonous, stipitate.

Fls. & Frts. : October-November.

Illus. : Kern in Steenis, *op. cit.* 517. f. 32.

Distrib. : Gregarious in perennially moist grounds, stream banks & fallow fields. 168466.

KYLLINGA Rottb. (*nom. cons.*)

1. Keels of the glume distinctly winged :

2. Rhizomes present

... *K. nemoralis*

- | | | | |
|----|---------------------------------|-----|----------------------|
| 2. | Rhizomes absent | ... | <i>K. squamulata</i> |
| 1. | Keels of the glume not winged : | | |
| 3. | Rhizomes elongated, creeping | ... | <i>K. brevifolia</i> |
| 3. | Rhizomes short, not creeping | ... | <i>K. tenuifolia</i> |

Kyllinga brevifolia Rottb. Descr. & Icon. Rar. 13. t. 4, f. 3.1773; C. B. Cl. in Hook. f. Fl. Brit. India 6: 588.1893; T. Koyama in Gard. Bull. Straits Settlement. 30 : 163.1977. *Cyperus brevifolius* (Rottb.) Hassk. Cat. Hort. Bot. Bogor. 24.1844; Kern in Steenis, Fl. Males. 1,7:656.1974.

Perennial herbs. Stems 10–30 cm tall, erect, slender, triquetrous. Leaves as long as stem or longer, flat or canaliculate. Spikes 0.5 × 0.7 cm, solitary; involucre bracts 3, overtopping; spikelets ca. 0.3 cm long, lanceolate to oblong, many in clusters, many-flowered. Glumes 4, basal, elliptic-ovate, upper two boat-shaped. Nuts ca. 0.1 cm long, biconvex, obovoid, or ellipsoid, apiculate, stipitate, vertically verrucose.

Fls. & Frts. : July–February.

Illus. : C. B. Cl. Illus. Cyper. t. 1. f. (1–4) 1909; Kern in Steenis, *op. cit.* 658. f. 70; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 682.1988.

Distrib. : Common in open moist areas, 167891.

Kyllinga nemoralis (J. R. & J. G. A. Forst.) Dandy ex Hutch. & Dalziel, Fl. W. Trop. Africa 2, 2: 486, 487.1936; T. Koyama in Gard. Bull. Straits Settlement. 30:163.1977; Getliffe in J. S.Afr. Bot. 49:272.1988. *Thyrocephalon nemorale* J. R. & J. G. A. Forst. Char. Gen. Pl. 129. t. 65.1776. *Kyllinga monocephala* Rottb. Descr. & Ic. Nov. Pl. 13, f. 4.1773; C. B. Cl. in Hook. f. Fl. Brit. India 6: 588.1893; Cooke, Fl. Pres. Bombay 3: 390.1958 (Repr. ed.).

Herbs, 8–30 cm tall, perennial. Stems sparsely or densely tufted, slender. Leaves up to 15 cm long, flaccid, linear, flat or canaliculate. Spikelets ca. 0.4 cm long, obliquely ovoid, or elliptic, in globose, 1–3 sessile heads. Glumes 4–5, lower ones 0.2 cm long, narrowly linear, keeled, hyaline, upper most 0.25 cm long, boat-shaped, mucronulate, keeled; bracts 3–4, spreading. Nuts 0.15 cm long, obovoid, biconvex, dorsally flattened apiculate, stipitate.

Fls. & Frts. : July–November.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 684.1986.

Distrib. : Ghodbundar, G. L. Shah, 9928 (BLAT).

Kyllinga squamulata Thonn. ex Vahl, Enum. Pl. 2: 381.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6: 589.1893. *Cyperus metzii* (Hochst. ex Steud.) Mattf. & Kuekenth. in Engl. Pflanzenr. 4. 20, 101. 612.1936.

Annual herbs, 8–25 cm tall. Stems tufted, slender. Leaves 10–30 cm long, linear. Spikelets 0.4–0.6 cm long, broadly ovate, compressed in globose, terminal, solitary heads. Glumes ovate; keel excurrent and recurved. Nuts ovoid-oblong, minutely punctate; yellowish.

Fls. & Frts. : August–October.

Distrib. : Borivli, R. R. Fernandez, 1434, 24 (BLAT).

Kyllinga tenuifolia Steud. Syn. Pl. Glum. 2: 69.1855; Hooper in Sald. & Nicols, Fl. Hassan Dt. 688.1976. *Kyllinga triceps* Rottb. Descr. & Icon. Rar. 14, t. 4, f. 6.1773; C. B. Cl. in Hook. f. Fl. Brit. India 6: 587.1893; Cooke, Fl. Pres. Bombay 3: 391.1958 (Repr. ed.); T. Koyama in Gard. Bull. Straits Settlem. 30 : 162.1977. *Cyperus triceps* (Rottb.) Endl. Cat. Hort. Vindob. 1: 94.1842; Kern in Steenis, Fl. Males. 1, 7: 659.1974.

Herbs, Stems 5–20 cm tall, erect, tufted, slender, triquetrous. Leaves up to 15 cm long, linear, flaccid, scabrid. Inflorescence capitate, often of 3-lobed spikes, sometimes 1–5-lobed; central one subglobose, or oblong, up to 0.6 cm; lateral ones globose, smaller; involucre bracts 3, unequal, overtopping. Spikelets ca. 0.2 cm long, oblong, 1-flowered. Glumes 4, linear, to ovate, keeled. Nuts 0.15 cm long, oblong, laterally compressed, biconvex, apiculate, stipitate.

Fls. & Frts. : August–January.

Illus. : Mahesh. Illus. Fl. Delhi f. 213.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 785.1982 (*Cyperus triceps*).

Distrib. : Common on plains in moist places. 167896.

MARISCUS Vahl (*nom. cons.*)

1. Spikelets stellately arranged :
 2. Leaves septate, nodulose; glumes 0.9–0.45 cm long, obtuish or mucicuous at apex ... *M. compactus*
 2. Leaves not septate & nodulose; glumes, 0.1–0.2 cm long with a recurved awn ... *M. squarrosus*
1. Spikelets spiketly arranged :
 3. Rays of the umbels curved ... *M. cyperinus*
 3. Rays of the umbel straight :

- | | | | |
|----|---|-----|-----------------------|
| 4. | Nuts chest nut-coloured; rays of the umbel
ca. 2.5 cm long | ... | <i>M. sumatrensis</i> |
| 4. | Nuts black-coloured; rays of the umbel
2.5-10 cm long | ... | <i>M. paniceus</i> |

Mariscus compactus (Retz.) Bold. Zakfl. Landb. Java 77.1916; T. Koyama in Gard. Bull. Straits Settlement. 30 : 153.1977 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 228, f. 15.1985. *Cyperus compactus* Retz. Obs. Bot. 5: 10.1789. *C. dilutus* Vahl, Enum. Pl. 2: 357.1806; Cooke, Fl. Pres. Bombay 3: 389.1958 (Repr. ed.). *Mariscus microcephalus* K. B. Presl, Rel. Haenk. 1: 182.1830; C. B. Cl. in Hook. f. Fl. Brit. India 6: 624.1893.

Perennial herbs. Stems rhizomatous, erect, ca. 1 cm wide, rigid, terete, spongy. Leaves ca. 0.6 cm wide, up to 30 cm long. Inflorescence compound or decompound, up to 10 cm long; involucre bracts 5-10, overtopping. Spikes globose, 1.5-2.0 cm across racemose; spikelets 0.6-0.4 cm long, narrowly-linear, terete. Glumes ca. 0.6 cm long, loosely imbricate, oblong or oblong-lanceolate, obtuse. Nut ca. 0.2 cm long, oblanceolate, oblong, sharply trigonous, stipitate and beaked.

Fls. & Frts. : October-December.

Illus. : T. Koyama in Dassan. & Fosb. *op. cit.*; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 686.1988.

Distrib. : Rare near Kashi beat on a roadside nallha. 167719.

Mariscus cyperinus (Retz.) Vahl, Enum. Pl. 2: 377.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6: 621.1893; T. Koyama in Gard. Bull. Straits Settlement. 30 : 157.1977 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5: 233.1985. *Kyllinga cyperina* Retz. Obs. Bot. 6: 21.1791. *Cyperus cyperinus* (Retz.) Valck.-Sur. Gesl. Cyp. Mal. Arch. 154, t. 6, f. 10.1898; Kern in Steenis, Fl. Males. 1, 7: 641.1974.

Perennial, rhizomatous herbs. Stems up to 0.5 m tall, triquetrous. Leaves as long as stem or shorter, ca. 0.8 cm wide. Inflorescence of simple umbels, 6-8 cm long; involucre bracts overtopping. Spikes ca. 15, up to 3 cm long, oblong or cylindrical; spikelets 0.5-0.7 cm long, linear, 2-4-flowered. Sterile glumes 0.08-0.1 cm long, ovate; fertile ones 0.2-0.4 cm long, oblong. Nuts ca. 0.2 cm long, narrowly ellipsoid, obtuse, angular, trigonous.

Fls. & Frts. : September-January.

Illus. : Fyson, P. F. Fl. Nilgiri & Pulney hill top 3 : 548.1975; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t. 687. 1988.

Distrib. : Infrequent. 167368, 167859.

Mariscus paniceus (Rottb.) Vahl, Enum. Pl. 2 : 378.1806; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 620.1893; Hooper in Sald. & Nicols. Fl. Hassan Dt. 690.1976. *Kyllinga panicea* Rottb. Descr. & Ic. 15, t. 4, f. 1.1773.

Stoloniferous perennials 10-25 cm high. Leaves often as long as the stem, flaccid. Spikelets 0.3×0.1 cm, ovate, in cylindrical spikes arranged in umbellately rayed, bracteate inflorescence; rays unequal, usually short. Nuts oblong, trigonous, more or less recurved, black.

Fls. & Frts. : August-November.

Illus. : C. B. Cl. Illustr. Cyper. t. 22 (1-2) 1909; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t.690.1988.

Distrib. : Mulgaon, Salsette, Blatter (1934).

Mariscus squarrosus (L.) C. B. Cl. in Hook. f. Fl. Brit. India 6 : 623.1893; T. Koyama in Gard. Bull. Straits Settlement. 30 : 153.1977; Hooper in Sald. & Nicols. Fl. Hassan Dt. 690.1976. *Cyperus squarrosus* L. in Torner. Cent. Pl. 2 : 6.1756; Kern in Steenis, Fl. Males. 1, 7 : 631.1974. *C. aristatus* Rottb. Descr. Pl. Rar. Progr. 22.1772; C. B. Cl. op. cit. 606; Cooke, Fl. Pres. Bombay 3 : 380.1958 (Repr. ed.).

Herbs. Stems 10 cm tall, erect, tufted, slender, 3-winged. Leaves up to 10 cm long, 0.4 cm wide, linear, flaccid. Inflorescence compound, up to 4 cm long; involucre bracts 3-5. Spikes ca. 1.5 cm across, globose, or ovoid; spikelets $0.5-0.8 \times 0.3-0.4$ cm, oblong, acute ca. 20-flowered; rachilla not winged. Glumes 3 cm long, ovate, aristate, strongly keeled. Nuts ca. 0.08 cm, trigonous, obovoid, apiculate.

Fls. & Frts. : June-October.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t.691.1988.

Distrib. : Occasional. 167888.

Mariscus sumatrensis (Retz.) J. Raynal in Adansonia 15 : 110.1975. *Kyllinga sumatrensis* Retz. Obs. Bot. 4 : 13.1786; Hopper in Sald. & Nicols. Fl. Hassan. Dt. 690.1976. *Mariscus sieberianus* Nees ex C. B. Cl. in Hook. f. Fl. Brit. India 6 : 622.1893. *Cyperus cyperoids* (L.) O. Ktze. Rev. Gen. Pl. 3(2) : 333.1898; Kern in Steenis, Fl. Males. 1, 7 : 642.1974.

Perennial, rhizomatous herbaceous sedges. Stems sparsely tufted 30–40 cm tall, erect. Leaves linear, flat or canaliculate, equal to the stems or half as long, flaccid. Spikes terete-oblong, flaccid, 2.5 × 1.0 cm, 50–60-spikeleted, in terminal, compound umbels; spikelets 0.4 × 0.1 cm, narrowly linear, 2-flowered. Glumes 0.15–0.35 cm, ovate to oblong. Nuts ca. 0.3 cm long, trigonous oblong-ellipsoid.

Fls. & Frts. : July–October.

Illus. : Rao, A. S. & Verma, D. M. *Cyper. N. E. India* 24. fig. 7–7b. 1982. (*Cyperus cyperoides*.)

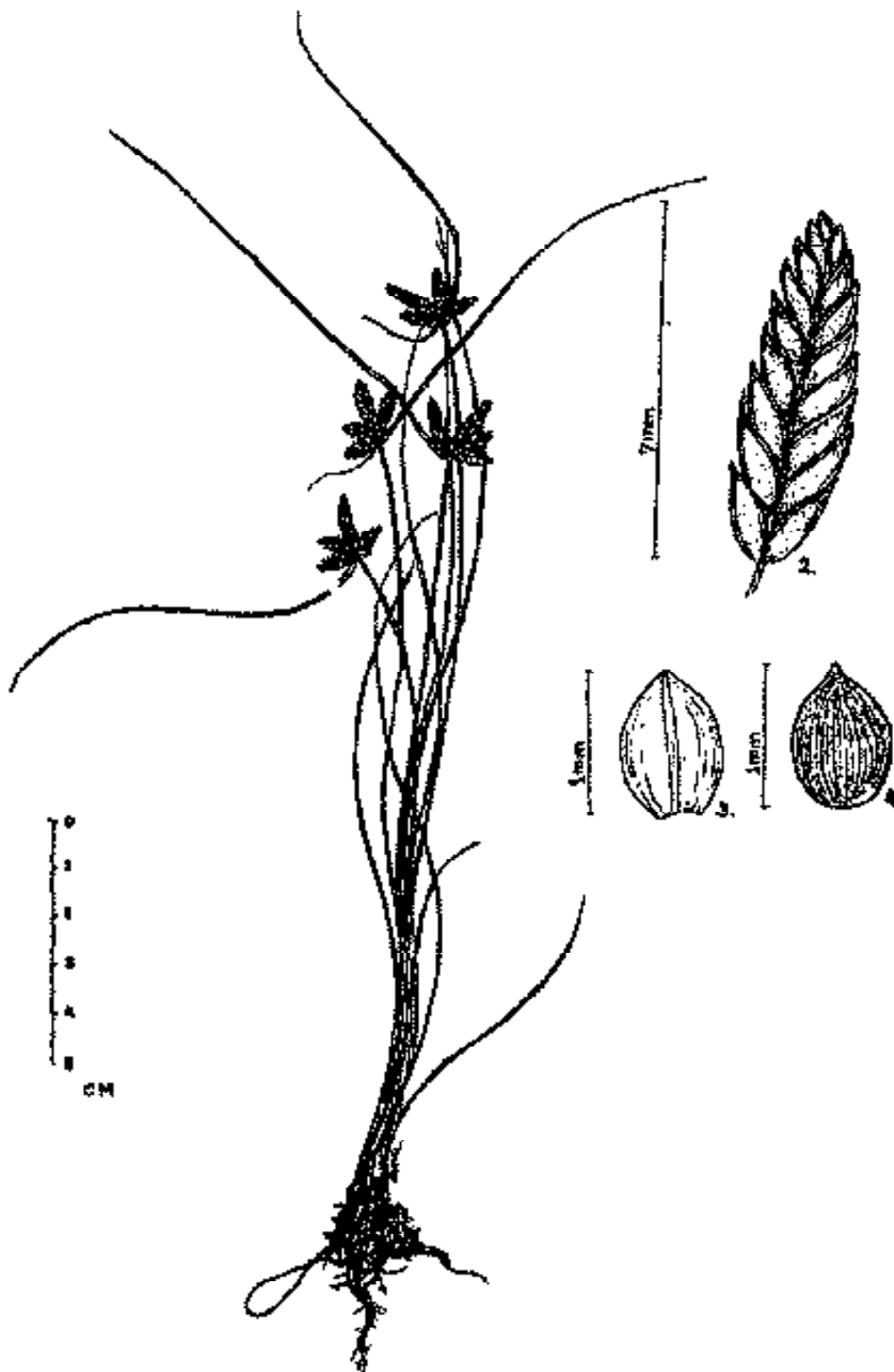
Distrib. : Borivli, R. R. *Fernandez*, 1867–8.

PYCREUS P. Beauv.

- | | | |
|--|-----|--------------------------|
| 1. Superficial cells of the nut oblong or elliptic | ... | <i>P. malabaricus</i> |
| 1. Superficial cells of the nut isodimetric or nearly so : | | |
| 2. Stems leafy for more than half its length, decumbent, creeping, rhizomatous | ... | <i>P. sanguinolentus</i> |
| 2. Stems leafy only at or little above the base, erect, roots fibrous : | | |
| 3. Rachilla winged : | | |
| 4. Glumes rounded at apex; stamens usually 3; nuts ca. 0.25 cm long | ... | <i>P. macrostachyos</i> |
| 4. Glumes mucronulate at apex; stamens usually 2; nuts ca. 0.13 cm long | ... | <i>P. polystachyos</i> |
| 3. Rachilla not winged : | | |
| 5. Glumes distinctly mucronate at apex; stamen usually 1 | ... | <i>P. pumilus</i> |
| 5. Glumes obtuse not mucronate at apex; stamens usually 2 | ... | <i>P. flavidus</i> |

Pycreus flavidus (Retz.) T. Koyama in *J. Jap. Bot.* 51. 316. 1976 & *Gard. Bull. Straits Settlements* 30 : 150. 1977. *Cyperus flavidus* Retz. *Obs. Bot.* 5: 13. 1789; Kern in Steenis, *Fl. Males.* 1, 7: 648. 1974. *C. globosus* All. *Fl. Pedem.* 49. 1789 non Forssk. 1775; Cooke, *Fl. Pres. Bombay* 3 : 370. 1958 (Repr. ed.). *Pycreus capillaris* (Koen. ex Roxb.) Nees ex C. B. Cl. in Hook. f. *Fl. Brit. India* 6: 591. 1893.

Annual herbs. Stems 10–30 cm tall, slender, erect, trigonous. Leaves up to 15 cm long, often setaceous. Inflorescence compound, up to 3 cm long; involucre bracts 3, overtopping. Spikes up to 2.5 cm long; spikelets 0.6–1.0 × 0.2–0.3 cm, oblong, 25–30-flowered; rachilla wingless. Glumes ca. 0.2 cm long, ovate, strongly keeled. Nuts ca. 0.1



1. Habit, 2. Spikelet, 3. Glume, 4. Nut

192. *Pycneus flavidus* (Retz.) T. Koyama

cm long, ellipsoid or obovoid, biconvex, apiculate, stipitate, minutely tubercled.

Fls. & Frts. : July–March.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 693.1988.

Distrib. : Common in open, moist areas. 167914.

Pycereus macrostachyos (Lam.) J. Raynal in *Kew Bull.* 23: 314.1969; Hooper in *Sald. & Nicols, Fl. Hassan Dt.* 692.1976. *Cyperus macrostachyos* Lam. *Illus.* 1: 147.1791. *Pycereus albomarginatus* Nees in *Mart. Fl. Bras.* 2, 1: 9.1842; C. B. Cl. in *Hook. f. Fl. Brit. India* 6: 594.1893. *Cyperus albomarginatus* Mart. & Schrad. ex Nees in *Mart. Fl. Bras.* 2, 1. 9.1842; Cooke, *Fl. Pres. Bombay* 3: 371.1958 (Repr. ed.).

Annual herbs. Stems solitary, robust, up to 45 cm high. Leaf sheaths papery, purple-veined. Spikelets 1.0 × 1.5 cm, distant, spreading in cylindrical spikes; bracts overtopping, large. Glumes elliptic, retuse with a broad keel ca. 0.4 cm long, margins white. Nuts ca. 0.10 × 0.1 cm, obovoid, apiculate, granulate, laterally compressed.

Fls. & Frts. : July–December.

Illus. : P. L. Naras. in *Sharma et al., Fl. Maharashtra (Monocots.)* 349.1996.

Distrib. : Borivli. R. R. Fernandez, 733–4, 1643 (BLAT).

Pycereus malabaricus C. B. Cl. in *J. Linn. Soc.* : 34: 12.1898. *Cyperus malabaricus* (C. B. Cl.) T. Cooke, *Fl. Pres. Bombay* 2: 856.1908 & [3: 369.1958 (Repr. ed.)].

Annual herbs, 10–30 cm tall. Stems slender, caespitose. Leaves 8–30 cm long, linear. Spikelets 20-flowered, 0.6–1.0 cm long, linear-oblong, 6–12, in terminal, digitate, umbellate heads. Glumes 0.25 cm long, boat-shaped, ovate-acute, with hyaline margins. Nuts ovoid, compressed, transversely ribbed.

Fls. & Frts. : August–November.

Distrib. : Borivli R. R. Fernandez, 1479, 405 (BLAT).

Pycereus polystachyos (Rottb.) P. Beauv. *Fl. Oware* 2: 48, t. 86, f. 2.1807; C. B. Cl. in *Hook. f. Fl. Brit. India* 6 : 592.1893; T. Koyama in *Gard. Bull. Straits Settlements* 30 : 149.1977. *Cyperus polystachyos* Rottb. *Descr. & Ic.* 39, t. 11, f. 1.1773; Kern in *Steenis, Fl. Males.* 1, 7 : 649.1974.

Herbs. Stems 10–40 cm tall, erect, triquetrous, rigid. Leaves half or more as long as stem. Inflorescence simple or compound, 2–5 cm long, clustered spikelets, involucre bracts 3–5, overtopping. Spikes apiculate; spikelets ca. 1.5 cm × 0.15 cm, 15–20-flowered; rachilla flexuosus, narrowly winged. Glumes ca. 0.2 cm long, ovate, oblong, strongly keeled. Nuts ca. 0.1 cm long, oblong, ovoid, or obovoid, laterally compressed, apiculate, stipitate.

Fls. & Frts. : August–December.

Illus. : Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 694 & 695.1988.

Distrib. : Rare, in a stream near Gawaliwada. (Chena beat) 167955.

Pycereus pumilus (L.) Nees ex C. B. Cl. in Hook. f. Fl. Brit. India 6 : 591.1893; Hooper in Sald. & Nicols. Fl. Hassan Dt. 693.1976. *Cyperus pumilus* L. in Torner, Cent. Pl. 2 : 6.1756; Cooke, Fl. Pres. Bombay 3: 370.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 650.1974. *C. pygmaeus* Retz. Obs. Bot. 4:9.1786; C. B. Cl. in Hook. f. *op. cit.* 619.

Annual herbs. Stems 6–12 cm tall, filiform, triquetrous, erect or spreading. Leaves up to 10 cm long, linear, flat or canaliculate. Inflorescence compound, up to 4 cm long; involucre bracts 3–5, overtopping. Spikes spicate, horizontal; spikelets 0.5–1.0 × 0.1–0.2 cm, oblong, 10–20-flowered; rachilla flexuosus. Glumes ca. 0.15 cm long, ovate, strongly keeled. Nuts ca. 0.05 cm long, biconvex, obovoid, laterally compressed, truncate, apiculate, stipitate.

Fls. & Frts. : August–February.

Illus. : Kern in Steenis, *op. cit.* 1, 7 : 651. f. 66.1974 (*Cyperus pumilus*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 696.1988.

Distrib. : Frequent in wet and moist places. 168455.

Pycereus sanguinolentus (Vahl) Nees ex C. B. Cl. in Hook. f. Fl. Brit. India 6 : 590.1893; T. Koyama in Gard. Bull. Straits Settlements 30 : 147.1977. *Cyperus sanguinolentus* Vahl, Enum. Pl. 2 : 351.1806; Cooke, Fl. Pres. Bombay 3: 369.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 46.1974.

Perennial herbs. Stems tufted. Leaves 10–20 cm long, linear, shorter than or equalling the stem. Spikelets 10–24-flowered, oblong, 0.5–1.0 cm long, lanceolate, digitately arranged in terminal umbels. Nuts ca. 0.1 cm long, broadly obovoid to suborbicular, apiculate, transversely lineolate, biconvex.

Fls. & Frts. : September–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 784.1982 (*Cyperus sanguinolentus*).

Distrib. : Borivli, R. R. Fernandez, 1900 (BLAT).

QUEENSLANDIELLA Dom.

Queenslandiella hyalina (Vahl) Ballard in Hook. Ic. Pl. 33. t. 3208.1933. *Cyperus hyalinus* Vahl, Enum. Pl. 2: 329.1806; Cooke, Fl. Pres. Bombay 3: 369.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 655. f. 68.1974. *Pycrus pumilus sensu* C. B. Cl. in Hook. f. Fl. Brit. India 6: 591.1893 non Nees, 1834. *Kyllinga hyalina* (Vahl) T. Koyama in J. Jap. Bot. 51 : 317.1976.

Annual herbs 6–13 cm high; stems tufted, erect. Leaves as long as stems, flat or canaliculate, flaccid, acuminate. Spikelets oblong, compressed 6–10-flowered; spikes 1.5 cm long in subcompound inflorescence. Nut ca. 0.2 cm long, broadly ovoid, obovate, stipitate, truncate at apex.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t.782.1982 (*Cyperus hyalinus*)

Distrib. : Versova, R. R. Fernandez, 2107 (BLAT).

RHYNCHOSPORA Vahl (*nom. cons.*)

Rhynchospora wightiana (Nees) Steud. Syn. Pl. Glum. 2 : 148.1855; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 669.1893; Cooke, Fl. Pres. Bombay 3: 415.1958 (Repr. ed.). *Haplostylis wightiana* Nees, Nov. Act. Acad. Caes. Leop. Car.19, (Suppl. 1) : 101.1845.

Annual herbs. Stems 15–30 cm tall, tufted, slender, trigonous. Leaves up to 1/4–3/4 of the length of the stem, linear, acuminate. Spikes forming 1.5–2.0 cm long, terminal heads; spikelets many, 0.5–0.7 × 0.1 cm long, linear-lanceolate, acuminate. Glumes lanceolate, acute, ca. 0.6 cm long. Hypogynous bristles 6, unequal, slender. Nuts compressed, rounded at apex, beaked, linear-oblong, papillate.

Fls. & Frts. : August–January.

Illus. : C. B. Cl. *Illustr. Cyper.* t. 64. (8–11) 1909; Kern in Steenis, Fl. Males. 1, 7 : 719. f.101. C–D.1974.

Distrib. : Frequent on plains and hills in wet places. 167944.

SCHOENOPLECTUS (H. G. L. Reichb.) Palla (*nom. cons.*)

- | | | |
|---|-----|-------------------------|
| 1. Hypogynous bristles present | ... | <i>S. grossus</i> |
| 1. Hypogynous bristles absent : | | |
| 2. Stems spongy, 0.3–1.0 cm wide;
spikelets 15–60 in a cluster | ... | <i>S. articulatus</i> |
| 2. Stems not spongy, 0.05–0.15 cm wide;
spikelets 3–8 in a cluster | ... | <i>S. lateriflorous</i> |

Schoenoplectus articulatus (L.) Palla in Bot. Engl. Jahrb. Syst. 10 : 299.1988; Hooper in Sald. & Nicols. Fl. Hassan Dt. 697.1976. *Scirpus articulatus* L. Sp. Pl. 47.1753; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 656.1893; Cooke, Fl. Pres. Bombay 3: 406.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7 : 513.1974.

Herbs 60–80 cm tall. Stems tufted, terete, erect, transversely septate. Leaves reduced to sheaths. Spikelets 0.6–1.0 × 0.4–0.5 cm, ovoid or oblong, acuminate, in pseudolateral, capitate or globose clusters. Glumes 0.4–0.5 cm long, broadly ovate to suborbicular, apiculate, many-nerved. Nuts ca. 0.2 cm long, obovoid, triquetrous, apiculate, plano-convex, with transverse wavy lines.

Fls. & Frts. : June–March.

Illus. : Tad. & G. V. Narayana Handb. S. Indian Weeds 428. t.171.1955 (*Scirpus articulatus*); Kern in Steenis, *op. cit.* f. 31.

Distrib. : Borivli, R. R. Fernandez, 1158, 1168, 2266 (BLAT).

Schoenoplectus grossus (L. f.) Palla in Allg. Bot. Zeit. 17: Beibl. 3.1911; T. Koyama in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5: 154, f. 6.1985. *Scirpus grossus* L. f. Suppl. 104.1781; C. B. Cl. in Hook. f. Fl. Brit. India 6: 659.1893; Cooke, Fl. Pres. Bombay 3: 408.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7: 498, f. 22.1974.

Herbs, 1–2 m tall; rootstocks stout, stoloniferous or not. Stems tufted, triquetrous, nodulose. Leaves 60–90 × 1.5–2.0 cm, linear, acuminate, apically triquetrous, basally septate. Spikelets solitary, 0.5–0.8 × 0.4 cm, ovoid, subglobose, in large, decomposed, terminal umbels. Involucral bracts leafy, 3. Hypogynous bristles 6. Glumes 0.3–0.4 cm long, loosely imbricate. Nuts 0.16–0.18 cm long, obovoid, trigonous, apiculate.

Fls. & Frts. : September–October.

Illus. : Kern in Steenis, *op. cit.*; T. Koyama in Dassan. & Fosb. *op. cit.*

Distrib. : Borivli, R. R. Fernandez, 733-4. 1643 (BLAT).

Schoenoplectus lateriflorus (J. F. Gmel.) Lye in Bot. Notis. 124. 290.1971; J. Raynal in Adansonia 2, 16 : 139.1976; Hooper in Sald. & Nicols. Fl. Hassan Dt. 698.1976. *Scirpus lateriflorus* J. F. Gmel. in L. Syst. Veg. (ed. 13), 1: 127.1791; Kern in Steenis, Fl. Males. 1, 7 : 514.1974. *S. supinus* L. var. *uninodis sensu* C. B. Cl. in Hook. f. Fl. Brit. India 6 : 656.1893 non (Del.) Asch. & Schweinf.1887; Cooke, Fl. Pres. Bombay 3: 406.1958 (Repr. ed.).

Annual herbs. Stems 10-30 cm tall, erect, tufted, subterete. Leaves short, reduced to sheaths. Inflorescence capitate. Spikelets clustered, 0.5-0.75 cm long, ellipsoid or oblong. Glumes ca. 0.2 cm, ovate, mucronate, strongly keeled; rachilla wingless. Hypogynous bristles absent. Nuts ca. 0.15 cm long, obovoid, trigonous, transversely striate, apiculate.

Fls. & Frts. : August-December.

Illus. : A. S. Rao & Verma, D. M. Cyper. N. E. India 46 : fig. 23.1982. (*Scirpus lateriflorus*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : t : 702.1988.

SCLERIA P. Berg.

- | | | |
|---|-----|-----------------------|
| 1. Nuts with disk beneath : | | |
| 2. Disks cupular; nuts smooth | ... | <i>S. annularis</i> |
| 2. Disks 3-lobed; nuts tessellately cancellate : | | |
| 3. Nuts globose; ferruginous hairy on the walls between the pits; and with a beak | ... | <i>S. biflora</i> |
| 3. Nuts ovoid or obovoid; not hairy, not beaked | ... | <i>S. parvula</i> |
| 1. Nuts without disk beneath | ... | <i>S. lithosperma</i> |

Scleria annularis Nees ex Steud. Syn. Pl. Glum. 2 : 176.1855; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 687.1894; Cooke, Fl. Pres. Bombay 3: 418.1958 (Repr. ed.); Kern in Blumea 11 : 200.1961 & in Steenis, Fl. Males. 1, 7 : 744.1974.

Annual herbs, 15-30 cm tall. Stems triquetrous. Leaves 15-30 cm, linear, linear-lanceolate, obtuse or subacute at apex, bracteoles prominent, linear-lanceolate, obtuse or subacute at apex. Glumes 0.4 cm long, ovate-lanceolate, cuspidate, acutely keeled. Nuts 0.2-0.23 cm

long, ovoid, obtusely trigonous, laterally compressed, truncate at base, obtuse at apex, white, shining, disk shallowly cup-shaped.

Fls. & Frts. : August–December.

Illus. : Kern *op. cit.* 195. f. 7. & in Steenis, *op. cit.* 726 f. 106.–25.

Distrib. : Borivli, R. R. Fernandez, 2652, 2665–6. (BLAT).

Scleria biflora Roxb. Fl. Ind. 3 : 573.1832; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 687.1894; Cooke, Fl. Pres. Bombay 3: 419.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7 : 743.1974; Verma & Chandra in Bull. Bot. Surv. India 32 : 76 (1990) 1992. *S. tessellata* Willd. var. *biflora* (Roxb.) Blatt. & McC. in J. Bombay nat. Hist. Soc. 37 : 777.1935.

Sedges, 30–60 cm high. Stems trigonous, leafy, roots fibrous. Leaves 15–25 × 0.5–0.8 cm, ensiform, obtuse or subacute at apex. Spikelets solitary or in fascicles, on the branches of panicles; bracteoles filiform. Glumes 3, broadly ovate–acuminate. Nuts ca. 0.2 cm across, globose, tessellately cancellate, pubescent with brownish hairs, white, shortly beaked.

Fls. & Frts. : September–December.

Illus. : C. B. Cl. Illustr. Cyper. t. 127(1–2) 1909; Kern in Steenis, *op. cit.* 745, f. 113; A. S. Rao & Verma, Cyper. N. E. India 59, f. 42–42C.1982.

Distrib. : Shah (1969).

Scleria lithosperma (L.) Swartz, Prodr. 18.1788; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 685.1894; Cooke, Fl. Pres. Bombay 3: 418.1958 (Repr. ed.); Kern in Steenis, Fl. Males. 1, 7 : 740.1974. *Scirpus lithospermus* L. Sp. Pl. 51.1753.

Annual herbs. Stems ca. 1 m tall, rigid with rhizome. Leaves clustered, shorter than the stem. Panicle spicate, narrow, axillary and terminal, 6–10 cm long, lax. Spikelets solitary or clustered, bisexual and unisexual, 0.3–0.5 cm long. Glumes ca. 0.5 cm long, ovate to lanceolate, mucronate, keeled. Nuts 0.3–0.2 cm, trigonous, ovoid, basal depressions 3, disc reduced.

Fls. & Frts. : November–December.

Illus. : C. B. Cl. Illustr. Cyper. t. 123 (1–4).1909; Kern in Steenis, *op. cit.* 725, f. 105–19; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4 : tt. 708–709.1988.

Distrib. : Occasional. 167861.

Scleria parvula Steud. Syn. Pl. Glum. 174.1855; Kern in Blumea 11: 202.1961 & in Steenis, Fl. Males. 1, 7: 746.1974. *S. tessellata sensu*

C. B. Cl. in Hook. f. Fl. Brit. India 6 : 686.1894 p.p.; *auct. non* Willd.1805; Cooke, Fl. Pres. Bombay 3: 418.1958 (Repr. ed.).

Perennial herbs, 20–45 cm tall. Stems many, tufted, triquetrous. Leaves 15–40 cm long, linear. Male spikelets 0.4–0.5 cm long; female spikelets 0.2–0.3 cm long. Glumes 3, broadly ovate–acuminate. Nuts 0.15–0.2 cm, long, obovoid, subterete, apiculate.

Fls. & Frts. : August–October.

Illus. : Kern in Steenis, *op. cit.* 726, f. 106–27.

Distrib. : Borivli, R. R. Fernandez, 537, 561, 1530. (BLAT).

CULTIVATED SPECIES :

Cyperus involucratus Rottb. Descr. Pl. Rar. Progr. 22.1772; Baijanath in Kew Bull. 30 : 522.1975. *C. flabelliformis* Rottb. Pl. Rar. Progr. 22.1772 et Descr. & Ic. 42.t.12.f.2.1773; Kern in Steenis, Fl. Males. 1,7: 618.1974; T. Koyama in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5 : 201.1985.

Perennial rhizomatous, showy sedges up to 1 m tall with many involucre bracts which look like leaves of a palm tree.

Fls. & Frts. : March–April.

Distrib. : Native of Arabia and Tropical Africa, often cultivated in gardens. An endeavour has been made to naturalise this plant along banks of a nala on way to Tulsi lake. *Pradhan s. n.*

POACEAE

- | | | |
|---|-----|---------------|
| 1. Arborecent grasses, culms woody | ... | DENDROCALAMUS |
| 1. Herbaceous grasses; culms slender : | | |
| 2. Spikelets unisexual : | | |
| 3. Leaves stiff, hard, coriaceous, convolute and recurved; plants dioecious | ... | SPINIFEX |
| 3. Leaves not as above; plants monoecious : | | |
| 4. Fruit case obovoid, turgid | ... | COK |
| 4. Fruit case oblong, compressed : | | |
| 5. Lower glume of the female spikelet distinctly 3-lobed | ... | TRILOBACHNE |
| 5. Lower glume of the female spikelet not 3-lobed | ... | CHIONACHNE |

2. Spikelet bisexual :
6. Free floating grasses ... HYGRORYZA
6. Habit not as above :
7. Awns trifid ... ARISTIDA
7. Awns if present 1, 2 or (3) not trifid :
8. Inflorescence silky hairy :
9. Leaves ovate-acuminate, petioled ... SPODIOPOGON
9. Leaves linear-acuminate; sessile :
10. Inflorescence axis silky hairy just
just beneath the inflorescence;
spikelets finely acuminate-aristate ... SACCHARUM
10. Inflorescence axis glabrous just
beneath the inflorescence; spikelets
not as above ... IMPERATA
8. Inflorescence not silky hairy :
11. Spikelets not cylindrical :
12. Glumes (especially lower glumes)
variously sculptured, crustaceous
or coriaceous :
13. Spikelets unawned :
14. Spikelets spherical,
tubercled ... MNESITHEA
14. Spikelets lanceolate
with hooked spines ... TRAGUS
13. Spikelets awned :
15. Spikelets with irregularly
scattered, curved spines ... VETIVERIA
15. Spikelets with definite
horizontal ridges or spines
arranged on hori—zontal
upwardly turned ridges :
16. Spikelets with
horizontal ridges only ... ISCHAEMUM
16. Spikelets with spines
arran—ged on horizontal
ridges ... GLYPHOCLOA
11. Spiklets cylindrical (due to completely
sunken spikelets) ... OPHIUROS
12. Glumes not as above :
17. Inflorescence with spathaceous racemes :
18. Aromatic grasses; racemes paired ... CYMBOPOGON

18. Grasses not aromatic; racemes solitary :
19. Involucral spikelets present :
20. Involucral spikelets sessile, not deciduous ... THEMEDA
20. Involucral spikelets pedicelled; deciduous ... ISEILEMA
19. Involucral spikelets absent :
21. Fertile spikelet 1 ... APLUDA
21. Fertile spikelets 2 ... PSEUDANTHISTIRIA
17. Inflorescence without spathaceous racemes :
22. Spikes or racemes globose or oblong-ellipsoid :
23. Inflorescence of globose or ellipsoid heads ... AELUROPOUS
23. Inflorescence of interrupted, globose clusters of spikelets on long spikes ... ELYTROPHORUS
22. Spikes or racemes not globose or oblong-ellipsoid:
24. Racemes or spikes 1-2 :
25. Spikelets paired; one sessile and other pedicelled :
26. Pedicels and joints thickened ... ISCHAEMUM
26. Pedicels and joints not as above ... BHUDEA
25. Spikelets not paired ... DIMERIA
27. Spikelets unawned :
28. Spikelets subtended by bristles ... SETARIA
28. Spikelets not subtended by bristles :
29. Spikelets densely crowded in fascicle along the long rachis ... SACCIOLEPIS
29. Spikelets few, terminal ... ZOYSIA
27. Spikelets awned :
30. Lower glumes of the sessile spikelets with two tufts of hairs ... TRIPLOPOGON
30. Lower glumes of the sessile spikelets without such tuft of hairs :
31. Lower lemma 3-awned ... DANTHONIDRUM
31. Lower lemma not 3-awned :
32. Spikelets solitary or clustered :
33. Spikelet solitary ... PEROTIS

- 33. Spikelets more than one, clustered ... MELANOCENCHRIS
- 32. Spikelets in pairs; one sessile, other pedicelled ... HETEROPOGON
- 24. Racemes or spikes 2 or more, digitate or subdigitate whorled or variously paniced :
- 34. Spikes digitate or subdigitate :
- 35. Spikelets unawned :
- 36. Spikelets 2-flowered, dorsally compressed :
- 37. Spikelets paired ... DIGITARIA
- 37. Spikelets not paired ... DIMERIA
- 36. Spikelets many-flowered, laterally compressed :
- 38. Axis of rachis terminating in to a sharp point ... DACTYLOCTENIUM
- 38. Axis of rachis not ending in a sharp point :
- 39. Spikelets ca 0.2 cm long; spikes ca 0.2-0.25 cm broad ... CYNODON
- 39. Spikelets ca 0.3 cm long; spikes 0.3-0.35 cm broad ... ELEUSINE
- 35. Spikelets awned :
- 40. Spikelets 1-flowered, laterally compressed ... CHLORIS
- 40. Spikelets 2-flowered; dorsally compressed :
- 41. Lower glume of the sessile spikelets often with nodules on the margins; joints and pedicels thick and club-shaped ... ISCHAEMUM
- 41. Lower glume of the sessile spikelet not as above; joints and pedicels neither thick nor club-shaped :
- 42. Lemmas of the upper floret thinly cartilaginous, usually with hyaline margins ... ALLOTEROPSIS
- 42. Lemmas of the upper floret not as above :
- 43. Upper lemma a hyaline base of the awn ... DICHANTHIUM
- 43. Upper lemma cleft; awned from the sinus or from the back :
- 44. Upper lemma awned from the back ... ARTHRAXON
- 44. Upper lemma awned from the sinus ... EULALIA
- 34. Spikes or racemes in various panicles (effuse, whorled, pyramidal, contracted.) :

45. Spikelets arranged in secund or one sided spikes or racemes :
46. Spikelets 2-flowered, dorsally compressed :
47. Spikelets subtended by solitary bristle formed by the prolongation of the branch beyond the terminal spikelets ... PSEUDORAPHIS
47. Spikelets without such bristle :
48. Callus swollen at the base of the spikelets ... ERIOCHLOA
48. Callus not as above :
49. Lower glume (when present) turned away from the upper lemma facing it, spikelets abaxial :
50. Lower glume developed although some times small :
51. Glumes acuminate or awned, rarely acute :
52. Leaf-blades linear; racemes dense, culms erect to suberect ... ECHINOCHLOA
52. Leaf-blades lanceolate to ovate-lanceolate; racemes lax to moderately dense; culms creeping to ascending ... OPLISMENUS
51. Glumes awnless if acuminate then the upper lemma mucronate ... PASPALIDIUM
50. Lower glume usually absent ... PASPALUM
49. Lower glume turned towards rachis, back of the upper lemma turned away from it i. e. spikelets adaxial ... BRACHIARIA
46. Spikelets 2-flowered, laterally compressed :
53. Spikelets awned :
54. Median awn as long as or longer than the lemma ... INDOPOA
54. Median awn shorter than the lemma ... TRIPOGON
53. Spikelets unawned :
55. Spikelets oblong, laterally compressed, lemmas keeled ... LEPTOCHLOA
55. Spikelets linear-oblong subterete, lemmas more or less rounded on back, not keeled ... DIPLACHNE
45. Spikelets not arranged in one-sided or secund spikes or racemes :

56. Spikelets 2-flowered, dorsally compressed :
57. Spikelets awned :
58. Pedicels absent, spikelet solitary at the ends of branches ... CLEISTACHNE
58. Pedicels present :
59. Pedicels with a median translucent furrow ... DICHANTHIUM
(*Capillipedium*)
59. Pedicels without such furrow :
60. Spikelets ovoid-lanceolate with one pedicelled spikelet developed ... SORGHUM
60. Spikelets lanceolate with two pedicelled, more or less reduced spikelets ... CHRYBOPOGON
57. Spikelets unawned :
61. Spikelets distinctly gibbous ... CYRTOCOCCUM
61. Spikelets not gibbous ... PANICUM
56. Spikelets 1-3-flowered, laterally compressed :
62. Spikelets awned :
63. Glumes minute (reduced) ... ORYZA
63. Glumes well-developed :
64. Spikelets 1-flowered ... GAENOTIA
64. Spikelets 2-3-flowered :
65. Panicles pyramidal; glumes aristate ... DINEBRA
65. Panicles not as above; glumes not aristate ... ARUNDINELLA
62. Spikelets unawned :
66. Lemmas imbricating :
67. Spikelets falling entire at maturity from the axis of the inflorescence ... DESMOSTACHYA
67. Spikelets falling from the rachis of the spike and not from the axis of main inflorescence ... ERAGEOSTIS
66. Lemmas not imbricating :
68. Florets mostly similar in size and texture ... ISACHNE
68. Florets dissimilar in size and texture ... SPOROBOLUS

AELUROPUS Trin.

***Aeluropus lagopoides* (L.) Trin. ex Thw. Enum. Pl. Zeyl. 374.1864 ('*lagopodioides*'); Bor, Grass. Burma, Ceylon, India & Pakistan**

380.1960. *Dactylis lagopoides* L. Mant. Pl. 33.1767. *Aeluropus villosus* Trin. ex C. A. Mey. Verz. Pfl. Cauc. 18.1831; Hook. f. Fl. Brit. India 7: 334.1896; Cooke, Fl. Pres. Bombay 3: 567.1958 (Repr. ed.).

Perennial grasses. Culms up to 70 cm, creeping. Leaf-sheaths compressed; ligule a ciliate rim, blades 1.0–2.5 cm, lanceolate, convolute, flat, subdistichous. Spikelets 0.25–0.3 cm, elliptic-oblong, 4–8-flowered, or clustered in paniculate heads ca. 0.7 cm across. Caryopsis obovoid-oblong, dorsally compressed.

Fls. & Frts. : October–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 800.1982.

Distrib. : Very common in coastal areas along Ghodbundar Road & creek. 167376.

ALLOTEROPSIS C. B. Presl

Alloteropsis cimicina (L.) Stapf in Prain, Fl. Trop. Africa 9: 487.1919; Bor, Grass. Burma, Ceylon, India & Pakistan 276.1960. *Milium cimicinum* L. Mant. Alt. 184.1771. *Axonopus cimicinus* (L.) P. Beauv. Ess. Agrost. 12.1812; Hook. f. Fl. Brit. India 7: 64.1896; Cooke, Fl. Pres. Bombay 3: 441.1958 (Repr. ed.).

Perennial grasses. Culms 20–50 cm tall, tufted, erect or geniculately ascending, tubercled-pilose. Leaves 2–0 × 0.8–1.4 cm, ovate to ovate-lanceolate, margins ciliate, amplexicaul at base, abruptly acute at apex. Spikelets 0.6–0.8 cm long, ellipsoid-ovoid, 2-flowered, in solitary, or whorled, 3–8, 5–12 cm long racemes. Caryopsis ellipsoid-oblong, dorsally compressed.

Fls. & Frts. : July–November.

Illus. : Mahesh. Illus. Fl. Delhi f. 256.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 801.1982.

Distrib. : Borivli, P. S. Herbert, 1712 & R. R. Fernandez, 97(BLAT).

APLUDA L.

Apluda mutica L. Sp. Pl. 82.1753; Bor, Grass. Burma, Ceylon, India & Pakistan 93.1960. *A. varia* Hack. in DC. Mon. Phan. 6: 196.1889; Hook. f. Fl. Brit. India 7: 150.1886; Cooke, Fl. Pres. Bombay 3: 474.1958 (Repr. ed.). *A. varia* ssp. *aristata* Hack. in DC. op. cit.; Blatt. & McC. Bombay Grass 29.1935. 'Ghagara'.

Herbaceous grasses. Culms up to 1.5 m tall, tufted. Leaves 5–30 × 0.5–1.5 cm, linear-lanceolate, setaceous at apex, pilose, ligules membranous. Spikelets 0.7–0.8 cm long, in racemes, terminal and or axillary, 3–18 cm long. Spikelets: one sessile and 2–pedicelled. Caryopsis ca. 0.17 cm, ellipsoid.

Fls. & Frts. : October–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 804. & 805.1982.

Distrib. : Common. 167242.

ARISTIDA L.

- | | | |
|--------------------------------|-----|-------------------|
| 1. Lateral awns much reduced | ... | <i>A. redacta</i> |
| 1. Lateral awns well developed | ... | <i>A. setacea</i> |

Aristida redacta Stapf in *Kew Bull.* 1892 : 85.1892; Hook. f. *Fl. Brit. India* 7: 227.1896; Cooke, *Fl. Pres. Bombay* 3: 531.1958 (Repr. ed.); Blatt. & McC. *Bombay Grass*. 215.1935; Bor, *Grass. Burma, Ceylon, India & Pakistan* 412.1960.

Annual, herbaceous grasses. Culms 15–30 cm tall, glabrous, tufted. Leaves 8–13 cm long, linear, slender, convolute, hairy above, glabrous below. Spikelets linear, awned, in panicles 15–25 cm long. Glumes shortly aristate; lemmas passing into coriaceous, twisted column. Caryopsis narrowly ellipsoid.

Fls. & Frts. : September–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 256.1966.

Distrib. : Borivli, R. R. Fernandez, 975 (BLAT).

Aristida setacea Retz. *Obs. Bot.* 4: 22.1786; Hook. f. *Fl. Brit. India* 7: 225.1896; Cooke, *Fl. Pres. Bombay* 3: 529.1958 (Repr. ed.); Blatt. & McC. *Bombay Grass*. 211.1935 & Bor, *Grass. Burma, Ceylon, India & Pakistan*. 412.1960. '*Mothi-kusal*'.

Stout perennial grasses. Culms tufted, up to 1 m tall. Leaves up to 30 cm long, oblong, convolute. Spikelets 0.5–0.7 cm long, erect, in contracted, 15–30 cm long panicles. Glumes linear, convolute, aristate; lemma, 3-awned, inarticulate at base.

Fls. & Frts. : September–November.

Illus. : Rangachari & Tadulingum, *Handb. S. Indian Grass*. 225.

f.173.1921; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 714.1988.

Distrib. : Salsette. *Graham* (1839).

ARTHRAOXON P. Beauv.

- | | | |
|---------------------------------------|-----|-----------------------|
| 1. Pedicelled spikelets developed | ... | <i>A. lancifolius</i> |
| 1. Pedicelled spikelets not developed | ... | <i>A. hispidus</i> |

Arthraxon hispidus (Thunb.) Makino in *Bot. Mag. Tokyo* 25: 214.1912; Bor, *Grass. Burma, Ceylon, India & Pakistan* 99.1960; Jain in *India, Bot. Soc.* 51: 173.1972; Welzen in *Blumea* 27: 266.1981. *Phalaris hispida* Thunb. *Fl. Jap.* 44.1784. *Arthraxon ciliaris* P. Beauv. *Ess. Agrost.* 111, 152, t. 11, f. 6.1812; Hook. f. *Fl. Brit. India* 7: 145.1896; Cooke, *Fl. Pres. Bombay* 3: 489.1958 (Repr. ed.). *Arthraxon nudus* (Steud.) Hochst. in *Fl.* 39.188.1856; Bor, *op. cit.* 101.1960.

Herbaceous grasses. Culms slender, procumbent, 20–60 cm tall. Leaves 2–4 cm long, ovate–lanceolate, covered with bulbous-based hairs. Spikelets all sessile, 0.3–0.4 cm long, in subdigitate, many racemes. Caryopsis 0.1–0.25 × 0.02–0.05 cm, linear, terete.

Fls. & Frts. : September–November.

Illus. : Welzen, *op. cit.* 273. Fig. 1.

Distrib. : Borivli, R. R. Fernandez, 659, 851 & 1905 (BLAT).

Arthraxon lancifolius (Trin.) Hochst. in *Fl.* 39: 188.1856; Bor, *Grass. Burma, Ceylon, India & Pakistan* 100.1960; Jain in *J. Indian Bot. Soc.* 51: 176.1972; Welzen in *Blumea* 27: 288.1981. *Andropogon lancifolius* Trin. in *Mem. Acad. Sci. Petersb.* ser. 6, 2: 271.1832. *Arthraxon microphyllus sensu* Hook. f. *Fl. Brit. India* 7: 147.1896 *p. p.* non (Trin.) Hochst.1856; Cooke, *Fl. Pres. Bombay* 3: 488.1958 (Repr. ed.).

Annual, herbaceous grasses. Culms 5–30 cm long, trailing. Leaves 1–4 × 0.3–1.0 cm, ovate–lanceolate to elliptic–lanceolate, flaccid. Spikelets paired; sessile ones 0.2–0.4 cm long, linear, pedicelled ones 0.30–0.4 cm long, lanceolate, in 1–2 cm long. Caryopsis terete.

Fls. & Frts. : August–October.

Illus. : Blatt. & McC. *Bombay Grass. Pt. 1. Plate* 48.1935.

Distrib. : Abundant as forest undergrowth, very common. 167234.

ARUNDINELLA Raddi

- | | | |
|--|-----|------------------|
| 1. Spikelets not more than 0.2 cm long | ... | <i>A. pumila</i> |
| 1. Spikelets well over 0.2 cm long : | | |
| 2. Spikelets 0.3–0.4 cm long | ... | <i>A. metzii</i> |
| 2. Spikelets 6.5–7.5 cm long | ... | <i>A. setosa</i> |

Arundinella metzii Hochst. ex Miq. in Verh. Konink. Nederl. Inst. 3 (4) : 31.1851; Hook. f. Fl. Brit. India 7: 72.1896; Cooke, Fl. Pres. Bombay 3: 523.1958 (Repr. ed.); Bor, Kew Bull.1955 408.1955 & Grass. Burma, Ceylon, India & Pakistan 423.1960.

Annual, herbaceous grasses. Culms 40–50 cm tall, erect, tufted. Leaves 15–25 cm, linear, flat, glabrous or sparsely hairy. Spikelets paired, distinctly pedicelled, awned, ovate-lanceolate, in 15–30 cm long, decompound, pyramidal, branched panicles. Caryopsis ellipsoid.

Fls. & Frts. : September–December.

Illus. : Sreek. & Nair, Fl. Kerala Grass. 340. t. 68.1991.

Distrib. : Frequent in wet and moist places. 167738, 168464.

Arundinella pumila (Hochst. ex A. Rich.) Steud. Syn. Pl. Glum. 1: 114.1854; Bor in Kew Bull.1955. 402.1955 & Grass. Burma, Ceylon, India & Pakistan 423.1960. *Acratherum pumilum* Hochst. ex A. Rich. Tent. Fl. Abyss. 2: 414, t. 100.1851. *Arundinella tenella* Nees ex Steud. *op. cit.* 115; Hook. f. Fl. Brit. India 7: 71.1896; Cooke, Fl. Pres. Bombay 3: 522.1958 (Repr. ed.).

Annual, herbaceous grasses. Culms up to 30 cm tall, tuberculate-pilose. Leaves 6–9 × 0.6–1.0 cm, ovate-lanceolate, to linear-lanceolate. Spikelets ca. 0.17 cm long, awned, in effuse panicles. Caryopsis 0.08 cm long, ellipsoid, narrow.

Fls. & Frts. : August–November.

Illus. : Blatt. & McC. Bombay Grass. t. 127.1935 (*Arundinella tenella*); Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 718.1988.

Distrib. : Fairly common on hill slopes. 167231.

Arundinella setosa Trin. Gram. Panic. 63.1826; Hook. f. Fl. Brit. India 7: 70.1896; Cooke, Fl. Pres. Bombay 3: 521.1958 (Repr. ed.); Blatt. & McC. Bombay Grass.192.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 424.1960. *A. capillaris* Hook. f. *op. cit.* 74; Cooke, *op. cit.* 525.

Perennial grasses; culms erect, 30–100 cm high, densely tufted from subtuberous rootstock. Leaves 15–30 × 0.3–0.6 cm, linear, convolute, finely acuminate. Spikelets often paired, ovate-lanceolate,

ca. 0.5 cm long, awned, in lax panicles 5–15 cm long. Caryopsis oblong to ellipsoid.

Fls. & Frts. : June–September.

Illus. : Blatt. & McC. *op. cit.* t. 126; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: tt. 719 & 720.1988.

Distrib. : Salsette, *Lisboa* (1896).

BHIDEA Stapf ex Bor

Bhidea burnsiana Bor in Kew Bull.1948: 445.1949 & Grass, Burma, Ceylon, India & Pakistan 103.1960; U. R. Deshpande & N. P. Singh, Grass. Maharashtra 30 t. 4.1986.

Annual, herbaceous grasses, 8–15 cm tall. Culms slender, erect. Leaves 2.5–4.0 × 0.3–0.4 cm, linear, acute; ligules ca. 0.1 cm long, membranous. Spikelets paired, 0.5–0.8 cm long; pedicelled ones sterile and sessile ones bisexual, lanceolate, awned, in 1.5–2.0 cm, divaricate racemes. Caryopsis oblong.

Fls. & Frts. : August–September.

Illus. : Bor, *op. cit.* 447. & 104, f.2.

Distrib. : Borivli, R. R. Fernandez, 1914, 1922–5 (BLAT).

BRACHIARIA Griseb.

- | | | |
|---|-----|-----------------------|
| 1. Rachis flat, ribbon like | ... | <i>B. mutica</i> |
| 1. Rachis triquetrous : | | |
| 2. Racemes erect, of compact hairy spikelets; lower glumes minute, scaly ca. 0.03 cm long | ... | <i>B. eruciformis</i> |
| 2. Racemes not linear, compact; spikelets glabrous, lower glumes up to half as long as spikelet : | | |
| 3. Spikelets ca. 0.2 cm long | ... | <i>B. reptans</i> |
| 3. Spikelets 0.3–0.4 cm long | ... | <i>B. ramosa</i> |

Brachiaria eruciformis (J. E. Sm.) Griseb. in Ledeb. Fl. Ross. 4: 469.1853; Bor, Grass. Burma, Ceylon, India & Pakistan 283.1960. *Panicum eruciforme* J. E. Sm. in Sibth. & Fl. Graeca 1: 44, t. 59.1806. *P. isachne* Roth ex Roem. & Schult. in L. Syst. Veg. 2: 458.1817; Hook. f. Fl. Brit. India 7: 28.1896; Cooke, Fl. Pres. Bombay 3: 448.1958 (Repr. ed.),

Annual, herbaceous grasses. Culms 15–50 cm tall, suberect or geniculately ascending. Leaves 2–6 × 0.2–0.4 cm, lanceolate, acuminate, pilose, scabrid on margins. Spikelets ca. 0.2 cm long, ellipsoid, secund, imbricate, shortly stipitate, in 1–3 cm long, paniculate racemes 0.7–2.0 cm long. Caryopsis ca. 0.15 cm long, ovoid.

Fls. & Frts. : August–February.

Illus. : Rang. & Tad. Handb. S. Grass. 66: ff. 80 & 81.192 (*Panicum isachne*); Patunkar, B. V. Grass. Marathwada 133, f. 40.1980; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t: 725.1988.

Distrib. : Borivli, R. R. Fernandez, 369 (BLAT).

Brachiaria mutica (Forssk.) Stapf in Prain, Fl. Trop. Africa 9: 526.1919; Bor, Grass. Burma, Ceylon, India & Pakistan 284.1960. *Panicum muticum* Forssk. Fl. Aeg.–Arab. 20.1775; Hook. f. Fl. Brit. India 7: 34.1896; Cooke, Fl. Pres. Bombay 3: 456.1958 (Repr. ed.).

Stout grasses. Culms 1.0–2.5 m tall, simple or branched, ascending or prostrate, rooting at base. Leaves 20–30 × 0.5–1.0 cm, lanceolate, subcordate at base, margins scabrid. Spikelets 0.3–0.5 cm long, oblong to oblong-lanceolate, in solitary, paired or pseudo-whorled racemes 2.0–2.5 cm long.

Fls. & Frts. : August–January.

Distrib. : Borivli, R. R. Fernandez, 1071 (BLAT).

Brachiaria ramosa (L.) Stapf in Prain, Fl. Trop. Africa 9: 542.1919; Bor, Grass. Burma, Ceylon, India & Pakistan 284.1960. *Panicum ramosum* L. Mant. Pl. 1: 29.1767; Hook. f. Fl. Brit. India 7: 36.1896; Cooke, Fl. Pres. Bombay 3: 449.1958 (Repr. ed.).

Annual, herbaceous grasses. Culms 15–60 cm tall, erect or ascending, much branched. Leaves 5–13 × 0.5–1.5 cm, linear to linear-lanceolate, finely acuminate at apex, margins scabrid. Spikelets 0.3–0.35 × 0.15 cm, broadly ellipsoid, paired, acute or cuspidate, pubescent or glabrous, in 10–15 cm long racemes. Caryopsis ovoid-ellipsoid.

Fls. & Frts. : August–November.

Illus. : Blatt. & McC. Bombay Grass. 134, t. 86.1935; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 726.1988.

Distrib. : Frequent. 167943.

Brachiaria reptans (L.) Gard. & C. E. Hubb. in Hook. Icon. Pl. sub. t. 3363.1938; Bor, Grass. Burma, Ceylon, India & Pakistan 285.1960. *Panicum reptans* L. Syst. Nat. (ed. 10), 870.1759. *P. prostratum* Lam. Illustr. 1: 171.1791 & Encycl. 4: 730.1797; Hook. f. Fl. Brit. India 7: 33.1896; Cooke, Fl. Pres. Bombay 3: 448.1958 (Repr. ed.). 'Chimanchara'.

Annual, herbaceous grasses. Culms 20–30 cm tall, tufted with creeping base. Leaves 3–6 × 0.2–0.8 cm, lanceolate, flat, acuminate. Spikelets ovoid, ovate–lanceolate, shortly pedicellate, in ca. 7 cm long panicles; spikes 2.5–3.0 long. Caryopsis ovoid, ellipsoid, rugose.

Fls. & Frts. : August–September.

Illus. : Mahesh. Illus. Fl. Delhi 270, 1966; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4t : 728.1988.

Distrib. : Borivli, R. R. Fernandez, 1166, (BLAT).

CHIONACHNE R. Br.

Chionachne koenigii (Spr.) Thw. Enum. Pl. Zeyl. 357.1864; Bor, Grass. Burma, Ceylon, India & Pakistan 262. 1690. *Coix koenigii* Spr. Syst. 1: 239.1825. *Polytoca barbata* (Roxb.) Stapf ex Hook. f. Fl. Brit. India 7: 102.1896; Cooke, Fl. Pres. Bombay 3: 519.1958 (Repr. ed.); Blatt. McC. Bombay Grass. 6.1935. 'Kanta–Karvel'.

Perennial, stout, monoecious grasses. Culms 1.0–1.6 m tall, erect, robust. Leaves 10–40 × 0.5–2.0 cm, linear, flat, hairy. Spikelets in racemes or panicles, terminal or axillary; male spikelets 0.7–0.9 cm long, 2-flowered, solitary or paired, female spikelets 2-flowered, one to many, 0.4–0.6 cm long, at the base of inflorescence. Caryopsis orbicular; embedded in the glume.

Fls. & Frts. : September–December.

Illus. : Rang. Tad. Handb. S. Indian Grass. 144. f. 127.1921; Patunkar, B. W. Grass. Marathwada 122. f. 37.1980.

Distrib. : Borivli, R. R. Fernandez, 831 (BLAT).

CHLORIS Swartz

- | | | |
|---|-----|-------------------|
| 1. Empty lemma above the fertile floret, solitary | ... | <i>C. virgata</i> |
| 1. Empty lemmas above the fertile floret, two to four : | | |

2. Rachis glabrous beneath the inflorescence ... *C. barbata*
 2. Rachis puberulous beneath the inflorescence ... *C. quinquesetica*

Chloris barbata Swatz Fl. Ind. Occ. 1: 200.1797; Hook. f. Fl. Brit. India 7: 292.1996; Cooke, Fl. Pres. Bombay 3: 557.1958 (Repr. ed.); Blatt. & McC. Bombay Grass, 256.1935. Bor, Grass. Burma, Ceylon, India & Pakistan 465.1960 '*Gondvel*'.

Herbaceous grasses. Culms up to 1 m tall, tufted. Leaves 8–25 × 0.4–0.5 cm, narrowly linear, flat or plicate, scabrid, finely acuminate. Spikelets ca. 0.23 cm long, 3-flowered, awned, in 8–17; digitately arranged, 3–6 cm long spikes., purplish in colour. Caryopsis ca. 0.2 cm long, ellipsoid.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. *op. cit.* t.171; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 732.1988.

Distrib. : Common, gregarious. 167925.

Chloris quinquesetica Bhide in J. Proc. Asiat. Soc. Bengal (N. S.) 8: 311.1912; Blatt. & McC. Bombay Grass. 257.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 466.1966.

Perennial grasses; culms tufted ca. 60 cm tall, rooting at swollen nodes. Leaves 4–15 × 0.25–0.5 cm, flat, linear, truncate at base, acuminate at apex. Spikelets 4–5-flowered, in few to many, spikes up to 5 cm long.

Fls. & Frts. : August–January.

Distrib. : Versova, Blatter. & McCann. (1935).

Chloris virgata Swartz Fl. Ind. Occ. 1: 203.1797; Hook. f. Fl. Brit. India 7: 291.1896; Blatt. & McC. Bombay Grass. 255, t.170.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 468.1960.

Herbaceous grasses. Culms up to 1 m tall, sparsely tufted. Leaves erect or geniculately ascending, creeping and rooting at nodes. Leaves 18–20 × 0.3–0.5 cm, linear, flat, finely acuminate. Spikelets 0.2–0.25 cm long, ovate-lanceolate, unilateral, in two rows, on rachis 4–6 cm long, digitate spikes. Caryopsis ellipsoid.

Fls. & Frts. : July–December.

Illus. : Blatt. & McC. *op. cit.*; Patunkar, B. W. Grass. Marathwada 218, f. 65.1980; T. A. Cope in Nasir & Ali, Fl. W. Pak. 143: 122, f. 14.1982.

Distrib. : Common. 167373.

CHRYSOPOGON Trin. (*nom. cons.*)

- | | | |
|---|-----|----------------------|
| 1. Pedicels half as long as the sessile spikelet or longer | ... | <i>C. aciculatus</i> |
| 1. Pedicels less than half the length of the sessile spikelet | ... | <i>C. fulvus</i> |

Chrysopogon aciculatus (Retz.) Trin. Fund. Agrost. 188.1820; Bor, Grass. Burma, Ceylon, India & Pakistan 115.1960. *Andropogon aciculatus* Retz. Obs. Bot. 5: 22.1789; Hook. f. Fl. Brit. India 7: 188.1896; Cooke, Fl. Pres. Bombay 3: 504.1958 (Repr. ed.).

Perennial, stout grasses. Culms 30–50 cm, tufted, erect or ascending from woody, creeping rhizomes. Leaves 3–12 × 0.3–0.8 cm, linear to linear-lanceolate, scabrid on margins. Spikelets ternate, awned; sessile ones 0.3–0.4 cm long, pedicellate spikelets up to 0.55 cm long, in 5–10 cm long, erect panicles; lower glume bidentate. Caryopsis ca. 0.15 cm long, laterally compressed.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 4: tt. 829 & 830.1982.

Distrib. : Borivli, R. R. Fernandez, 4266, 4266A, (BLAT).

Chrysopogon fulvus (Spr.) Chiov. Fl. Somala 1: 327.1929; Bor, Grass. Burma, Ceylon, India & Pakistan. 116.1960. *Pollinia fulva* Spr. Pugill. 2: 10.1815. *Andropogon monticola* Roem. & Schult. in L. Syst. Veg. 2, Mant. 3: 665.1827; Hook. f. Fl. Brit. India 7: 192.1896; Cooke, Fl. Pres. Bombay 3: 505.1958 (Repr. ed.). 'Agiva'.

Perennial grasses. Culms 20–60 cm tall, densely tufted, basally geniculate, slender. Leaves 2–7 × 0.3–0.4 cm, narrowly linear, tuberculate-pilose along margins. Spikelets paired; sessile ones 0.6–0.7 cm long, lanceolate, rufous hairy, awned, pedicelled ones little shorter than sessile ones, in panicles 6–8 cm long. Caryopsis laterally compressed, yellow.

Fls. & Frts. : September–January.

Illus. : Mahesh. Illus. Fl. Delhi f. 273.1966.

Distrib. : Borivli, R. R. Fernandez, 2359 & 2360 (BLAT).

CLEISTACHNE Bth.

Cleistachne stocksii Hook. f. Fl. Brit. India 7 : 162.1896; Blatt. & McC. Bombay Grass. 64.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 264.1960. Deshpande & Singh, Grass. Maharashtra 37.1986.

Stout and tall grasses. Leaves 30–40 × 1–3 cm, linear, finely acuminate, hairy, margins thickened, ciliolate; sheaths terete. Spikelets ca. 0.8 cm long, in 15–20 cm long panicle.

Fls. & Frts. : October–November.

Illus. : Blatt. & McC. *op. cit.* t. 39.

Distrib. : Borivli, R. R. Fernandez, 802.1862.(BLAT).

COIX L.

- | | | |
|--|-----|------------------------|
| 1. Lower glumes of male spikelets hardly winged;
spikelets 0.2–0.3 cm wide | ... | <i>C. lacryma-jobi</i> |
| 1. Lower glumes of male spikelets broadly winged;
spikelets 0.5–0.6 cm wide | ... | <i>C. gigantea</i> |

Coix gigantea Koen. ex Roxb. Fl. Ind. 3: 570.1832; Blatt. & McC. Grass. Bombay 6: 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 264.1960. *C. lacryma-jobi* var. *gigantea* (Roxb.) Stapf ex Hook. f. Fl. Brit. India 7: 100.1896. 'Kachor'.

Annual robust grasses up to 3 m tall. Leaves 40–50 × 3.5 cm, broadly linear-acuminate, subcordate at base, margins scabrid, sheaths terete. Inflorescence male or bisexual; male consisting of ca. 50 spikelets; spikelets paired, sessile and pedicelled, bisexual or female spikelet solitary ca. 0.5 cm long. Caryopsis broadly ovoid.

Fls. & Frts. : July–November.

Illus. : Lakshminarasimhan & Sharma, Fl. Nasik Pl. 541, f. 49.1991.

Distrib. : Koppikar (1974).

Coix lacryma-jobi L. Sp. Pl. 972.1753; Hook. f. Fl. Brit. India 7: 100.1896; Cooke, Fl. Pres. Bombay 3: 517.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 264.1960. 'Jondhala'.

Annual robust grasses. Culms up to 3 m tall, ca. 0.8 cm wide, stout, tufted. Leaves 15–45 cm long, flat, linear-lanceolate, glabrous or sparsely hairy, with prominent midrib beneath, inflorescence axillary and terminal of spike like racemes; male spikelets above, 2–3-nate, 0.7–1.0 cm long, female spikelets beneath, 0.8–1.0 cm long, ovoid or globose, enclosed in creamy, polished hard bracts.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 4: tt. 834 & 835.1988.

Distrib. : Abundant near streams and nallas near the forest villages. 167293, 167952.

CYMBOPOGON Spreng.

Cymbopogon martinii (Roxb.) Wats. in Atkins. *Gaz. N. W. Prov. Ind.* 392.1882; Blatt. & McC. *Bombay Grass*. 104.1935; Bor, *Grass. Burma, Ceylon, India & Pakistan* 129.1960. Soenarko in *Reinwardtia* 9: 330.1977. *Andropogon martinii* Roxb. *Fl. Ind.* 1: 280.1820. *A. shoenanthus* L. var. *martinii* (Roxb.) Hook. f. *Fl. Brit. India* 7: 204.1896. 'Rosha-gavat'.

Perennial, stout, aromatic grasses. Culms 90–100 cm, erect. Leaves 15–25 × 0.9–1.3 cm, linear-lanceolate or ovate-lanceolate, margins scabrid. Spikelets 0.3–0.4 cm long, in spathaceous, 2.5–5.0 cm long, terminal, interrupted spikes. Caryopsis oblong.

Fls. & Frts. : August–December.

Illus. : Patunkar, B. W. *Grass. Marathwada* 50. f. 13.1980; Matthew, *Illus. Fl. Tamilnadu Carnatic* 4: tt. 836 & 837.1988.

Distrib. : Borivli, R. R. Fernandez, 2270 & 2264 (BLAT).

CYNODON L. C. Rich. (nom. cons.)

Cynodon dactylon (L.) Pers. *Syn. Pl.* 1: 85.1805; Hook. f. *Fl. Brit. India* 7: 288.1896; Cooke, *Fl. Pres. Bombay* 3: 554.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 469. t. 52.1960. *Panicum dactylon* L. *Sp. Pl.* 58.1753. 'Harali'.

Perennial grasses. Culms 5–30 cm long, slender, prostrate with ascending flowering branches. Leaves 2–8 cm long, narrowly linear to linear-lanceolate, finely acute, distichous. Spikelets ca. 0.25 cm, sessile, laterally compressed, secund, imbricating, 2-seriate, 1-flowered, in 3–4 digitate, 3–6 cm long spikes.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 838.1982.

Distrib. : Common. 167847.

CYRTOCOCCUM Stapf

Cyrtococcum oxyphyllum (Steud.) Stapf in Hook. Ic. Pl. subt. 3096.1922; Bor, Grass. Burma, Ceylon, India & Pakistan 291.1960. *Panicum oxyphyllum* Steud. Syn. Pl. Glum. 1: 65.1854. *P. pilipes* Nees & Arn. ex Buese in Miq. Pl. Jungh. 3: 376.1854; Hook. f. Fl. Brit. India 7: 57.1896. *Cyrtococcum pilipes* A. Camus in Bull. Mus. Nat. 27: 118.1921; Blatt & McC. Bombay Grass. 169.1935.

Perennial grasses up to 45 cm tall; culms geniculate and rooting at nodes. Leaves 5–8 × 0.5–1.5 cm, lanceolate, acute at apex, glabrous above, hairy beneath, spikelets 0.15 cm long, ovoid, glabrous, shortly pedicellate in panicles up to 6 cm long; lower glume shorter than lower lemma, obtuse; lower lemma ovate, 5-nerved.

Fls. & Frts. : September–October.

Illus. : Matthew, Fur. Illus, Fl. Tamilnadu Carnatic 4: t. 742.1988.

Distrib. : Kanheri Caves *Blatter & McCann* (1935).

DACTYLOCTENIUM Willd.

- | | | |
|--|-----|---------------------|
| 1. Back of rachis grooved on each side of the keel;
leaves mostly collected at the base | ... | <i>D. scindicum</i> |
| 1. Back of rachis not grooved; leaves present along the culms | ... | <i>D. aegyptium</i> |

Dactyloctenium aegyptium (L.) Willd. Enum. Pl. Hort. Berol. 1029.1809. Blatt. & McC. Bombay Grass. 262.1935; Bor, Grass. Burma, Ceylon, India and Pakistan 489, t. 54.1960. *Cynosurus aegyptius* L. Sp. Pl. ed 72.1753. *Eleusine aegyptia* (L.) Desf. Fl. Atlant. 1: 85.1798; Hook. f. Fl. Brit. India 7: 295.1896, Cooke, Fl. Pres. Bombay 3: 560.1958 (Repr. ed.).

Herbaceous grasses. Culms 25–60 cm long forming mats, geniculately ascending. Leaves 6–14 × 0.4–0.5 cm, linear, finally acuminate, flat, tubercled, hispid; ligules membranous, ciliolate. Spikelets ca. 0.35 cm long, broadly ovate, laterally compressed, 2–3-flowered, imbricate, in two rows on 2–7, ca. 1.5 cm long spikes. Caryopsis ovoid, rugose.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi. f. 263.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 841 & 842 1982.

Distrib. : Frequent. 167846.

Dactyloctenium scindicum Boiss. Diagn. 2, 4: 131.1859; Blatt. & McC. Bombay Grass. 264.1935; Bor, Grass. Burma, Ceylon, India &

Pakistan 489.1960. *Eleusine aristata* Ehrenb. ex Boiss. Fl. Orient. 5: 557.1881; Cooke, Fl. Pres. Bombay 3: 561.1958 (Repr. ed.).

Perennial, slender grasses; stems prostrate, profusely branched, rooting at nodes, with 5–10 cm long internodes. Leaves 2.5–10.0 × 0.15–0.25 cm, acuminate, sparsely hairy, ligules absent. Spikelets ca 0.4 cm long, in 3 or more, 0.5–1.0 cm long spikes; rachis produced into a pungent point. Caryopsis ovoid, rugose.

Distrib. : Salsette, *Shah* (1969).

DANTHONIDIUM C. E. HUBB.

Danthonidium gammiei (Bhide) C. E. Hubb. in Hook. Ic. Pl. sub. t. 3331.1937; Bor, Grass. Burma, Ceylon, India & Pakistan 479.1960. *Danthonia gammiei* Bhide in J. Proc. As. Soc. Bengal (N. S.) VII 513, t. 6.1912; Blatt. & McC. in J. Bombay. nat. Hist. Soc. 33: 1929 & Grass. Bombay 200.1935.

Annual herbs. Stems 10–30 cm tall. Leaves 3–7 × 2.5–3.0 cm, linear, rounded at base; ligules narrow, membranous, fimbriate & truncate. Spikelets few, shortly pedicellate, ca. 0.18 cm long, awned, in lax, racemose, panicles, 2.5–5.0 × 0.15 cm.

Fls. & Frts. : August–October.

Illus. : Bor, *op. cit.* 460. f. 53.

Distrib. : Borivli, *R. R. Fernandez*, 1910–1, 1930–1 (BLAT).

DENDROCALAMUS Nees (*nom-cons.*).

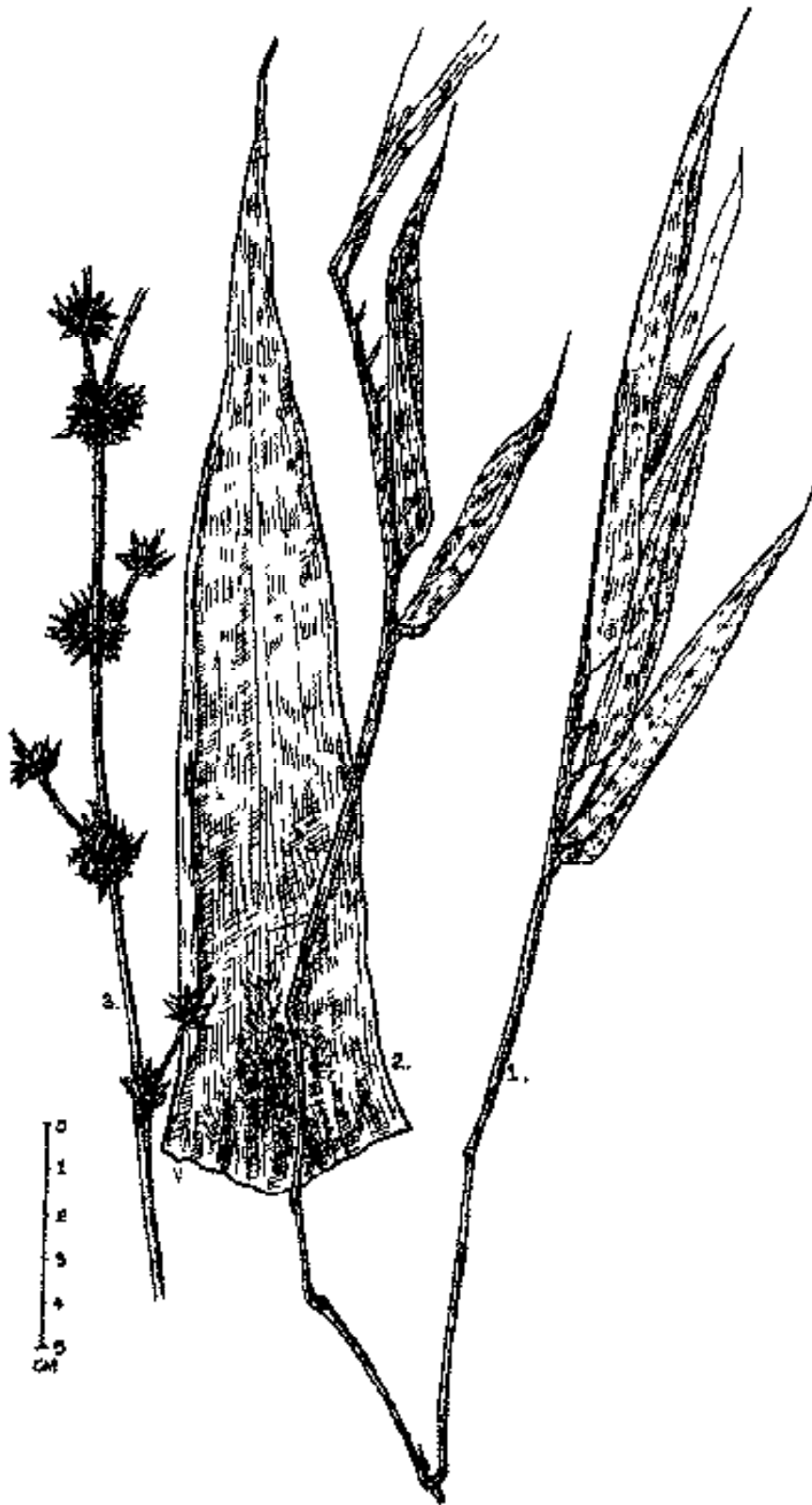
Dendrocalamus strictus (Roxb.) Nees in Linnaea 9: 476.1834; Gamble in Hook. f. Fl. Brit. India 7: 404.1896; Cooke, Fl. Pres. Bombay 3: 572.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 285.1935. *Bambusa stricta* Roxb. Pl. Cor. 1: 58, t. 80.1795. 'Kania-bans'.

Arborescent, stout grasses 10–15 m tall. Culms with a small cavity, ca. 9 cm thick. Leaves 10–30 × 1.2–3.0 cm, linear-lanceolate to ovate-lanceolate, stiff, shortly petiolate. Spikelets 0.7–1.0 cm long, spiny, hairy, with spiny bracts, in globose clusters ca. 3 cm across, in compound panicles. Caryopsis subglobose, ca. 0.7 cm long, beaked.

Fls. & Frts. : October–March.

Illus. : Gamble in Ann. Roy. Bot. Gard. Calcutta 7: tt. 68 & 69.1896. Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 743.1988.

Distrib. : Borivli, *R. R. Fernandez*, 1740 (BLAT).



f.93. *Dendrocalamus strictus* (Roxb.) Nees

DESMOSTACHYA Stapf.

Desmostachya bipinnata (L.) Stapf in Dyer, Fl. Cap. 7: 632.1900; Blatt. & McC. Bombay Grass. 224.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 491.1960. *Briza bipinnata* L. Syst. Nat. (ed. 10), 2: 875.1759. *Eragrostis cynosuroides* (Retz.) P. Beauv. Ess. Agrost. 71, 162.1812; Hook. f. Fl. Brit. India 7: 324.1896; Cooke, Fl. Pres. Bombay 3: 550.1958 (Repr. ed.). 'Darbha'.

Perennial, stout grasses; culms up to 1 m tall, rigid, tufted. Leaves 8.24 × 0.5–1.0 cm, linear, flat. Spikelets ca. 0.3 cm long, biseriate, 10-flowered, sessile, in 1.0–1.5 cm long spikes, arranged in 15–30 cm long, pyramidal or columnar, often interrupted panicles. Caryopsis obliquely ovoid, laterally compressed, obtusely trigonous.

Fls. & Frts. : July–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 848.1982.

Distrib. : Borivli, R. R. Fernandez, 3910 (BLAT).

DICHANTHIUM Willemet

1. Spikelets on capillary branches of a panicle :
 2. Stems weak, decumbent and filiform ... *D. filiculme*
 2. Stems erect, stout :
 3. Nodes glabrous to shortly hairy :
callus shortly bearded ... *D. assimile*
 3. Nodes densely hairy; callus villous-hairy ... *D. huegelii*
1. Spikelets in digitate or subdigitate racemes; not on capillary branches :
 4. Lower glume of the sessile spikelets pitted ... *D. portusum*
 4. Lower glume of the sessile spikelets not pitted .
 5. Joints and pedicels with a translucent groove ... *D. compressum*
 5. Joints and pedicels without such groove ;
 6. Leaf sheath compressed; ligule a short ciliate membrane ... *D. caricosum*
 6. Leaf sheath terete; ligule longish ... *D. annulatum*

Dichanthium annulatum (Forssk.) Stapf in Prain, Fl. Trop. Africa 9: 178. 1917; Blatt. & McC. Bombay Grass. 94.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 133.1960. *Andropogon annulatus* Forssk. Fl. Aeg.-Arab. 173.1775; Hook. f. Fl. Brit. India 7: 196.1896; Cooke, Fl. Pres. Bombay 3: 508.1958 (Repr. ed.). 'Marvel'.

Perennial, herbaceous grasses. Culms 30–50 cm tall, slender, erect, suberect or basally geniculate. Leaves 8–20 × 0.2–0.4 cm, linear, flat. Spikelets paired; sessile spikelets ca. 0.35 cm long, oblong, tubercled–pubescent, awned, pedicelled spikelets ca. 0.4 cm long, in 2–5, ca. 6 cm long, subdigitate racemes. Caryopsis oblong, dorsally compressed.

Fls. & Frts. : July–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 844 & 845 1982.

Distrib. : Borivli, R. R. Fernandez, 1005 & 1164 (BLAT).

Dichanthium assimile (Steud.) Deshpande in *Fas. Fl. India* 15: 6.1984. *Andropogon assimilis* Steud. in *Zoll. Verz.* 58.1854 & *Syn. Pl. Glum.* 1: 397.1854; Hook. f. *Fl. Brit. India* 7: 179.1896; Cooke, *Fl. Pres. Bombay* 3: 501.1958 (Repr. ed.). *Capillipedium assimile* (Steud.) A. Camus in Lecomte, *Fl. Gen. Indo-Chine* 7: 314.1922; Bor, *Grass. Burma, Ceylon, India & Pakistan* 110.1960.

Suffruticose, decumbent perennial grasses; culms 30–60 cm high, hard, smooth. Leaves 7–20 × 0.25–0.6 cm, linear–lanceolate, finely acuminate; ligule ciliate. Spikelets paired, distant; sessile spikelets ca. 0.25 cm long, ovoid–oblong; lower glume ovate–oblong, shortly truncate, faintly 4–5–nerved, not pitted, upper glume lanceolate, as long as lower lemma, linear, obtuse; upper lemma reduced to base of awn. pedicelled spikelets ca. 0.4 cm long.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *Bombay Grasses* 80. t. 51.1935; Deshpande, *op. cit.* 8, ff. 5 & 6.

Distrib. : Above Kanheri Caves. *Blatter* (1928).

Dichanthium caricosum (L.) A. Camus in *Bull. Mus. Hist. Nat. Paris* 27: 549.1921; Blatt. & McC. *Bombay Grass.* 92.1935; Bor, *Grass. Burma, Ceylon, India & Pakistan* 134.1960. *Andropogon caricosus* L. *Sp. Pl.* (ed. 2), 1480.1763; Hook. f. *Fl. Brit. India* 7: 196.1896; Cooke, *Fl. Pres. Bombay* 3: 507.1958 (Repr. ed.). *Dichanthium aristatum* (Poir.) C. E. Hubb. in *Kew Bull.* 1939; 654.1935; Bor, *op. cit.* 134.

Perennial grasses. Culms 40–70 cm tall, erect or ascending from geniculate base. Leaves 8–10 × 0.2–0.6 cm, narrowly linear, finely acuminate, tubercled–pubescent. Spikelets paired ca. 0.4 cm long, in 1–3, 3.5–5.0 cm long racemes, subdigitately arranged. Caryopsis oblong, dorsally compressed.

Fls. & Frts. : July–December.

Illus. : Rang. & Tad. Handb. S. Indian Grass. 201. f. 159.1921. Blatt. & McC. *op. cit.* t. 61.

Distrib. : Borivli, R. R. Fernandez, 1143. (BLAT).

Dichanthium compressum (Hook. f.) Jain & Deshpande in Bull. Bot. Surv. India 20 : 133. (1978) 1979; Deshpande in Fasc. Fl. India 15: 10.1984. *Andropogon compressus* Hook. f. Fl. Brit. India 7: 172.1896; Cooke, Fl. Pres. Bombay 3: 496.1958 (Repr. ed.). *Bothriochloa compressa* (Hook. f.) Henr. in Blumea 3, 456.1940. Bor, Grass. Burma, Ceylon, India & Pakistan 106.1960.

Perennial, stout grasses. Culms 90–120 cm tall, erect, branched. Leaves 20–40 × 0.6–1.0 cm, linear, finely acuminate, flat, scaberulous on margins and surfaces. Spikelets 0.4–0.5 cm long, ovate–lanceolate paired, in 10–13 cm long panicles of corymbose–racemes. Caryopsis oblong.

Fls. & Frts. : October–December.

Illus. : Blatt. & McC. Bombay Grass. 83. t. 53.1935 [*Amphilophis compressa* (Hook. f.) Blatt. & McC.] Bombay Grass. 83. 1935).

Distrib. : Koppikar (1974).

Dichanthium filiculme (Hook. f.) Jain & Deshpande in Bull. Bot. Surv. India 20 : 134. (1978) 1979; Deshpande in Fasc. Fl. India 15: 11.1984. *Andropogon filiculmis* Hook. f. Fl. Brit. India 7: 181.1886; Cooke, Fl. Pres. Bombay 3: 502.1958 (Repr. ed.). *Capillipedium filiculme* (Hook. f.) Stapf in Hook. Icon. Pl. subt. 3085.1922. Bor, Grass. Burma, Ceylon, India & Pakistan 111.1960.

Annual, herbaceous grasses. Culms 20–30 cm tall, ascending from base. Leaves 10–15 × 0.3–0.6 cm, linear–lanceolate. Spikelets 0.3–0.4 cm, oblong–lanceolate; upper ones pedicellate, lower ones sessile, pale green, distantly placed on rachis, in lax, 4–6 cm long panicles.

Fls. & Frts. : August–December.

Illus. : Hook. *op. cit.* & Patunkar, B. W. Grass. Marathwada 45, f. 11.1980

Distrib. : Borivli, R. R. Fernandez, 1093 (BLAT).

Dichanthium huegelii (Hack.) Jain & Deshpande in Bull. Bot. Surv. India 20 : 135. (1978) 1979; Deshpande in Fasc. Fl. India 15: 15.1984. *Andropogon huegelii* Hack. in DC. Mon. Phan. 6: 492.1889;

Hook. f. Fl. Brit. India 7: 180.1896; Cooke, Fl. Pres. Bombay 3: 501.1958. (Repr. ed.). *Capillipedium huegelii* (Hack.) Stapf in Hook. Ic. Pl. subt. 3085.1922; Bor, Grass. Burma, Ceylon, India & Pakistan 111.1960.

Perennial, herbaceous grasses. Culms 40–60 cm tall, ascending with creeping base, rooting at nodes. Leaves 10–25 × 0.3–1.0 cm, linear-lanceolate, ciliate on margins. Spikelets 0.25–0.3 cm long, ovate, glabrous or villous beneath the middle, in panicles 4–12 cm long.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. Bombay Grass. 81, t. 52.1935.

Distrib. : Frequent. 167255.

***Dichanthium pertusum* (L.) W. D. Clayton** in Kew Bull. 32: 4.1977; Deshpande in Fasc. Fl. India 15: 22.1984. *Holcus pertusus* L. Mant. Pl. 301.1771. *Andropogon pertusus* (L.) Willd. Sp. Pl. 4: 922.1806; Hook. f. Fl. Brit. India 7: 173.1896; Cooke, Fl. Pres. Bombay 3: 497.1958 (Repr. ed.). *Bothriochloa pertusa* (L.) A. Camus in Ann. Soc. Linn. Lyon 1930, n. s. 76: 164.1931; Bor, Grass. Burma, Ceylon, India & Pakistan 109.1960.

Perennial grasses. Culms 30–60 cm tall, erect or geniculate and ascending. Leaves 3–15 × 0.3–0.4 cm, narrowly linear, flat, acuminate at apex, scabrid on margins; ligules membranous with villous tufts. Spikelets 0.3–0.4 cm long, paired; sessile ones ellipsoid, female; pedicellate ones narrowly ellipsoid, male or neuter, in 2–5, 3–5 cm long racemes. Caryopsis oblong.

Fls. & Frts. : July–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 816.1982.

Distrib. : Borivli, R. R. Fernandez, 813 (BLAT).

DIGITARIA (Heist.) Haller (*nom. cons. prop.*)

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|--|-----|----------------------|
| 1. Leaves ovate-lanceolate; pedicels terete, smooth | ... | <i>D. longiflora</i> |
| 1. Leaves linear to linear-lanceolate; pedicels angular, spinulose on angles : | | |
| 2. Spikelets 0.1–0.17 cm long : | | |
| 3. Tips of the pedicel hairy, not cupuliform | ... | <i>D. stricta</i> |
| 3. Tips of the pedicels not hairy, cupuliform | ... | <i>D. abludens</i> |
| 2. Spikelets 2.5–3.5 cm long : | | |

- | | | |
|--|-----|--------------------|
| 4. Spikelets with soft hairs only | ... | <i>D. ciliaris</i> |
| 4. Spikelets with soft and stiff bulbous-based hairs | ... | <i>D. bicornis</i> |

Digitaria abludens (Roem. & Schult.) Veldk. in *Blumea* 21: 53.1973. *Panicum abludens* Roem. & Shult. in *L. Syst. Veg.* 2: 457.1817. *Paspalum pedicellare* Trin. ex Hook. f. *Fl. Brit. India* 7: 19.1896. *Digitaria pedicellaris* (Trin. ex Hook. f.) Prain, *Bengal Pl.* 1181.1903; [2: 890.1963 (Repr. ed.)]; Cooke, *Fl. Pres. Bombay* 3: 458.1958 (Repr. ed.). *D. granularis* (Trin. ex Spr.) Henr. *Mon. Gen. Digitaria* 302.1950; Bor, *Grass. Burma, Ceylon, India & Pakistan* 301.1960.

Annual, herbaceous grasses; culms 15–30 cm tall, erect or ascending, tufted. Leaves 3.5–9.0 × 0.3–0.4 cm, linear-lanceolate. Spikelets 0.13–0.16 cm long, ovate or elliptic, ternate, in 2–5, 3–6 cm long spikes. Caryopsis ellipsoid, apiculate, black at maturity.

Fls. & Frts. : July–October.

Illus. : Blatt. & McC. *Bombay Grass*. 126. t. 80.1935 (*Digitaria pedicellare*).

Distrib. : Borivli, R. R. Fernandez, 123 (BLAT).

Digitaria bicornis (Lam.) Roem. & Schult. ex Loud. *Hort. Brit.* 24: n. 1578.1830; Bor, *Grass Burma, Ceylon, India & Pakistan* 299.1960; Veldk. in *Blumea* 21: 30.1973. *Paspalum bicorne* Lam. *Tabl. Encycl.* 1: 176.1791. *Panicum heteranthum* Hook. f. *Fl. Brit. India* 7: 16.1896 non Nees et Meyen (1843), non Link (1820).

Annual, herbaceous grasses. Culms 15–45 cm tall; erect or decumbent-ascending. Leaves 5–10 × 0.5–0.8 cm linear, flat, acuminate. Spikelets 0.3–0.35 cm long, oblong-lanceolate, binate; sessile ones glabrous or sparsely hairy, pedicelled ones pubescent, pectinate, in 2–8 ca. 8–12 cm long, digitate or whorled racemes. Caryopsis ellipsoid-oblong.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 846 & 847.1982.

Distrib. : Borivli, R. R. Fernandez, 829 (BLAT).

Digitaria ciliaris (Retz.) Koel. *Descr. Gram.* 27.1802; Veldk. in *Blumea* 21: 32.1973. *Panicum ciliare* Retz. *Obs. Bot.* 4: 16.1786; *Paspalum sanguinale* Lam. var. *ciliare* (Retz.) Hook. f. *Fl. Brit. India* 7: 15.1896. *Digitaria sanguinalis* Scop. var. *ciliaris* Prain, *Beng. Pl.* 1181.1903 [2: 889.1963 (Repr. ed.)]; Cooke, *Fl. Pres. Bombay* 3:

457.1958 (Repr. ed.). *D. adscendens* (H. B. K.) Henr. in Blumea 1: 92.1934; Bor, Grass. Burma, Ceylon, India & Pakistan 298.1960. 'Roega'.

Annual, herbaceous grasses. Culms ca. 50 cm long, ascending from geniculate base. Leaves 4–9 × 0.4–0.8 cm, oblong-linear, linear-lanceolate, appressed-pubescent. Spikelets ca. 0.3 cm long, elliptic-oblong, 2–3-nate, 5–12 cm long, in 3–6-digitate or whorled racemes. Caryopsis ellipsoid-oblong.

Fls. & Frts. : July–December.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 259.1966. (*Digitaria adscendens*); Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: tt. 748 & 749.1988.

Distrib. : Common. 167842.

Digitaria longiflora (Retz.) Pers. *Syn. Pl.* 1: 85.1805; Cooke, *Fl. Pres. Bombay* 3: 458.1958 (Repr. ed.); Blatt. & McC. *Bombay Grass.* 127.1935; Bor, *Grass. Burma, Ceylon, India & Pakistan* 302.1960; Veldk. in *Blumea* 21. 66.1973. *Paspalum longiflorum* Retz. *Obs. Bot.* 4: 15.1786.

Herbaceous grasses. Culms 10–40 cm long, matty, ascending from creeping and rooting stolons. Leaves 0.25–0.6 × 0.4–0.6 cm, ovate-lanceolate. Spikelets 0.15–0.16 cm long, ca. 0.5 cm broad, ovoid or broadly elliptic or elliptic-obovate, homomorphous, pedicellate, pubescent, ternate, 2.5–5.0 cm long, in 2–3-digitate racemes. Caryopsis ellipsoid.

Fls. & Frts. : August–December.

Illus. : Rang. & Tad. *Handb. S. Grass.* 59. ff. 76 & 77.1921. Blatt. & McC. *op. cit.* t. 81.

Distrib. : Borivli, R. R. Fernandez, 579 (BLAT).

Digitaria stricta Roth ex Roem. & Schult. *Syst. Veg.* 2: 474.1817; Bor, *Grass. Burma, Ceylon, India & Pakistan* 305.1960; T. A. Cope in Nasir & Ali, *Fl. W. Pak.* 143: 222.1982. *Paspalum royleanum* Nees ex Hook. f. *Fl. Brit. India* 7: 18.1896. *Digitaria royleana* (Nees ex Hook. f.) Prain, *Bengal Pl.* 1182. 1903 [2: 890.1963 (Repr. ed.)]; Cooke, *Fl. Pres. Bombay* 3: 459.1958 (Repr. ed.).

Annual, herbaceous grasses. Culms 30–50 cm tall, tufted, slender, erect or basally geniculate. Leaves 5–15 × 0.4–0.5 cm, linear-lanceolate, flat. Spikelets ca. 0.1 long, elliptic-obovate or elliptic-oblong, 5–8 cm long, in 4–6, subdigitate racemes. Caryopsis ellipsoid-oblong.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. Bombay Grass. 127. t. 82.1935. (*Digitaria royleana*); Patunkar, B. W. Grass. Marathwada 143. f. 42.1980.

Distrib. : Occasional. 167819.

DIMERIA R. Br.

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|--|-----|-----------------------|
| 1. Spikelets 0.1–0.25 cm long, upper glumes without wing | ... | <i>D. ornithopoda</i> |
| 1. Spikelets 0.4–0.7 cm long; upper glumes with a wing | ... | <i>D. stapfiana</i> |

Dimeria ornithopoda Trin. Fund. Agrost. 167, t. 14.1820; Hook. f. Fl. Brit. India 7: 104.1896; Cooke, Fl. Pres. Bombay 3: 462.1958 (Repr. ed.); Bor, Grass. Burma Ceylon, India & Pakistan 142.1960. 'Khap-kurdi'.

Annual, herbaceous grasses. Culms 10–30 cm. Leaves 4–6 × 0.3–0.6 cm, linear, finely acuminate, densely pubescent. Spikelets 0.2 cm long, linear, acuminate, awned, sessile or subsessile, in 2–5 cm long racemes. Caryopsis ca. 1.0 × 0.01 cm.

Fls. & Frts. : September–October.

Distrib. : Koppikar (1974).

Dimeria stapfiana C. E. Hubb. ex Pilger in Engl. et Prantl, Pflanzenf. 14e. 109.1940; Bor, Grass. Burma, Ceylon, India & Pakistan 144.1960. *Woodrowia diandra* Stapf in Hook. Ic. Pl. subt. 2447. 1896; Hook. f. Fl. Brit. India 7: 241.1896; Cooke, Fl. Pres. Bombay 3: 533.1958 (Repr. ed.), 'Kotir'.

Annual, herbaceous grasses. Culms erect, 20–40 cm tall. Leaves 4–10 × 0.2–0.25 cm, linear, acuminate at apex, mostly basal. Spikelets 0.5–0.65 cm long, awned, in 3.6 cm long racemes; racemes paired on peduncle. Caryopsis 0.6–0.8 cm long, glabrous, yellow.

Fls. & Frts. : September–October.

Distrib. : Borivli, R. R. Fernandez, 508, 827 (BLAT).

DINEBRA Jacq.

Dinebra retroflexa (Vahl) Panzer in Denkschr. Konigl. Acad. Wiss. Munchen 270, t. 12.1814; Bor, Grass. Burma, Ceylon, India & Pakistan 491.1960. *Cynosurus retroflexus* Vahl, Symb. Bot. 2: 20.1791. *Dinebra arabica* Jacq. Fragm. Bot. 77, t. 121, f. 1.1809; Hook. f. Fl. Brit. India 7: 297.1896; Cooke, Fl. Pres. Bombay 3: 562.1958 (Repr. ed.).

Herbaceous grasses. Culms erect or geniculately ascending. Leaves 5–15 × 0.4–0.7 cm, linear, flat, cordate at base. Spikelets up to 0.5 cm long, secund, 2-seriate, sessile, 2–3-flowered, in stiff racemes, 1.0–2.5 cm long, forming pyramidal, spicate inflorescence ca. 20 × 0.5 cm. Caryopsis ellipsoid-oblong.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 849 & 850.1982.

Distrib. : Borivli, R. R. Fernandez, 1106 (BLAT).

DIPLACHNE P. BEAUV.

Diplachne fusca (L.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2: 615.1817; Hook. f. Fl. Brit. India 7: 329.1896; Cooke, Fl. Pres. Bombay 3: 552.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 492.1960; T. A. Cope in Nasir & Ali, Fl. Pakistan 143 : 72.1982. *Festuca fusca* L. Syst. Veg. ed. 10, 2: 876.1759.

Perennial, stout, erect or geniculately ascending grasses. Stems tufted, 0.6–1.2 m tall, internodes long, shining. Leaves 10–20 × 0.1–0.2 cm, flat or convolute, finely acuminate; ligule oblong, lacerate. Spikelets 0.6–1 cm long, 5–10-flowered, linear-oblong, in erect, narrowly oblong, panicles 10–25 cm long, lower glumes oblong-lanceolate ca. 0.3 cm long, lemmas elliptic-oblong, 3-lobed, margins ciliate.

Fls. & Frts. : September–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 851. & 552.1982.

Distrib. : Shah (1969).

ECHINOCHLOA P. BEAUV.

- | | | |
|--------------------|-----|--------------------|
| 1. Ligule present | ... | <i>R. stagnina</i> |
| 1. Ligule absent : | | |

2. Lower lemmas acute or cuspidate; ... *E. colona*
 2. Lower lemmas awned ... *E. crusgalli*

Echinochloa colona (L.) Link, Hort. Berol. 2: 209.1833; Bor, Grass. Burma, Ceylon, India & Pakistan 308.1960. *Panicum colonum* L. Syst. Nat. (ed. 10), 2: 870.1759; Hook. f. Fl. Brit. India 7: 32.1896; Cooke, Fl. Pres. Bombay 3: 447.1958 (repr. ed.). 'Barad'.

Annual, herbaceous grasses. Culms 30–90 cm erect or ascending. Leaves 5–20 × 0.5 cm, linear–lanceolate, acute to acuminate. Spikelets ca. 0.3 cm long, ovoid–ellipsoid, hispidly pubescent, secund, sessile, usually 3–4-seriate, in 1.5–2.0 cm long, linear spikes. Caryopsis broadly ellipsoid, dorsally compressed.

Fls. & Frts. : More or less throughout the year.

Illus. : Blatt. & McC. Bombay Grass. 148, t. 94.1935; Bor, *op. cit.* 309. f. 34; Patunkar, B. W. Grass. Marathwada 146. f. 43.1980.

Distrib. : Common throughout, in damp Places. 167216, 167224.

Echinochloa crusgalli (L.) P. Beauv. Ess. Agrost. 53. 161.1812; Bor, Grass. Burma, Ceylon, India & Pakistan 310.1960; T. A. Cope in Nasir & Ali Fl. Pak. 143: 193.1982. *Panicum crusgalli* L. Sp. Pl. 56.1753; Hook. f. Fl. Brit. India 7: 30.1896.

Annual, herbaceous grasses. Culms 20–50 cm tall, tufted, diffuse or suberect. Leaves 10–30 × 0.4–0.6 cm, linear to linear–lanceolate, flat. Spikelets 0.35–0.4 cm long, ovoid, in 5–10 cm long, terminal panicles; lower glume cuspidate. Caryopsis broadly ellipsoid, dorsally flattened.

Fls. & Frts. : August–November.

Illus. : Blatt. & McC. Bombay Grass. 150. t. 95.1935; T. A. Cope in Nasir & Ali, *op. cit.* 194. f. 22.

Distrib. : Borivli, R. R. Fernandez, 648 (BLAT).

Echinochloa stagnina (Retz.) P. Beauv. Ess. Agrost. 53, 161 & 171.1812; Bor, Grass. Burma, Ceylon, India & Pakistan 311.1960. *Panicum stagnium* Retz. Obs. Bot. 5: 17.1789; Cooke, Fl. Pres. Bombay 3: 446.1958 (Repr. ed.). *Panicum crusgalli sensu* Hook. f. Fl. Brit. India 7: 30.1896 *p. p. non* L.1753.

Herbaceous grasses. Culms up to 60 cm long, prostrate and geniculately ascending, rooting at lower nodes. Leaves 10–25 cm long, linear. Spikelets 0.4–0.5 cm long, ovate–lanceolate, hairy with bulbous-based hairs, awned, in 10–20 cm long panicles. Caryopsis

dorsally compressed, broadly ellipsoid.

Fls. & Frts. : August–November.

Illus. : Rang. & Tad. S. Indian Grass. 77. f. 88.1921.

Distrib. : Occasional along streams. 167784.

ELEUSINE Gaertn.

Eleusine indica (L.) Gaertn. *Fruct. Sem. Pl.* 1: 8.1798; Hook. f. *Fl. Brit. India* 7: 293.1896; Cooke, *Fl. Pres. Bombay* 3: 560.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 493.1960. *Cynosurus indicus* L. *Sp. Pl.* 72.1753. 'Mahar–Nachni.'

Annual, herbaceous grasses. Culms 10–30 cm, tufted. Leaves 10–20 × 0.5–0.6 cm, linear, distichous, flat or folded. Spikelets 0.4–0.5 cm long, ovate or oblong, 5–7-flowered, in 2–4 spikes 3–7 cm long; peduncles glabrous. Caryopsis subglobose, deeply grooved on one side, transversely rugose, reddish–brown.

Fls. & Frts. : July–January.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 261.1866; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 855 & 856.1982.

Distrib. : Common. 167291.

ELYTROPHORUS P. Beauv.

Elytrophorus spicatus (Willd.) A. Camus in Lecomte, *Fl. Gen. Indo–Chine* 7: 547.1923; Bor, *Grass. Burma, Ceylon, India & Pakistan* 493.1960. *Dactylis spicata* Willd. *Ges. Naturf. Freund. Berlin Neue Schrift.* 3. 416.1801. *Elytrophorus articulatus* P. Beauv. *Ess. Agrost.* 67, t. 14, f. 2.1812; Hook. f. *Fl. Brit. India* 7: 306.1896; Cooke, *Fl. Pres. Bombay* 3: 567.1958 (repr. ed.). 'Jangli–rala'.

Annual, herbaceous grasses. Culms 15–50 cm tall, erect. Leaves 10–30 cm, linear, acute, flat, flaccid; ligules fimbriate. Spikelets ca. 0.5 cm long, ovoid, laterally compressed, sessile, 3–6-flowered, in globose interrupted clusters 4–10 × 0.6–0.8 cm. Caryopsis oblong or fusiform.

Fls. & Frts. : October–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 857 & 858.1982.

Distrib. : Borivli, R. R. Fernandez, 1142 (BLAT).

ERAGROSTIS N. M. Wolf

- | | | | |
|----|---|-----|----------------------|
| 1. | Spikelets not breaking up at maturity | ... | <i>E. tef</i> |
| 1. | Spikelets breaking up at maturity : | | |
| 2. | Spikelets breaking up from above downwards : | | |
| 3. | Panicles compactly spicate | ... | <i>E. ciliaris</i> |
| 3. | Panicles not as above : | | |
| 4. | Keels of palea ciliate | ... | <i>E. tenella</i> |
| 4. | Keels of palea not ciliate | ... | <i>E. japonica</i> |
| 2. | Spikelets breaking up from below upwards : | | |
| 5. | Spikelets ovate or ovate-oblong, 0.2-0.3 cm wide | ... | <i>E. unioloides</i> |
| 5. | Spikelets linear to linear-lanceolate,
less than 0.2 cm wide : | | |
| 6. | Panicles contracted, up to 3 cm broad | ... | <i>E. nutans</i> |
| 6. | Panicles not contracted, effuse more
than 3 cm wide : | | |
| 7. | Spikelets up to 0.1 cm wide | ... | <i>E. pilosa</i> |
| 7. | Spikelets 0.15-0.2 cm wide : | | |
| 8. | Spikelets few-flowered (7-17),
not curved | ... | <i>E. gangetica</i> |
| 8. | Spikelets many-flowered (10-60),
often curved | ... | <i>E. tremula</i> |

Eragrostis ciliaris (L.) R. Br. in Tuckey, Narr. Exp. Congo. App. 478.1818; Stapf in Hook. f. Fl. Brit. India 7: 314.1896; Blatt. & McC. Bombay Grass. 231.1935 p. p; Bor, Grass. Burma, Ceylon, India & Pakistan 506.1960. *Poa ciliaris* L. Syst. Nat. ed. 10, 2: 875.1759. *Eragrostis ciliaris*. var. *brachystachya* Boiss. Fl. Orient. 5: 582.1884; Stapf in Hook. f. op. cit. 315; Cooke, Fl. Pres. Bombay 3: 545.1958 (Repr. ed.).

Annual, herbaceous grasses. Stems tufted, 10-30 cm tall, erect or geniculately ascending. Leaves 4-7 × 0.15-0.2, linear, acuminate at apex; leaf sheath hairy. Spikelets 3-10-flowered, ca. 0.25 cm long, ovate, compressed, in 3-20 cm long, interrupted, oblong panicles. Stamens 3. Caryopsis ca. 0.5 cm long, oblong, ovoid.

Fls. & Frts. : September-January

Illus. : Blatt. & McC. op. cit. t. 154; Mahesh. Illus. Fl. Delhi f. 252.1966.

Distrib. : Salsette, Sant. & Shah (1963).

Eragrostis gangetica (Roxb.) Steud. Syn. Pl. Glum. 1: 266.1854; Cooke, Fl. Pres. Bombay 3: 547.1958 (Repr. ed.) p. p.; Blatt. & McC. Bombay Grass. 236.1835 p. p.; Bor, Grass. Burma, Ceylon, India & Pakistan 508.1960. *Poa gangetica* Roxb. Fl. Ind. 1: 341.1820. *Eragrostis stenophylla* Hochst. ex Miq. in Verh. Konink.-Ned. Inst. 3, 4: 39.1851. p. p.; Stapf in Hook. f. Fl. Brit. India 7: 318.1896.

Perennial grasses. Culms 10–90 cm tall, tufted, suberect. Leaves 8–12 × 0.3–0.4 cm, linear, convolute, finely acuminate. Spikelets 0.4–0.6 cm long, oblong, 2–10-flowered, in 10–20 × 3–8 cm, oblong-ovate panicles. Caryopsis ca. 0.04 cm long, oblong-ovoid.

Fls. & Frts. : July–April.

Illus. : Blatt. & McC. op. cit. t. 154; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 774.1988.

Distrib. : Borivli, R. R. Fernandez, 797. (BLAT).

Eragrostis japonica (Thunb.) Trin. in Mem. Acad. Sci. Petersb. ser. 6, 1: 405.1831; Bor, Grass. Burma, Ceylon, India & Pakistan 509.1960; T. A. Cope in Nasir & Ali, Fl. Pak. 143: 88.1982. *Poa japonica* Thunb. Fl. Jap. 51.1784. *E. diarrhena* (Schult.) Steud. Syn. Pl. Glum. 1: 266.1854; Bor. op. cit. 507. *E. diplachnoides* Steud. op. cit. 268; Bor, op. cit. 508. *E. interrupta sensu* Stapf in Hook. f. Fl. Brit. India 7: 316.1896 non (R. Br.) P. Beauv. 1812. var. *tenuissima* Stapf in Hook. f. op. cit. *E. interrupta* var. *Koenigii* Stapf in Hook. f. op. cit.; Cooke, Fl. Pres. Bombay 3: 546.1958 (Repr. ed.).

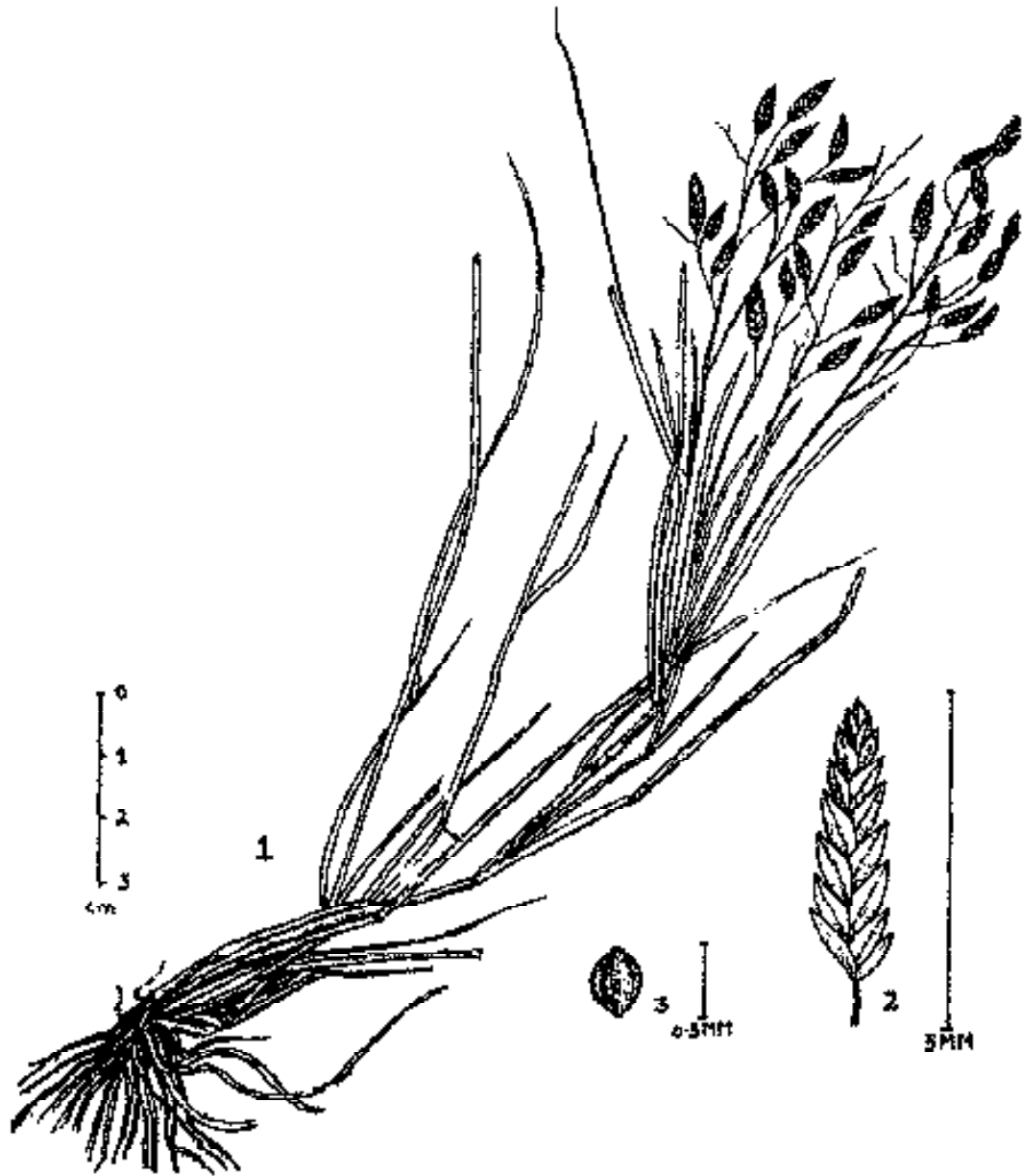
Herbaceous grasses, 0.1–1.5 cm tall. Culms erect. Leaves up to 30 cm long, linear; ligules truncate or fimbriate, membranous. Spikelets 0.12–0.3 cm long, linear-oblong, 4–14-flowered, shortly pedicelled on secondary branches 3–6 cm long, in dense, remote pseudo-whorls. Caryopsis 0.03–0.05 cm long, ellipsoid.

Fls. & Frts. : September–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 864 & 865.1982.

Distrib. : Borivli, R. R. Fernandez, 1655, 1715, 1770 (BLAT).

Eragrostis nutans (Retz.) Nees ex Steud. Nom. Bot. ed. 2, 563.1840; Blatt. & McC. Bombay Grass. 237.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 511.1960. *Poa nutans* Retz. Obs. Bot. 4: 19.1786. *Eragrostis elegantula* Nees ex Steud. Syn. Pl. Glum. 1:



1. Habit, 2. Spikelet, 3. Nut

266.1854; Stapf in Hook. f. Fl. Brit. India 7: 318.1896.

Herbaceous, densely tufted grasses 15–60 cm tall, stems erect or geniculately ascending. Leaves narrow-convolute, with membranous ligules and smooth leaf sheath. Spikelets ca. 0.5 cm long, linear-oblong, in ovoid-oblong panicles. Caryopsis globose or ellipsoid, reddish-brown.

Fls. & Frts. : September–December.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 777.1988.

Distrib. : Salsette, Shah (1969),

Eragrostis pilosa (L.) P. Beauv. Ess. Agrost. 71, 162, 175.1812; Stapf in Hook. f. Fl. Brit. India 7: 323.1896; Cooke, Fl. Pres. Bombay 3: 550.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 512.1960. *Poa pilosa* L. Sp. Pl. 68.1753.

Annual, herbaceous grasses. Culms 30–60 cm, tufted, erect or geniculately ascending. Leaves 5–10 × 0.2–0.3 cm, linear, plicate or infolded. Spikelets 0.35–0.5 cm long, oblong, slate-grey, 5–10-flowered, in oblong-elliptic, 10–25 cm long panicles. Caryopsis ellipsoid, curved, compressed.

Fls. & Frts. : July–October.

Illus. : Mahesh. Illus. Fl. Delhi f. 251.1966; Matthew, Fur. Illus. Fl. Tamilnadu. Carnatic 4: t. 778.1988.

Distrib. : Common. 167934.

Eragrostis tef (Zucc.) Trotter in Bull. Soc. Bot. Ital. 62.1918 (in *Obs.*); Bor, Grass. Burma, Ceylon, India & Pakistan 513.1960. Deshpande & Singh, Grass. Maharashtra 59.1986. *Poa tef* Zucc. Diss. Ist. Pianta Panizz. Abiss. 1774.

Annual, herbaceous grasses with eglandular leaves and lemmas. Spikelets 1.0–1.5 cm wide, rigid, grey, in panicles; lower glume ca. 0.15 cm long, upper one up to 0.25 cm long, lemmas lanceolate, acute, stiff. Caryopsis ca. 0.15 cm long, ovoid.

Fls. & Frts. : September–December.

Illus. : Sreek. & Nair, Fl. Kerala Grass. 359, t. 80.1991.

Distrib. : Salsette, Sant. & Shah (1963).

Eragrostis tenella (L.) P. Beauv. ex Roem. & Schult. in L. Syst. Veg. 2: 576.1917; Stapf in Hook. f. Fl. Brit. India 7: 315.1896; Bor, Grass. Burma, Ceylon, India & Pakistan 513.1960. *Poa tenella* Sp. Pl. 69.1753. *E. tenella* var. *plumosa* (Retz.) Stapf in Hook. f. *op. cit.* 315; Cooke, Fl. Pres. Bombay 3: 545.1958 (Repr. ed.).

Annual, herbaceous grasses. Culms 10–30 cm tall, erect or suberect and geniculately ascending. Leaves 3–9 × 0.3–0.5 cm, narrowly linear-lanceolate. Spikelets 0.2–0.45 cm long, 6–8-flowered, in 3–8, 0.8–1.5 cm long, oblong-pyramidal panicles. Caryopsis ca. 0.04 cm, globose, or ovoid.

Fls. & Frts. : September–March.

Distrib. : Borivli, R. R. Fernandez, 795 (BLAT).

Eragrostis tremula Hochst. ex Steud. Syn. Pl. Glum. 1: 269.1854; Stapf in Hook. f. Fl. Brit. India 7: 320.1896; Cooke, Fl. Pres. Bombay 3: 549.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 514.1960.

Annual, herbaceous grasses. Culms 20–60 cm tall, tufted, erect or geniculately ascending. Leaves 4–12 × 0.2–0.3 cm, linear-lanceolate. Spikelets 1.8–2.0 × 0.3–0.4 cm, linear, compressed, 10–60-flowered, in ovate, oblong, diffuse panicles 20–30 cm long. Caryopsis globose or ovoid.

Fls. & Frts. : August–February.

Illus. : Blatt. & McC. Bombay Grass. 239. t. 159.1935; Mahesh. Illus. Fl. Delhi f. 250.1966.

Distrib. : Borivli, R. R. Fernandez, 795. (BLAT).

Eragrostis unioides (Retz.) Nees ex Steud. Syn. Pl. Glum. 1: 264.1854; Bor, Grass. Burma, Ceylon, India & Pakistan 515.1960. *Poa unioides* Retz. Obs. Bot. 5: 19.1789. *Eragrostis amabilis* Stapf in Hook. f. Fl. Brit. India 7: 317.1896 non Wight & Arn. ex Nees 1838; Cooke, Fl. Pres. Bombay 3: 546.1958 (Repr. ed.).

Annual grasses. Culms 15–80 cm, tufted, slender, erect or geniculately ascending. Leaves 5–15 × 0.1–0.4 cm, linear-oblong, subamplexicaul at base, narrowed at apex. Spikelets 0.5–0.7 cm long, ovoid to oblong, tinged with purple, 10–30-flowered, in 5–25 × 2–8 cm, oblong to broadly ovate panicles. Caryopsis ellipsoid, smooth, laterally compressed, reddish-brown.

Fls. & Frts. : July–February.

Illus. : Blatt. & McC. Bombay Grass. 235. t. 156.1935.

Distrib. : Common. 167366.

ERIOCHLOA H. B. & K.

Eriochloa procera (Retz.) C. E. Hubb. in Bull. Misc. Inform. 1930 : 256.1930; Bor, Grass. Burma, Ceylon, India & Pakistan 312.1960. *Agrostis procera* Retz. Obs. Bot. 4: 19.1786. *Eriochloa polystachya* Hook. f. Fl. Brit. India 7: 20.1896 non H. B. & K.1816; Cooke, Fl. Pres. Bombay 3: 461.1958 (Repr. ed.).

Perennial grasses. Culms 0.3–1.5 m tall, erect or geniculately ascending, densely tufted. Leaves 10–20 × 0.4–0.7 cm, linear-lanceolate, acuminate with fimbriate ligule. Spikelets ca. 0.35 cm long, lanceolate, solitary or binate, loosely imbricate, in 15–20 cm long racemes. Caryopsis ca. 0.18 cm long, oblong-ellipsoid, dorsally compressed.

Fls. & Frts. : July–January.

Illus. : Mahesh. Illus. Fl. Delhi f. 276.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 868 & 869.1982.

Distrib. : Frequent. 167946.

EULALIA Kunth

- | | | |
|-------------------------------|-----|----------------------|
| 1. Upper lemma 2-toothed | ... | <i>E. fastigiata</i> |
| 1. Upper lemma deeply bifid : | | |
| 2. Annual grasses | ... | <i>E. trispicata</i> |
| 2. Perennial grasses | ... | <i>E. fimbriata</i> |

Eulalia fastigiata (Nees ex Steud.) Haines, Bot. Bihar & Orissa 1014.1924 & [3: 1061. 1061 (Repr. ed.)]; Bor, Grass. Burma, Ceylon, India & Pakistan 155.1960. *Saccharum fastigiatum* Nees ex Steud. Syn. Pl. Glum. 1: 409.1855. *Erianthus fastigiatus* Nees ex Steud. *op. cit.*; Hook. f. Fl. Brit. India 7: 125.1896.

Herbs, 1.5–2.0 m tall. Culms coarsely tufted. Leaves (lower) 60–70 × 0.7–0.8 cm, with filiform apices, margins minutely serrulate; cauline leaves 40–50 × 0.2–0.3 cm, margins revolute. Spikelets 0.2–0.25 cm long, in 15–30 cm long panicles. Caryopsis oblong, ca. 0.13 cm long.

Fls. & Frts. : November–December.

Distrib. : Borivli, R. R. Fernandez, 921, & P. S. Herbert, 980 (BLAT).

Eulalia fimbriata (Hack.) O. Ktze. Rev. Gen. Pl. 2: 775.1891; Bor, Grass. Burma, Ceylon, India & Pakistan 155.1960. *Pollinia fimbriata* Hack. in DC. Monogr. Phan. 6: 164.1889; Stapf in Hook. f. Fl. Brit. India 7: 112.1896; Cooke, Fl. Pres. Bombay 3: 468.1958 (Repr. ed.).

Annual herbs, 30–40 cm high. Culms erect. Leaves 15–20 cm long, sparsely hairy. Spikelets ca. 0.3 cm long, sessile, and pedicelled, densely white hairy, in 2–4, 3–5 cm long, villous racemes.

Fls. & Frts. : October–February.

Illus. : Blatt. & McC. Bombay Grass. 53. t. 36.1935.

Distrib. : Borivli, R. R. Fernandez, 688, 823 (BLAT).

Eulalia trispicata (Schult.) Henr. in Blumea 3: 453.1940; Bor, Grass. Burma, Ceylon, India & Pakistan 157.1960. *Andropogon trispicatus* Schult. Syst. Veg. 2, Mant. 452.1824. *Eulalia argentea* Brongn. in Duperr. Voy. Conquille Bot. 2(2) : 92.1830; Blatt. & McC. Bombay Grass. 52.1935. *Pollinia argentea* Trin. in Bull. Acad. Sci. Petersb. 1: 71.1836; Hook. f. Fl. Brit. India 7: 111.1896; Cooke, Fl. Pres. Bombay 3: 467.1958 (Repr. ed.).

Stout, perennial grasses. Stems tufted, 50–130 cm tall, erect or geniculate, glabrous at nodes. Leaves 10–30 × 0.1–0.4 cm, narrowly linear, flaccid, often filiform, glabrous; leaf-sheaths coriaceous; ligule short, membranous, fringed with long hairs. Spikelets 0.3–0.4, elliptic-oblong, white-hairy, in 6–10, 4–6 cm long racemes. Caryopsis oblong.

Fls. & Frts. : October–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 870. & 871.1982.

Distrib. : Kanheri Caves, Blatter & McCann (1935).

GARNOTIA Brongn.

Garnotia tenella (Arn. ex Miq.) Jan. in Feddes Repert. 17: 86.1921; Gould in Kew Bull. 27: 528.1972. *Berghausia tenella* Arn. ex Miq. in Verh. Konink. Nederl. Inst. 3, (4) : 34.1851. *Garnotia stricta sensu* Hook. f. Fl. Brit. India 7: 243.1896; Cooke, Fl. Pres. Bombay 3: 534.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 569.1960 non Brongn. 1831.

Annual, herbaceous grasses. Culms 15–25 cm tall, slender. Leaves 5–15 × 0.3–0.9 cm, linear-lanceolate or lanceolate with membranous, fimbriate ligule. Spikelets ca. 0.3 cm long, oblong-linear, paired, in oblong panicles, 5–15 cm long. Caryopsis ca. 0.2 cm long, ellipsoid.

Fls. & Frts. : August–September.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 872 & 873.1982.

Distrib. : Infrequent. 167984, 167976.

GLYPHOCHLOA W. D. Clayton

- | | | |
|---------------------------------|-----|-----------------------|
| 1. Joints and pedicels glabrous | ... | <i>G. divergens</i> |
| 1. Joints and pedicels hairy | ... | <i>G. forficulata</i> |

Glyphochloa divergens (Hack.) W. D. Clayton in *Kew Bull.* 35: 815.1981; Salunke & Yadav in *Indian Bot. Repr.* 8: 143, figs. 1–13 (1989) 1990. *Rottboellia divergens* Hack. in DC. *Monogr. Phan.* 6: 292.1889. *Manisuris divergens* (Hack.) O. Ktze, *Rev. Gen. Pl.* 2: 799.1891; Bor, *Grass. Burma, Ceylon, India & Pakistan* 701.1960; Jain in *Bull. Bot. Surv. India* 12: 10. (1970) 1972.

Annual grasses up to 10 cm tall. Leaves 3–6 × 0.2–0.35 cm, linear, tubercled-hairy. Sessile spikelets 0.25–0.35 cm long; pedicelled spikelets ca. 0.35 cm long, lanceolate; racemes up to 0.25 cm long, many-flowered.

Illus. : Salunke & Yadav *op. cit.*

Distrib. : Kanheri Caves. *Blatter & McCann* (1935).

Glyphochloa forficulata (C. E. C. Fisch.) W. D. Clayton in *Kew Bull.* 35(4) : 815.1981. *Manisuris forficulata* C. E. C. Fischer in *Bull. Misc. Inform.* 1933. 355.1933 *emend.* Jain in *Bull. Bot. Surv. India* 12: 12 (1970) 1972; Bor, *Grass. Burma, Ceylon, India & Pakistan* 192.1960. *Rottboellia divergens sensu* Hook. f. *Fl. Brit. India* 7: 155.1896 *non* Hack. 1889; Cooke, *Fl. Pres. Bombay* 3: 470.1958 (*Repr. ed.*).

Annual herbs; culms tufted, up to 20 cm high. Leaves narrow, conduplicate, flat. Spikelets paired, one sessile, one pedicelled, ca. 0.25 cm long, in solitary, terminal, 2–6 cm long racemes; lower glumes of sessile spikelets 0.4–0.6 cm long, lanceolate, with two divaricated awns, margins winged, 4–6-grooved with 5–9 hooked spines, lower glumes of pedicelled spikelets awned. Caryopsis oblong, ellipsoid.

Fls. & Frts. : August–November.

Illus. : Jain, *op. cit.* 11. f. 6.

Distrib. : Borivli, R. R. Fernandez, 1576, 1890 (BLAT).

HETEROPOGON Pers.

- | | |
|--|---------------------|
| 1. Tall grasses over 1.5 m high; racemes glabrous, 10–15 cm long ... | <i>H. triticeus</i> |
| 1. Short grasses 30–60 cm high; racemes bristly hairy, 4–5 cm long ... | <i>H. contortus</i> |

Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult. in L. Syst. Veg. 2: 836.1817; Bor, Grass. Burma, Ceylon, India & Pakistan 163.1960. *Andropogon contortus* L. Sp. Pl. 1045.1753; Hook. f. Fl. Brit. India 7: 199.1896; Cooke, Fl. Pres. Bombay 3: 510.1958 (Repr. ed.). 'Kursali'.

Perennial grasses. Culms 20–60 cm tall, tufted, erect or basally geniculate. Leaves 8–15 × 0.2–0.3 cm, linear, lanceolate with fimbriate ligule. Spikelets 0.3–0.6 cm long, lower 4–6 pairs of spikelets homogamous, awnless, male; upper ones awned, heterogamous, sessile ones female and pedicelled ones male or sterile, in solitary racemes 4–10 cm long. Caryopsis enclosed by lemmas.

Fls. & Frts. : July–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 876 & 877.1982.

Distrib. : Borivli, R. R. Fernandez, 824 (BLAT)

Heteropogon triticeus (R. Br.) Stapf ex Craib in Kew Bull. 1912. 432.1912; Bor, Grass. Burma, Ceylon, India & Pakistan 165.1960. *Andropogon triticeus* R. Br. Prodr. 201.1810; Hook. f. Fl. Brit. India 7: 200.1896; Cooke, Fl. Pres. Bombay 3: 509.1958 (Repr. ed.). *Heteropogon insignis* Thw. Enum. Pl. Zeyl. 437.1864; Blatt. & McC. Bombay Grass. 108.1935.

Perennial, stout grasses; culms 1.5–2.5 m tall. Leaves 50 × 150 × 0.3–0.6 cm, narrowly linear, acuminate, sparsely hairy, sheaths compressed, keeled; ligule a rounded, membrane. Spikelets ca. 1.2 cm long, paired; pedicelled spikelets ca. 2.5 cm long, awns stout, spirally twisted, in terminal racemes 10–15 cm long.

Fls. & Frts. : September–November.

Illus. : Blatt. & McC. *op. cit.* t. 69.

Distrib. : Kanheri Caves, *Blatter & McCann* (1935).

HYGRORYZA Nees

Hygroryza aristata (Retz.) Nees ex Wight & Arn. in Edinb. New Phil. J. 15: 380.1833; Hook. f. Fl. Brit. India 7: 95.1896; Cooke, Fl. Pres. Bombay 3: 563.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 27.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 597.1960. *Pharus aristatus* Retz. Obs. Bot. 5: 23.1789.

Floating, glabrous grasses. Stems 30 cm or more long, spongy with rooting nodes. Leaves 2.5–7.0 × 1.2–1.8 cm, linear or ovate-oblong, subcordate or rounded at base, obtuse at apex, margins scaberulous, leaf-sheath inflated to slightly auricled at mouth, compressed; ligule membranous, narrow. Spikelets 1–2 cm long, narrow, lanceolate, awned in panicles ca. 5 cm long. Caryopsis oblong.

Fls. & Frts. : November–March.

Illus. : Blatt. & McC. *op. cit.* t.184; Bor, *op. cit.* 598, f. 67; Subram. Aquat. Ang.175, f. 63.1962.

Distrib. : Vihar lake, *Blatter & McCann* (1935).

IMPERATA Cyr.

Imperata cylindrica (L.) Raeusch. Nom. Bot. (ed. 3) : 10.1797; Bor, Grass. Burma, Ceylon, India & Pakistan 169.1960; T. A. Cope, in Nasir & Ali, Fl. Pakistan 143. 252.1982. *Lagurus cylindricus* L. Syst. Nat. (ed. 10) : 878.1759. *Imperata arundinacea* Cyr. Pl. Rar. Neap. 2: 26, t, 11.1792; Hook. f. Fl. Brit. India 7: 106.1896; Cooke, Fl. Pres. Bombay 3: 464.1958 (Repr. ed.).

Perennial, stout grasses. Culms 0.5–1.0 cm high, rhizomes creeping. Leaves 4–10 × 0.3–0.5 cm, lanceolate, finely acuminate, convolute, glabrescent, Spikelets up to 0.3 cm long, elliptic-lanceolate to lanceolate, 2-flowered, covered with silky hairs, in oblong-lanceolate, cylindric, 10–15 cm long panicles. Caryopsis 0.1–0.13 cm long, oblong.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 243.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 880 & 881.1982.

Distrib. : *Koppikar* (1974).

INDOPOA Bor.

Indopoa paupercula (Stapf) Bor in Kew Bull. 12: 225.1958. & Grass. Burma, Ceylon India & Pakistan 523.1960. *Tripogon pauperculus* Stapf in Hook. Ic. Pl. t. 2442.1896; Hook. f. Fl. Brit. India 7: 265.1896; Cooke, Fl. Pres. Bombay 3: 558.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 522.1960.

Annual, herbaceous grasses. Culms 10–15 cm tall, stems slender, capillary, densely tufted. Leaves 1.5–4.5 cm long, setaceous, acute, involute. Spikelets 2–3, ca. 0.8 cm long, distant or solitary, awned. Caryopsis narrowly linear, cylindric.

Fls. & Frts. : August–November.

Illus. : Bor, *op. cit.* 523. f. 57.

Distrib. : Borivli, R. R. Fernandez, 1470–1. (BLAT).

ISACHNE R. Br.

- | | | | |
|----|---|-----|-------------------|
| 1. | Florets of equal size or nearly so and of same texture | ... | <i>I. elegans</i> |
| 1. | Florets of unequal size and of different texture : | | |
| 2. | Leaves linear–lanceolate to ovate–lanceolate; spikelets in dense panicles | ... | <i>I. dispar</i> |
| 2. | Leaves narrowly lanceolate; spikelets in lax panicles | ... | <i>I. globosa</i> |

Isachne dispar Trin. Sp. Gram. 1, Ic. t. 86.1826; Hook. f. Fl. Brit. India 7: 26.1896; Bor, Grass. Burma, Ceylon, India & Pakistan 580.1960.

Annual, herbaceous grasses, 20–30 cm tall with spongy culms. Leaves ovate–lanceolate, scaberulous. Spikelets ca. 0.1 cm long, green or purplish, in 3–4 cm long panicles; glumes hairy, lemmas dimorphic.

Fls. & Frts. : September–October.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 785.1988.

Distrib. : Salsette, Shah (1969).

Isachne elegans Dalz. in Dalz. & Gibs. Bombay Fl. 291.1861; Hook. f. Fl. Brit. India 7: 23.1896; Cooke, Fl. Pres. Bombay 3: 439.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 580.1960; Ved Prakash & Jain in Fasc. Fl. India 14: 18. f. 1–10.1984.

Herbaceous grasses. Culms 15–30 cm, tufted. Leaves 5–15 × 0.4–0.6 cm, lanceolate, linear–lanceolate, flat, scabrid. Spikelets 0.2–0.3 cm long, obovoid–subglobose, 2-flowered, pedicelled, in panicles 5–8 cm long. Caryopsis ellipsoid.

Fls. & Frts. : September–January.

Illus. : Blatt. & McC. Bombay Grass.187. t. 121.1935; Ved Prakash & Jain, *op. cit.*; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 786.1988.

Distrib. : Koppikar (1974).

Isachne globosa (Thunb.) O. Ktze. Rev. Gen. Pl. 2: 778.1891; Bor, Grass. Burma, Ceylon, India & Pakistan 580.1960; Ved Prakash & Jain in Fasc. Fl. India 14: 22.1984. *Milium globosum* Thunb. Fl. Jap. 49.1784. *Isachne australis* R. Br. Prodr.196.1810; Hook. f. Fl. Brit. India 7: 14.1896; Cooke, Fl. Pres. Bombay 3: 439.1958 (Repr. ed.). 'Daura'.

Herbaceous grasses. Culms up to 30 cm, erect or ascending from creeping rootstock. Leaves 2–6 × 0.3–0.8 cm, linear–lanceolate, flat, scabrid, acuminate. Spikelets ca. 0.2 cm across, globose, 2-flowered, in panicles up to 10 cm long. Caryopsis ca. 0.15 cm long, ellipsoid.

Fls. & Frts. : August–October.

Illus. : Blatt. & McC. Bombay Grass.188. t. 122. 1935 (*Isachne australis*); Matthew, Illus. Fl. Tamilnadu Carnatic 4: t. 787.1988.

Distrib. : Common in marshes. 168463.

ISCHAEMUM L.

- | | | |
|--|-----|--------------------------|
| 1. Leaves distinctly petioled, sagittate | ... | <i>I. semisagittatum</i> |
| 1. Leaves not as above : | | |
| 2. Margins of the lower glume of the sessile spikelet expanded beneath the middle : | | |
| 3. Keel of the upper glume of the sessile spikelet winged above the middle | ... | <i>I. indicum</i> |
| 3. Keel of the upper glume of the sessile spikelet not winged above the middle | ... | <i>I. timorense</i> |
| 2. Margins of the lower glume of the sessile spikelet narrowly and evenly inturred : | | |
| 4. Glumes of the spikelet with broad marginal wing : | | |

5. Lower glume of the sessile spikelet with a broad wing at the tip ... *I. mangaluricum*
5. Lower glume of the pedicelled spikelet with a broad wing on margin ... *I. travancorense*
4. Glumes of the spikelets not winged as above :
6. Culms stilt-rooted ... *I. santapaui*
6. Culms not stilt-rooted :
7. Lower glume of the sessile spikelet with two tufts of hairs on the margins about the middle ... *I. diplogogon*
7. Lower glume of the sessile spikelet not as above :
8. Lower glume of the sessile spikelet coriaceous with side nodules :
9. Lower leaves rounded or shallowly cordate ... *I. tumidum*
9. Lower leaves tapering to the base ... *I. barbatum*
8. Lower glume of the sessile spikelet crustaceous with horizontal sharp ridges :
10. Ridges shallow; leaves shallowly cordate or rounded at base ... *I. molle*
10. Ridges deep; leaves tapering at base ... *I. rugosum*

Ischaemum barbatum Retz. Obs. Bot. App. 6: 35.1791; Bor in Kew Bull. 15: 411.1961 & Grass. Burma, Ceylon, India & Pakistan App. 1.1973 (Repr. ed.). *I. aristatum sensu* Hack. non L.1753. ssp. *imberbe* Hack. var. *imbricatum* Hack. in DC. Monogr. Phan. 6: 203.1889; Hook. f. Fl. Brit. India 7: 127.1896. *I. goebelii* Hack. in Oestr. Bot. Zeit. 51: 149.1901; Bor, Grass. Burma, Ceylon, India & Pakistan 179.1960.

Perennial, stout grasses; culms 60–90 cm tall, erect or decumbent, geniculately ascending. Leaves 10–30 × 0.6–0.2 cm, linear-lanceolate, flat. Spikelets 0.5–0.7 cm long, paired, in 6–16 cm long, solitary or 2–3-nate racemes, upper glume bicuspidate.

Fls. & Frts. : October–December.

Distrib. : Borivli, R. R. Fernandez, 819. (BLAT).

Ischaemum diplogogon Hook. f. Fl. Brit. India 7: 129.1896; Cooke, Fl. Pres. Bombay 3: 478.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 14.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 178.1960.

Herbaceous grasses. Culms 30–50 cm high. Leaves 8–12 × 0.5–1.2 cm, linear to linear-lanceolate, acuminate. Spikelets 0.4–0.8 cm long, awned, paired, in 2.5–5.0 cm long racemes. Caryopsis lanceolate, yellowish-brown.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. *op. cit.* t. 8.

Distrib. : Infrequent. 167252.

Ischaemum indicum (Houtt.) Merr. in J. Arnold Arbor. 19: 320.1938; Bor, Grass. Burma, Ceylon, India & Pakistan 180.1960. *Phleum indicum* Houtt. Nat. Hist. 2, 13: 198, t. 90, f. 2.1782. *Ischaemum aristatum auct. non L.* 1753; Hook. f. Fl. Brit. India 7: 126.1896; Cooke, Fl. Pres. Bombay 3: 476.1958 (Repr. ed.). 'Bherda'.

Herbaceous grasses. Culms up to 60 cm tall, erect or decumbent. Leaves 5–25 × 0.6–1.2 cm, linear-lanceolate, acute or subcordate at base, finely acuminate at apex. Spikelets ca. 0.4 cm long, oblong-lanceolate, to ovate-lanceolate, paired, in 2–3 racemes 2–5 cm long. Caryopsis oblong.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. Bombay Grass. 18. t. 12 & 16.1935; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: tt. 790 & 791.1988.

Distrib. : Koppikar (1974).

Ischaemum mangaluricum (Hack.) Stapf ex C. E. C. Fisch. in Gamble, Fl. Pres. Madras 1723.1934 & [3: 1194.1957 (Repr. ed.)]; Bor, Grass. Burma, Ceylon, India & Pakistan 182.1960. *I. aristatum* ssp. *imberbe* Hack. var. *mangaluricum* Hack. in DC. Monogr. Phan. 6: 204.1889; Hook. f. Fl. Brit. India 7: 127.1896.

Stout grasses. Culms up to 1 m high. Leaves 5–10 × 0.4–0.8 cm, linear-lanceolate, hairy, flat, narrow, acuminate. Inflorescence of digitate, spiciform racemes 3.5–8.5 cm long. Spikelets 0.5–0.6 cm long, awned, lower glumes of sessile spikelets with marginal nodules, lower glumes of pedicelled spikelets with one broad and one narrow wing. Caryopsis oblong.

Fls. & Frts. : October–January.

Illus. : Narasimhan in Sharma *et al.* Fl. Maharashtra (Monocots.) 521.1996.

Distrib. : Borivli, R. R. Fernandez, 1223 & P. S. Herbert, 1639 (BLAT).

Ischaemum molle Hook. f. Fl. Brit. India 7: 128.1896; Cooke, Fl. Pres. Bombay 3: 477.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 13.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 183.1960.

Stout grasses. Culms 1.0–1.3 m long, solid, smooth. Leaves 10–25 × 0.5–0.8 cm, linear, finely acuminate, sparsely hairy, cordate or rounded at base. Spikelets up to 0.5 cm long, ovate-oblong, in 1–2, axillary and terminal racemes 7–12 cm long.

Fls. & Frts. : August–December.

Distrib. : Frequent. 168468.

Ischaemum rugosum Salisb. Icon. Strip. Rar. 1, t. 1.1791; Hook. f. Fl. Brit. India 7: 127.1896; Cooke, Fl. Pres. Bombay 3: 477.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 12.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 184.1960.

Annual, herbaceous grasses. Culms 30–50 cm tall, tufted, decumbent. Leaves 7–16 × 0.4–1.3 cm, linear to linear-lanceolate, flat, sparsely tubercled-pilose. Spikelets 0.4–0.6 cm long, paired, in 2.5–4.0 cm long, terminal, solitary or paired racemes.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *op. cit.* t. 7; Patunkar, B. W. Grass. Marathwada 76. f. 22.1980.

Distrib. : Borivli, R. R. Fernandez, 82 (BLAT).

Ischaemum santapau Bor in J. Bombay nat. Hist. Soc. 49. 167.1950 & Grass. Burma, Ceylon, India & Pakistan 185.1960; Narasimhan in Sharma *et al.* Fl. Maharashtra (Monocots) 524.1996.

Stout and robust grasses. Culms 1.0–1.2 m tall, branched, with stilt roots. Leaves 15–20 × 0.8–1.2 cm, linear-lanceolate, glabrous or silky hairy. Spikelets 0.4–0.5 cm long with villous callus, paired, in 6–8 cm long, paired racemes.

Fls. & Frts. : September–December.

Illus. : Lakshminarasimhan & Sharma, Fl. Nasik Dt. 570 f. 51.1991.

Distrib. : Borivli, R. R. Fernandez, 1125 (BLAT).

Ischaemum semisagittatum Roxb. Fl. Ind. 1: 322.1820; Hook. f. Fl. Brit. India 7: 130.1896; Cooke, Fl. Pres. Bombay 3: 479.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 15.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 185.1960.

Herbaceous grasses. Culms 30–60 cm long, decumbent with ascending branches. Leaves 5–8 × 0.8–1.3 cm, oblong-lanceolate, acuminate, auricled at base. Spikelets 0.4–0.6 cm long, paired, in 2 racemes, 2.5–6.0 cm long, pedicelled spikelets shorter than sessile ones.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *op. cit.* t. 10.

Distrib. : Very common. 167204, 167978, 168417

Ischaemum timorense Kunth, Rev. Gram. 1: 369, t. 98.1830; Hook. f. Fl. Brit. India 7: 136.1896; Blatt. McC. Bombay Grass. 19.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 185.1960.

Perennial, stout grasses. Culms 15–50 cm long, straggling. Leaves 3–11 × 0.3–0.5 cm, linear-lanceolate. Spikelets 0.25–0.3 cm long with bearded callus, in 2–3, 1–5 cm long racemes.

Fls. & Frts. : October–November.

Illus. : Narasimhan in Sharma *et al.* Fl. Maharashtra (Monocots.) 528.1996.

Distrib. : Borivli, R. R. Fernandez, 902. 911 (BLAT).

Ischaemum travancorense Stapf ex C. E. C. Fischer in Kew Bull. 1933. 353.1933; Bor, Grass. Burma, Ceylon, India & Pakistan 186.1960. *I. aristatum* ssp. *rottieri* Hook. f. Fl. Brit. India 7: 127.1896.

Perennial grasses. Leaves 4–10 × 0.5–1.5 cm, convolute when young, narrowly linear-lanceolate, rounded at base, sometimes with short tomentose petiole. Spikelets 0.45–0.8 cm, paired; one sessile and one pedicelled, in 6–10 cm long, digitate racemes; lower glumes of sessile spikelet with shallow, irregular, transverse ridges and those of pedicelled spikelets oblong, smooth or rugulose, awned or not. Caryopsis oblong.

Fls. & Frts. : September–February.

Illus. : Narasimhan in Sharma *et al.* Fl. Maharashtra (Monocots.) 531.1996.

Distrib. : Occasional. 167304.

Ischaemum tumidum Stapf ex Bor in Kew Bull. 1951. 450.1952 & Grass. Burma, Ceylon, India & Pakistan 186.1960; Narasimhan in Sharma *et al.* Fl. Maharashtra (Monocots.) 530.1996.

Annual herbs. Culms 20–30 cm tall, tufted, prostrate or procumbent, rooting at lower nodes. Leaf-blades 5–10 × 0.5–1.0 cm, lanceolate, flat, tapering to a narrow, rounded base, acute at apex. Spikelets paired; sessile ones 0.5–0.6 cm long, pilose, awned, oblong-lanceolate, pedicelled spikelets 0.45–0.5 cm long, oblong-lanceolate, unawned, in 2–3, closely appressed, 2.0–3.5 cm long racemes.

Fls. & Frts. : September–January.

Distrib. : Frequent. 167276.

ISEILEMA Anders.

- | | | |
|--|-----|----------------------|
| 1. Spatholes and/or margins of involucreal spikelets with tubercles | ... | <i>I. prostratum</i> |
| 1. Spatholes and/or margins of involucreal spikelets without tubercles | ... | <i>I. laxum</i> |

Iseilema laxum Hack. in DC. Monogr. Phan. 6: 682.1889; Hook. f. Fl. Brit. India 7: 218.1896; Cooke, Fl. Pres. Bombay 3: 516.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 188.1960.

Herbaceous grasses. Culms 40–80 cm tall, slender, erect or ascending. Leaves 4–25 × 0.5 cm, linear, scaberulous at top, abruptly obtuse. Spikelets 0.4–0.5 cm long; male whorled, oblong-lanceolate, bisexual ones narrowly lanceolate, in paniculate racemes ca. 1.5 cm long. Caryopsis ellipsoid, dorsally compressed.

Fls. & Frts. : August–December.

Illus. : Rang. & Tad. Handb. S. Indian Grass. 216. ff. 166. 167 & 168. 1921; Mahesh. Illus. Fl. Delhi 229.1966.

Distrib. : Borivli, R. R. Fernandez, 329, 2261 (BLAT).

Iseilema prostratum (L.) Anderss. in Nov. Act. Soc. Sci. Upsal. (ser. 3), 2; 251.1856; Bor, Grass. Burma, Ceylon, India and Pakistan 188. 1960. *Andropogon prostratus* L. Mant. Alt. 304.1771. *Iseilema wightii* Anderss. *op. cit.*; Hook. f. Fl. Brit. India 7: 218.1896; Cooke, Fl. Pres. Bombay 3: 516.1958 (Repr. ed.).

Perennial grasses. Culms 20–60 cm long, prostrate, rooting at basal nodes. Leaves 5–20 × 0.2–0.4 cm, linear to linear-lanceolate, flat, scabrid-ciliate. Spikelets of two kinds; involucreal spikelets male or neuter, ca. 0.4 cm long, shortly pedicellate, oblong-lanceolate, sessile or heterogamous spikelets ca. 0.35 cm long, oblong-lanceolate, Caryopsis ca. 0.3 cm long, ellipsoid.

Fls. & Frts. : October–January.

Illus. : Patunkar, B. W. Grass. Marathwada 82. f. 23.1989.

Distrib. : Common. 167298.

LEPTOCHLOA P. Beauv.

- | | | |
|--|-----|---------------------|
| 1. Florets usually 2; lower glume 0.8–1.0 mm long, upper glume 1.2–1.4 mm long, racemes slender, up to 6 cm long | ... | <i>L. panicea</i> |
| 1. Florets usually 3–6; lower glume 1.2–2.0 mm long, upper one 1.5–2.5 mm long, racemes thick, up to 10 cm long | ... | <i>L. chinensis</i> |

Leptochloa chinensis (L.) Nees in Syll. Ratisb. 1: 4.1824; Hook. f. Fl. Brit. India 7: 299.1896; Rangachari & Tadulingam, Handb. S. Indian Grass. 282. f. 212.1921; Bor, Grass. Burma, Ceylon, India & Pakistan 516.1960. *Poa chinensis* L. Sp. Pl. 69.1753.

Annual herbs; culms up to 60–80 cm tall, tufted, rooting at lower nodes. Leaves 10–25 cm long, linear, convolute or flat. Spikelets 0.4 × 0.1 cm ca. 5-flowered, arranged in ca. 40 cm long panicles; glumes ovate–lanceolate. Caryopsis oblong–obovoid, ca. 0.1 cm long, compressed.

Illus. : Rang & Tad. *op. cit.*; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 890 & 899.1982.

Distrib. : National Park, Borivli, *Blatter. s. n.*

Leptochloa panicea (Retz.) Ohwi in Bot. Mag. Tokyo. 55: 311.1941; Bor, Grass. Burma, Ceylon, India & Pakistan 517.1960. *Poa panicea* Retz. Obs. Bot. 3: 11.1783. *Leptochloa filiformis sensu* Hook. f. Fl. Brit. India 7: 298.1896 *non* P. Beauv. 1812. *L. contracta* Blatt. & McC. Bombay. Grass. 243.1935.

Herbaceous grasses. Culms 20 cm tall, tufted, geniculately ascending. Leaves 5–20 × 0.9–0.1 cm, linear–lanceolate, finely acuminate. Spikelets ca. 0.15 cm long, linear, 3–5-flowered, in interrupted panicles, up to 10 cm long. Caryopsis ca. 0.05 cm long, broadly ellipsoid.

Fls. & Frts. : August–December.

Illus. : Mahesh. Illus. Fl. Delhi. f. 269, 1966; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 797.1988.

Distrib. : Borivli, R. R. Fernandez, 329. (BLAT).

MELANOCENCHRIS Nees

Melanocenchris jacquemontii Jaub. & Spach. *Illustr. Pl. Orient.* 4: 36. t. 325.1851; Bor, Grass. Burma, Ceylon. India & Pakistan 473.1960. *Gracilea royleana* Hook. f. *Fl. Brit. India* 7: 284.1896; Cooke, *Fl. Pres. Bombay* 3: 553.1958 (Repr. ed.).

Annual, herbaceous grasses; stems tufted, 10–15 cm tall, branches ascending. Leaves 1.2–4.0 cm long, linear, glabrous, crowded below, plicate. Spikelets 1-flowered, 0.5–0.8 cm long, in a single row, on spikes 2–4 cm long. Glumes subequal, lanceolate-oblong; lemmas acuminate. Caryopsis ca. 0.1 cm long, smooth, oblong-ellipsoid, brown.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. *op. cit.* t. 165; Patunkar, Grass. Marathwada 222. f. 67.1980.

Distrib. : Salsette, Shah (1969).

MNESITHEA Kunth

- | | | |
|--|-----|----------------------|
| 1. Lower glume of the sessile spikelets umbonate,
ovate-obtuse, winged on both sides above the middle | ... | <i>M. clarkei</i> |
| 1. Lower glume of the sessile spikelet spherical,
pitted all over, not winged | ... | <i>M. granularis</i> |

Mnesithea clarkei (Hack.) Koning & Sosef in *Blumea* 31: 290.1986; Narasimhan in Sharma *et al.* *Fl. Maharashtra (Monocots.)* 538.1996. *Rottboellia clarkei* Hack. in *Oesterr. Bot. Zeitschr.* 41: 8.1891; Hook. f. *Fl. Brit. India* 7: 156.1896; Cooke, *Fl. Pres. Bombay* 3: 472.1958 (Repr. ed.). *Coelorachis clarkei* (Hack.) Blatt. & McC. in *J. Bombay nat. Hist. Soc.* 32: 33.1927 & *Bombay Grass.* 41.1935; *Manisuris clarkei* (Hack.) Bor ex Sant. in *Rec. Bot. Surv. India* 16 (1) : 356.1953; Bor, Grass. Burma, Ceylon, India & Pakistan.191.1960.

Annual grasses. Culms 30–50 cm tall, erect. Leaves 8–20 × 0.8–1.2 cm, linear-lanceolate, subcordate at base, acuminate at apex, scabrous-hairy with membranous, hairy ligule. Spikelets (sessile) 0.25–0.3 cm long, paired with pedicellate spikelets, closely imbricating, in 1.3–3.0 cm long racemes; pedicellate spikelets imperfect.

Fls. & Frts. : September–November.

Illus. : Blatt. & McC. *op. cit.* t. 29.

Distrib. : Occasional. 167825.

Mnesithea granularis (L.) Koning & Sosef in *Blumea* 31: 295.1986; Narasimhan in Sharma *et al.* *Fl. Maharashtra (Monocots.)*

539.1996. *Cenchrus granularis* L. Mant. 2. App. 575.1771. *Manisuris granularis* (L.) L. f. Nov. Gram. Gen. 40.1779; Hook. f. Fl. Brit. India 7: 159.1896; Cooke, Fl. Pres. Bombay 3: 473.1958 (Repr. ed.). *Hackelochloa granularis* (L.) O. Ktze. Rev. Gen. Pl. 2: 776.1891; Bor, Grass. Burma, Ceylon, India & Pakistan 159.1960.

Annual, herbaceous grasses. Culms, 15–45 cm tall, erect or geniculate, tufted, tuberculate-pilose. Leaves 4–12 × 0.3–0.8 cm, linear to linear-lanceolate with fimbriate ligule. Spikelets 0.1–0.2 cm across, binate, dissimilar; sessile ones ovate, pedicelled ones narrowly ovate, in axillary & terminal racemes, 1.5–2.0 cm long. Caryopsis ca. 0.04 cm long, ovoid.

Fls. & Frts. : July–December.

Illus. : Blatt. & McC. Bombay Grass. 32. t. 22.1935. (*Hackelochloa granularis*) Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 874 & 875.1982.

Distrib. : Borivli, R. R. Fernandez, 218 (BLAT).

OPHIUROS Gaertn. f.

Ophiuros exaltatus (L.) O. Ktze. Rev. Gen. Pl. 2: 780.1891; Bor, Grass. Burma, Ceylon, India & Pakistan 199.1960. *Aegilops exaltata* L. Mant. 575.1771. *Ophiuros corymbosus* Gaertn. f. Fruct. 3: 4, t.181.1805; Hook. f. Fl. Brit. India 7: 160.1896; Cooke, Fl. Pres. Bombay 3: 468.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 40.1935.

Perennial; tall grasses; stems erect, tufted, 1–2 m tall. Leaves 15–60 × 1.0–1.5 cm, linear-lanceolate, rounded at base, acuminate at apex, convolute, hairy above with bulbous-based hairs, glabrous beneath; margins spinulose. Spikelets ca. 0.3 cm long, coriaceous, in 5–7 cm long, corymbosely fascicled panicles. Caryopsis oblong-ellipsoid.

Fls. & Frts. : September–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 899 & 900.1982.

Distrib. : Salsette, Shah (1969).

OPLISMENUS P. Beauv.

- | | | |
|---|-----|----------------------|
| 1. Awns barbellate, often flexuous, capillary | ... | <i>O. burmannii</i> |
| 1. Awns smooth viscid, stiff | ... | <i>O. compositus</i> |

Oplismenus burmannii (Retz.) P. Beauv. Ess. Agrost. 54, 168, 169.1812; Hook. f. Fl. Brit. India 7: 68.1896; Cooke, Fl. Pres. Bombay 3: 443.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 317.1960. *Panicum burmannii* Retz. Obs. Bot. 3: 10.1783.

Annual, herbaceous grasses. Culms 15–45 cm, slender, branched. Leaves 2–5 × 0.6–1.0 cm, ovate to ovate-lanceolate, acuminate, pilose. Spikelets ca. 0.25 cm long, awned, solitary or binate, secund in spicately branched panicles 2.5–6.0 cm long. Caryopsis ellipsoid ca. 0.1 cm long.

Fls. & Frts. : July–February.

Illus. : Blatt. & McC. Bombay Grass. 154. t. 97.1935; Mahesh. Illus. Fl. Delhi f. 265.1966.

Distrib. : Common on forest floor. 167209

Oplismenus compositus (L.) P. Beauv. Ess. Agrost. 54: 168, 169.1812; Hook. f. Fl. Brit. India 7: 66.1896; Cooke, Fl. Pres. Bombay 3: 442.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 317.1960. *Panicum compositum* L. Sp. Pl. 57.1753.

Annual grasses. Culms creeping, often with stiff roots & ascending branches. Leaves 3–8 × 0.8–2.2 cm, oblong or ovate-lanceolate, pilose, scaberulous. Spikelets up to 0.35 cm long, paired, secund, distant, in terminal, lax racemes up to 15 cm long. Caryopsis ellipsoid ca. 0.1 cm long.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. Bombay Grass. 152. t. 96.1935; Mahesh. Illus. Fl. Delhi f. 266.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 901 & 902.1982.

Distrib. : Common on forest floor. 167353.

ORYZA L.

Oryza rufipogon Griff. Notul. 3: 5.1851; Bor, Grass. Burma, Ceylon, India & Pakistan 605.1960; Deshpabhu in Wealth of India 7: 114, f. 50. t.2.1966. Duistermaat in Blumea 32: 170.1987.

Perennial, stoloniferous grasses; culms decumbent and floating, ascending to erect, 60–90 cm long, rooting at basal, submerged nodes. Leaves 30–50 × 0.7–2.0 cm, linear, glabrous to smooth to scabrous. Spikelets 7–11 × 1.9–4.0 cm, oblong to obovate-oblong, lanceolate,

acuminate, obliquely inserted on pedicels on peduncled panicles up to 20 cm long; Caryopsis 0.5–0.6 × 1.3–0.2, cylindrical-oblong, lanceolate to obvate-lanceolate, reddish-brown.

Fls. & Frts. : September–January.

Illus. : Ramam. in Sald. & Nicols. Fl. Hassan Dt. 702, f. 111. I.1976; Patunkar, Grass. Marathwada 266, f. 81.1980.

Distrib. : Salsette, *Shah* (1969).

PANICUM L.

- | | | |
|--|-----|-----------------------|
| 1. Spikelets ca. 0.15 cm long | ... | <i>P. walense</i> |
| 1. Spikelets over 0.15 cm long : | | |
| 2. Lower glumes cuspidate-acuminate, spikelets gaping at maturity | ... | <i>P. trypheron</i> |
| 2. Lower glumes not cuspidate-acuminate, spikelets not gaping at maturity | ... | <i>P. paludosum</i> |
| 3. Lower glumes one quarter to half the length of spikelets : | | |
| 4. Spikelets persistent, normal in shape and size | ... | <i>P. sumatrense</i> |
| 4. Spikelets deciduous, usually deformed | ... | <i>P. psilopodium</i> |
| 3. Lower glumes one half to three quarters the length of the spikelets or more | ... | <i>P. notatum</i> |

Panicum notatum Retz. Obs. Bot. 4: 18.1786; Bor, Grass. Burma, Ceylon, India & Pakistan 701.1960. *Panicum montanum* Roxb. Fl. Ind. 1: 315.1820; Hook. f. Fl. Brit. India 7: 53.1896. Blatt. & McC. Bombay Grass. 164.1935. 'Jokarband'.

Perennials. Stems 0.9–1.2 m tall erect; root-stock woody. Leaves 13–18 × 1.2–2.5 cm, deflexed or spreading, linear-oblong, cordate at base, acuminate at apex. Inflorescence a panicle, 18–30 cm long, effuse. Spikelets 0.25–0.3 cm long, ellipsoid, obtuse, solitary. Pedicels capillary. Caryopsis enclosed by hardened lemma, palea compressed.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *op. cit.* t. 105.

Distrib. : Borivli, R. R. Fernandez, 1047 (BLAT).

Panicum paludosum Roxb. Fl. Ind. 1: 310.1820; Blatt. & McC. Bombay Grass. 162.1935; Bor, Grass. Burma, Ceylon, India & Pakistan 329.1960. *P. proliferum sensu* Hook. f. Fl. Brit. India 7: 50.1896 *non* Lam. 1797. *P. proliferum* Hook. f. var. *paludosum* Stapf in Dyer, Fl. Cap. 7: 407.1899; Cooke, Fl. Pres. Bombay 3: 454.1958 (Repr. ed.). 'Borati'.

Herbs. Culms. 30–50 cm tall, branched, spongy, up to 0.5 cm wide. decumbent, ascending, rooting at basal nodes. Leaves 8–20 × 0.5–0.6 cm, oblong–lanceolate, linear, scabrid. Spikelets 0.35–0.4 cm long, narrowly elliptic–lanceolate, arranged in 7–12 cm long, ovate–oblong panicles; lower glumes orbicular, upper glumes lanceolate. Caryopsis 0.25–0.3 cm long, ellipsoid–oblong.

Distrib. : Salsette, *Lisboa s. n.*

Panicum psilopodium Trin. Gram. Panic. 217.1826; Hook. f. Fl. Brit. India 7: 46.1876; Bor, Grass. Burma, Ceylon, India and Pakistan 329.1960; T. A. Cope in Nasir & Ali, Fl. Pakistan 143.170.1982. *P. psilopodium*. var. *coloratum* Hook. f. *op. cit.* 47; Bor, *op. cit.* 330; Majumdar in Bull. Bot. Soc. Bengal 27: 50.1972.

Herbaceous grasses. Culms 15–30 cm long, erect or basally geniculate, tufted, slender. Leaves 4–15 × 0.3–0.8 cm, linear, flat. Spikelets 0.3–0.15 cm long, geminate, pedicellate, in 5–20 cm long panicles. Caryopsis 0.2–0.3 cm long, ellipsoid, dorsally compressed.

Fls. & Frts. : August–December.

Illus. : Patunkar, Grass. Marathwada 162, f. 50.1980; Matthew, Fur. Illus. Fl. Tamilnadu Carnatic 4: t. 804.1988.

Distrib. : Frequent in moist shady places. 167848. 168411.

Panicum sumatrense Roth ex Roem. & Schult. in L. Syst. Veg. 2: 434.1817; Bor, Grass. Burma, Ceylon, India & Pakistan 701.1960. *P. miliare* Lam. Illust. 1: 173.1791; Hook. f. Fl. Brit. India 7: 46.1896; Cooke, Fl. Pres. Bombay 3: 456.1958 (Repr. ed.). 'Sava'.

Annual, herbaceous grasses. Culms up to 1 m tall, slender, erect or basally geniculate. Leaves 12–60 × 1.3–2.5 cm, linear–lanceolate. Spikelets glabrous, lanceolate or elliptic–ovate, often solitary at the ends of branchlets of decoumpound; contracted, 20–35 cm long panicles. Caryopsis ellipsoid, dorsally compressed.

Fls. & Frts. : August–October.

Illus. : Blatt. & McC. Bombay Grass. 160. t. 101.1935 (*Panicum miliare*).

Distrib. : Borivli, Santapau, 16075 (BLAT).

Panicum trypheron Schult. Syst. Veg. 2. Mant. 244.1824; Hook. f. Fl. Brit. India 7: 47.1896; Cooke, Fl. Pres. Bombay 3: 452.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 331.1960; Majum. in Bull. Bot. Soc. Bengal 27: 47.1973. 'Bhatur'.

Annual, herbaceous grasses. Culms 30–60 cm tall, tufted, erect or basally geniculate. Leaves 6–12 × 0.3–0.5 cm, linear to linear-lanceolate, hispid. Spikelets ca. 0.3 cm long, ellipsoid, gaping at maturity, in 10–25 cm long, effuse panicle, Caryopsis ca. 0.1 cm long, ovoid-oblong.

Fls. & Frts. : August–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 904 & 905.1982.

Distrib. : Borivli, R. R. Fernandez, 767 (BLAT).

Panicum walense Mez in Bot. Jahrb. 34. 146.1904 ('*watense*'); Clayton in Kew Bull. 20(2) 264.1966; Majum. in Bull. Bot. Soc. Bengal 27. 47.1973. *P. humile* Nees ex Steud. Syn. Pl. Glum. 1: 84.1854 non Thunb. ex Trin.1826; Hook. f. Fl. Brit. India 7. 48.1896. *P. austroasiaticum* Ohwi in Act. Phytotax. & Geobot. 2: 45.1942; Bor, Grass. Burma, Ceylon, India & Pakistan 324.1960.

Annuals. Culms 15–45 cm tall, tufted, erect or ascending. Leaves 10–15 cm long, linear-acuminate. Inflorescence of open panicle. Spikelets 0.15–0.18 cm long, linear-lanceolate, acute. Caryopsis 0.15 cm long, elliptic.

Fls. & Frts. : September–October.

Illus. : Sreek. & Nair, Fl. Kerala Grass. 277, t. 55.1991;

Distrib. : Borivli, R. R. Fernandez, 538 (BLAT).

PASPALIDIUM Stapf

- | | | |
|--|-----|---------------------|
| 1. Racemes shorter than the internodes | ... | <i>P. flavidum</i> |
| 1. Racemes longer than the internodes | ... | <i>P. geminatum</i> |

Paspalidium flavidum (Retz.) A. Camus in Lecomte, Fl. Gen. Indo-Chine 7: 419.1922; Bor, Grass. Burma, Ceylon, India & Pakistan 333.1960. *Panicum flavidum* Retz. Obs. Bot. 4: 15.1786; Hook. f. Fl. Brit. India 7: 28.1896; Cooke, Fl. Pres. Bombay 3: 445.1958 (Repr. ed.). 'Burad'.

Perennial grasses. Culms 15–80 cm long, decumbent. Leaves 5–20 × 0.4–1.0 cm, linear. Spikelets 3.5–4.0 cm long, globose, gibbous, on 15–25 cm long, 5–6 racemes. Caryopsis ovoid, ca. 15 cm across, orbicular.

Fls. & Frts. : July–October.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 264.1966.

Distrib. : Common near moist places. 167367.

Paspalidium geminatum (Forssk.) Stapf in Prain, *Fl. Trop. Afr.* 9: 583.1920; Bor, *Grass. Burma, Ceylon, India & Pakistan* 333.1960. *Panicum geminatum* Forssk. *Fl. Aeg.–Arab.* 18.1775. *P. fluitans* Retz. *Obs. Bot.* 3: 8.1783; Cooke, *Fl. Pres. Bombay* 3: 446.1958 (Repr. ed.). *Panicum paspaloides* Pers. *Syn.* 1: 81.1805; Hook. f. *Fl. Brit. India* 7: 30.1896.

Perennial grasses. Culms 30–80 cm high, ca. 1 cm wide, basally creeping. Leaves 5–20 × 0.5–0.7 cm, linear, flat or slightly inrolled, acuminate. Spikelets 0.2–0.25 cm long, ovoid, 10–30 in 10–20 racemes 1.5–2.5 cm long. Caryopsis ca. 0.1 cm long, ellipsoid.

Fls. & Frts. : September–March.

Illus. : Rang. & Tad. *S. Indian Grass.* 71 & 72, f. 84 & 85.1921; (*P. fluitans*); Subram. *Aquat. Angi.* 172, f. 60.1962; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: tt. 809 & 810.1988.

Distrib. : Common in ponds and near streams, partly submerged. 167736.

PASPALUM L.

- | | | |
|---|-----|-------------------------|
| 1. Spikelets rotundate–elliptic to almost orbicular, obtuse | ... | <i>P. scrobiculatum</i> |
| 1. Spikelets broadly elliptic to ovate–elliptic, acute : | | |
| 2. Plants erect; upper glumes with short pubescence; racemes up to 9 cm long | ... | <i>P. paspalodes</i> |
| 2. Plants prostrate, rooting at nodes; upper glumes glabrous, racemes less than 4 cm long | ... | <i>P. vaginatum</i> |

Paspalum paspalodes (Michx.) Scribner in *Mem. Torr. Bot. Cl.* 5: 29.1894. ('*Paspaloides*'); Bor, *Grass. Burma, Ceylon, India and Pakistan App.* II.1973 (Repr. ed.). *Digitaria paspalodes* Michx. *Fl. Bor. Amer.* 1: 46.1803. *Paspalum distichum auct. non L.* 1759 *nom. confus.*; Hook. f. *Fl. Brit. India* 7: 12.1896; Cooke, *Fl. Pres. Bombay* 3: 460.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 338.1960.

Perennial grasses. Culms stoloniferous, ascending from creeping base. Leaves 5–10 × 0.2–0.6 cm, linear–lanceolate, acuminate, involute or flat, distichous. Spikelets 0.25–0.35 cm long, elliptic–oblong, solitary or binate, in 2 spikes, 2.0–2.5 cm long. Caryopsis planoconvex, enclosed by lemma and palea.

Fls. & Frts. : September–January.

Illus. : Mahesh. *Illus. Fl. Delhi* f. 258.1966.

Distrib. : Koppikar (1974).

Paspalum scrobiculatum L. *Mant. Pl.* 1: 29.1767; Hook. f. *Fl. Brit. India* 7: 10.1896; Cooke, *Fl. Pres. Bombay* 3: 460.1958 (Repr. ed.); Bor, *Grass. Burma Ceylon, India & Pakistan* 340.1960; W. D. Clayton in *Kew Bull.* 30: 101.1975. *P. orbiculare* J. R. & J. G. A. Forst.) *Fl. Insul. Austral. Prodr.* 7: 1786; Bor, *op. cit.* 'Harik'.

Herbaceous grasses. Culms 30–40 cm tall, tufted, erect or ascending from decumbent base. Leaves 6–25 × 0.3–1.0 cm, linear to linear–lanceolate. Spikelets 0.2–0.3 cm long, biseriate, secund, ovoid, orbicular, in 4–9 cm long, 2–3 racemes. Caryopsis planoconvex, enclosed by lemma and palea.

Fls. & Frts. : August–January.

Illus. : Rang. & Tad. *Handb. S. Indian Grass.* 49. tt. 69 & 70.1921; Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 813.1988.

Distrib. : Borivli, R. R. Fernandez, 925 (BLAT)

Paspalum vaginatum Swartz, *Prodr. Veg. Ind. Occ.* 21.1788; Bor, *Grass. Burma, Ceylon, India & Pakistan* 341.1960.

Herbaceous grasses. Culms up to 60 cm long, creeping, branched. Leaves 3–15 × 0.5–0.7 cm, oblong–linear or linear, flat or inrolled. Spikelets 3.5–4.0 cm, oblong, 2–3-ranked, in 4–6 cm long, 2–3 racemes. Caryopsis planoconvex, covered by lemma and palea.

Fls. & Frts. : July–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 908 & 909.1982.

Distrib. : Frequent in open moist areas. 167915.

PEROTIS Ait.

Perotis indica (L.) O. Ktze, *Rev. Gen. Pl.* 2: 787.1891; Bor, *Grass. Burma, Ceylon, India & Pakistan* 611.1960. *Anthoxanthum indicum* L.

Sp. Pl. 28.1753. *Perotis latifolia* Ait. Hort. Kew. ed. 1: 85.1789; Hook. f. Fl. Brit. India 7: 98.1896; Cooke, Fl. Pres. Bombay 3: 538.1958 (Repr. ed.). 'Kutas'.

Herbaceous grasses. Culms 8–40 cm tall, tufted, suberect, ascending. Leaves 1.5–3.5 × 0.3–0.5 cm, ovate-lanceolate, flat, rigid, margins scaberulous. Spikelets 0.2–0.3 cm long, linear, 1-flowered, awned, in 10–12 cm long spikes. Caryopsis linear, terete.

Fls. & Frts. : October–August.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 912 & 913. 1982.

Distrib. : Versova, R. R. Fernandez, 2099 (BLAT).

PSEUDANTHISTIRIA (Hack.) Hook. f.

Pseudanthistiria heteroclita (Roxb.) Hook. f. Fl. Brit. India 7: 219.1896; Blatt. & McC. Bombay Grass. 121.1935. Bor, Grass. Burma, Ceylon, India & Pakistan 203.1960. *Anthistiria heteroclita* Roxb. Fl. Ind. 1: 253.1820.

Stout grasses. Culms 0.75–1.5 m tall, tufted, basally geniculate. Leaves 8–20 cm long, linear. Spikelets heteromorphous; sessile ones bisexual, pedicelled ones male and 2, in 10–25 cm long, leafy panicles of pedunculate fascicles of short spathaceous spikes.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. Bombay Grass. *op. cit.* t. 75.

Distrib. : Borivli, R. R. Fernandez. 992, 832, (BLAT).

PSEUDORAPHIS Griff.

Pseudoraphis spinescens (R. Br.) Vick. in Proc. Roy. Soc. Queensland 62(7) : 69.1952; Bor, Grass. Burma, Ceylon, India & Pakistan 353.1960. *Panicum spinescens* R. Br. Prodr. 193.1810. *Chamaeraphis spinescens* (R. Br.) Poir. in Lam. Encycl. (Suppl. 2), 189.1811; Hook. f. Fl. Brit. India 7: 62.1896; Cooke, Fl. Pres. Bombay 3: 437.1958 (Repr. ed.).

Herbaceous grasses. Culms up to 40 cm long, ascending, floating. Leaves 2–6 × 0.3–0.4 cm, lanceolate, flat, scaberulous, with fimbriate

ligule. Spikelets 0.5–0.7 cm long, paired, awned, scabrid, linear, in 5–8 cm long, effuse or contracted panicles. Caryopsis linear-oblong.

Fls. & Frts. : August–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 922 & 923.1982.

Distrib. : Partly submerged or floating grass, occasional. 167890.

SACCHARUM L.

Saccharum spontaneum L. *Mant. Alt.* 2 : 183.1771; Hook. f. *Fl. Brit. India* 7: 118.1896; Cooke, *Fl. Pres. Bombay* 3: 465.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 214.1960. 'Bagberi'.

Perennial, stout grasses. Culms 1.5–2.0 m tall, erect from thickly rhizomatous rootstock. Leaves 25–60 × 0.3–0.5 cm, linear, stiff, scaberulous on margins. Spikelets 0.3–0.4 cm long, lanceolate, paired, in 20–25 cm long panicles, rachis silvery-silky-pilose. Caryopsis oblong.

Fls. & Frts. : August–January.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 928 & 929.1982.

Distrib. : Borivli, R. R. Fernandez, 2142–2145 (BLAT).

SACCIOLEPIS Nash.

Sacciolepis interrupta (Willd.) Stapf in Prain, *Fl. Trop. Africa* 9: 757.1920; Bor, *Grass. Burma, Ceylon, India & Pakistan* 358.1960. *Panicum interruptum* Willd. *Sp. Pl.* 1: 341.1798; Hook. f. *Fl. Brit. India* 7: 40.1896; Cooke, *Fl. Pres. Bombay* 3: 450.1958 (Repr. ed.).

Perennial, stout grasses. Culms 0.3–1.0 cm tall, ascending from stout, creeping and rooting, floating, spongy rootstock. Leaves 7–20 × 0.3–0.6 cm, lanceolate or linear-lanceolate. Spikelets 0.4–0.45 cm long, ellipsoid-lanceolate, saccate, 2–5, in a cluster, in 5–20 cm long, compact, interrupted panicles. Caryopsis ca. 0.2 cm long, ovoid.

Fls. & Frts. : September–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 930 & 931.1982.

Distrib. : Borivli, P. S. Herbert, 1050 (BLAT).

SETARIA P. Beauv.

1. Bristles of the involucre retrorsely barbed

... *S. verticillata*

1. Bristles of the involucre antrorsely barbed :
 2. Inflorescence a cylindric false spike ... *S. pumila*
 2. Inflorescence a panicle :
 3. Spikelets up to 0.2 cm long ... *S. intermedia*
 3. Spikelets 0.25–0.3 cm long ... *S. forbesiana*

Setaria forbesiana (Nees ex Steud.) Hook. f. Fl. Brit. India 7: 81.1896; Bor. Grass. Burma, Ceylon, India & Pakistan 360.1960. *Panicum forbesianum* Nees ex Steud. Syn. Pl. Glum. 1: 98.1854.

Perennial herbs. Culms terete, 0.75–1.2 m tall, erect. Leaf-blades 20–40 × 1.5–3.0 cm, lanceolate; ligules membranous, fimbriate, sheaths compressed. Spikelets 2.5–3.0 cm, ovate-oblong, apiculate, in oblong to narrowly pyramidal, 15–25 cm long panicles. Caryopsis ca. 0.25 cm long, elliptic.

Fls. & Frts. : August–December.

Distrib. : Borivli, R. R. Fernandez, 654 (BLAT).

Setaria intermedia (Roth) Roem. & Schult. Syst. Veg. 2: 489.1817; Hook. f. Fl. Brit. India 7: 79.1896; Cooke, Fl. Pres. Bombay 3: 436.1958 (Repr. ed.); T. A. Cope in Nasir & Ali, Fl. Pakistan 143.183.1982. *Panicum intermedium* Roth, Nov. Pl. Sp. Pl. 47.1821 non Hornem. 1813; *Setaria tomentosa* (Roxb.) Kunth, Rev. Gram. 1: 47.1829; Bor, Grass. Burma, Ceylon, India & Pakistan 365.1960. 'Pandar'.

Herbaceous grasses. Culms 60–90 cm tall, erect or ascending, tufted. Leaves 8–20 × 0.4–0.5 cm, linear-lanceolate, scaberulous on margins. Spikelets ca. 0.2 cm long, ovoid, subacute, in 8–16 cm long, erect, narrowly pyramidal panicle. Caryopsis ca. 0.15 cm long, ellipsoid.

Fls. & Frts. : July–December.

Illus. : Mahesh. Illus. Fl. Delhi f. 250.1966; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 935 & 936.1982. (*Setaria tomentosa*).

Distrib. : Borivli, R. R. Fernandez, 1040 (BLAT).

Setaria pumila (Poir.) Roem. & Schult. Syst. Veg. 2: 891.1817; T. A. Cope in Nasir & Ali, Fl. Pakistan 143: 181.1982. *Panicum pumilum* Poir. in Lam. Encycl. (Suppl.) 4: 273.1816. *S. glauca* non (L.) P. Beauv. 1812; Hook. f. Fl. Brit. India 7: 78.1896; Cooke, Fl. Pres. Bombay 3: 435.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 363.1960. *S. pallide-fusca* (Schumach.) Stapf & C. E. Hubb. in Kew Bull. 1930 : 259.1930; Bor, op. cit. 63.1960. 'Kolara'.

Annual, herbaceous grasses. Culms 10–45 cm long, erect or ascending from base. Leaves 5–13 × 0.5–0.7 cm, lanceolate, flaccid. Spikelets ca. 0.2 cm long, ovoid, 1–3 cm, spiciform panicles, 5–8 cm long. Caryopsis ca. 0.15 cm long, ellipsoid.

Fls. & Frts. : July–November.

Illus. : Matthew, *Fur. Illus. Fl. Tamilnadu Carnatic* 4: t. 823.1988.

Distrib. : Frequent. 167862.

Setaria verticillata (L.) P. Beauv. *Ess. Agrost.* 51.178.1812; Hook. f. *Fl. Brit. India* 7: 80.1896; Cooke, *Fl. Pres. Bombay* 3: 436.1958 (Repr. ed.); Bor, *Grass. Burma. Ceylon, India & Pakistan* 365.1960. *Panicum verticillatum* L. *Sp. Pl.* (ed. 2) 82.1762. 'Danyani'.

Herbaceous or stout grasses. Culms 40–90 cm tall, slender, erect or ascending & rooting at lower nodes. Leaves 10–25 × 1.0–1.5 cm, flat or folded, tubercled–pubescent, lanceolate. Spikelets ca. 0.2 cm long, ovoid, somewhat paired, in 5–13 cm long, spiciform panicles with involucre bristles. Caryopsis 0.2–0.2.2 cm long, ellipsoid.

Fls. & Frts. : July–December.

Illus. : Rang. & Tad. *Handb. S. India Grass.* 113. f. 111 & 112.1921; Patunkar, B. W. *Grass. Marathwada* 186.1980; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t.186. f. 57.1982.

Distrib. : Borivli, R. R. *Fernandez*, 327 (BLAT).

SORGHUM Moench. (*nom. cons.*)

Sorghum halepense (L.) Pers. *Syn. Pl.* 1: 101.1805; Bor, *Grass. Burma, Ceylon, India & Pakistan* 222.1960; T. A. Cope in Nasir & Ali *Fl. Pakistan* 143. 295.1982. *Holcus halepensis* L. *Sp. Pl.* 1047.1753. *Andropogon halepensis* (L.) Brot. *Fl. Lusit.* 1 : 89.1804; Hook. f. *Fl. Brit. India* 7 : 182.1896; Cooke, *Fl. Pres. Bombay* 3 : 502.1958 (Repr. ed.). *Sorghum miliaceum* (Roxb.) Snowd. in *J. Linn. Soc. (Bot.)* 55: 207.1955; Bor, *op. cit.* 223.

Stout, perennial grasses. Culms 1.5–2.0 cm tall, erect, simple or branched. Leaves 10–20 × 1.0–2.5 cm, linear to linear–lanceolate, flat. Spikelets 0.5–0.6 cm long, lanceolate, straw–coloured or pale brown to dark brown, in 10–45 cm long, oblong panicles. Caryopsis subglobose.

Fls. & Frts. : July–January.

Illus. : Blatt. & McC. Bombay Grass. 55, t. 37.1935; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 937 & 938.1982.

Distrib. : Along hedges, 167301.

SPINIFEX L.

Spinifex littoreus (Burm. f.) Merr. in Philipp. J. Sci. Bot. 7: 229.1912; Bor, Grass. Burma, Ceylon, India & Pakistan 366.1960; *Stipa littorea* Burm. f. Fl. Ind. 29.1768. *Spinifex squarrosus* L. Mant. Pl. 300.1771; Hook. f. Fl. Brit. India 7: 63.1896; Cooke, Fl. Pres. Bombay 3: 428.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 122. t. 76 A.1935.

Perennial, stout, shrubby grasses. Culms woody, creeping at base. Leaves 8–20 × 0.3 cm, thick, stiff, scabrid, recurved, convolute. Inflorescence globose, dioecious; male inflorescence 8–16 × 6–14 cm, Spikelets ca. 1.0 cm long on 3–5 cm, long rachis, bracteate, female inflorescence, stiff, bristly heads, bristles up to 15 cm long, subterete. Spikelets ca. 1 cm long, oblong.

Fls. & Frts. : October–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 939 & 940.1982.

Distrib. : Coastal areas of Versova creek, H. Santapau. 211,1.36 (BLAT).

SPODIOPOGON Trin.

Spodiopogon rhizophorus (Steud.) Pilger in Engl. & Prantl, *Naturl. Pflanzenfam. Aufl.* (ed. 2), 14e : 119.1940; Bor, Grass. Burma, Ceylon, India & Pakistan 246.1960. *Andropogon rhizophorus* Steud. *Syn. Pl. Glum.* 1: 381.1854. *Spodiopogon albidus* Bth. in J. Linn. Soc. 19: 66.1881; Hook. f. Fl. Brit. India 7: 108.1896; Cooke, Fl. Pres. Bombay 3: 464.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 51. t. 34.1935; 'Kasal'.

Annual, herbaceous grasses. Culms 20–150 cm high, tufted from much branched base and rooting at lower nodes. Leaves 15–20 × 0.6–1.4 cm, oblong, lanceolate, acuminate, petioled; petioles up to 8 cm long. Spikelets ca. 0.6 cm long, lanceolate, silky villous, paired, in ca. 10 cm long, gregarious panicles. Caryopsis oblong, reddish-brown.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *op. cit.*; Patunkar, B. W. Grass. Marathwada 112. f. 33.1980; Sreek. & Nair, Fl. Kerala-Grass.195, t. 40.1991.

Distrib. : Common as forest undergrowth. 167205.

SPOROBOLUS R. Br.

1. Lower glume as long as lemma :
 2. Ligule absent; spikelets 0.1-0.15 cm long ... *S. helvolus*
 2. Ligule of hairs; spikelets 0.2-0.25 cm long ... *S. virginicus*
1. Lower glume much shorter than the lemma :
 3. Upper glume distinctly shorter than the lemma ... *S. tenuissimus*
 3. Upper glume as long as or longer than the lemma :
 4. Panicles contracted ... *S. maderaspatanus*
 4. Panicles effuse :
 5. Annuals ... *S. capillaris*
 5. Perennials ... *S. lolclados*

Sporobolus capillaris Miq. in Verh. Konink. Nederl. Inst. 3(4) : 37.1851; Bor, Grass. Burma, Ceylon, India & Pakistan. 627.1960.

Annual, herbaceous grasses up to 40 cm tall. Stems tufted, erect or ascending. Leaves 5-10 × 0.5-0.8 cm, linear-lanceolate with rounded base and acute apex, hispid. Spikelets ca. 0.2 cm long, linear-lanceolate, in lax, oblong, panicles up to 18 cm long. Caryopsis 0.05-0.08 cm long, discoid.

Fls. & Frts. : July-February.

Illus. : Patunkar, Grass. Marathwada 272. f. 84.1980.

Distrib. : Salsette, Shah (1969)

Sporobolus helvolus (Trin.) Th. Dur. & Schinz. Consp. Fl. Afr. 5: 820.1895; Bor, Grass. Burma, Ceylon, India & Pakistan 629.1960. *Vilfa helvola* Trin. in Mem. Acad. Sci. Petersb. 6, 5(2) : 52.1839. *Sporobolus glaucifolius* Hochst. ex Steud. Syn. Pl. Glum. 154.1854; Hook. f. Fl. Brit. India 7: 250.1896; Cooke, Fl. Pres. Bombay 3: 540.1958 (Repr. ed.); Blatt. & McC. Bombay Grass. 224.1935.

Perennial, stoloniferous grasses up to 40 cm tall. Stems tufted, leafy. Leaves 3-12 × 0.2-0.3 cm, lanceolate, subcordate at base, gradually acuminate at apex; leaf sheaths, glabrous, ribbed. Spikelets many, ca. 0.2 cm long, short-pedicelled, in 6-12 cm long, narrowly lanceolate panicles; stamens 3. Caryopsis 0.05 long, ellipsoid, oblong.

Fls. & Frts. : November–December.

Illus. : Blatt. & McC. *op. cit.* t. 150.

Distrib. : Navalkar (1956).

Sporobolus iolclados (Nees ex Trin.) Nees, *Fl. Afr. Austral.* 161.1841; T. A. Cope in Nasir & Ali, *Fl. Pakistan* 143: 141.1982. *Vilfa iolclados* Nees ex Trin. in *Mem. Acad. Sci. Petersb.* 6, 4: 65.1840. *Sporobolus marginatus* Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2: 397.1851; Bor, *Grass. Burma, Ceylon, India & Pakistan* 632.1960 *p.p.* *S. arabicus sensu* Hook. f. *Fl. Brit. India* 7: 252.1896 *non* Boiss. 1853; Cooke, *Fl. Pres. Bombay* 3: 541.1958 (Repr. ed.).

Stoloniferous, perennial grasses with woody base. Stems tufted, up to 60 cm tall. Leaves 2.0–2.5 × 0.3–0.5 cm, narrowed to the apex from rounded base, margins serrulate, cartilaginous and with stiff hairs, rigid; leaf-sheaths glabrous. Spikelets 0.15–0.20 cm long, shortly pedicelled, in effuse, pyramidal panicles 3–20 cm long. Caryopsis 0.08–0.1 cm long, subglobose or ellipsoid.

Fls & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 941 & 942.1982.

Distrib. : Salsette, Shah (1969).

Sporobolus maderaspatanus Bor in *Kew Bull.* 1957: 234.1957 & *Grass. Burma, Ceylon, India & Pakistan* 632.1960. *S. orientalis* Kunth, *nom. illegit.*; Hook. f. *Fl. Brit. India* 7: 251.1896; Cooke, *Fl. Pres. Bombay* 3: 541.1958 (Repr. ed.).

Herbaceous grasses. Culms 15–50 cm tall, stoloniferous. Leaves 3–15 × 0.2–0.4 cm, linear to linear-lanceolate, scaberulous on margins. Spikelets 0.17–0.2 cm, long, in 3–10 cm long, pyramidal panicles.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: tt. 941 & 942.1982.

Distrib. : Borivli, R. R. Fernandez, 4266B (BLAT).

Sporobolus tenuissimus (Schrank) O. Ktze. *Rev. Gen. Pl.* 3: 369.1893; Bor, *Grass, Burma, Ceylon, India & Pakistan* 633.1960. *Panicum tenuissimum* Schrank in *Denkschr. Bot. Ges. Regensb.* 2: 26.1822. *Sporobolus minutiflorus* (Trin.) Link, *Enum. Hort. Berol.*

1 : 88.1827; Hook. f. Fl. Brit. India 7: 248.1896; Cooke, Fl. Pres. Bombay 3: 540.1958 (Repr. ed.).

Annual herbs. Culms 10–30 cm tall, terete, delicate, erect. Leaf blades 5–13 × 0.2–0.3 cm, flat or convolute, linear–lanceolate, finely acuminate at apex with short rim of hairs as ligule; sheaths compressed. Spikelets 0.1–0.13 cm long, lanceolate, slaty–grey, pedicelled; pedicels filiform. Panicles, effuse 5–30 × 1–3 cm, oblong or sub–pyramidal. Caryopsis 0.4–0.6 cm, long, oblong, ellipsoid.

Fls. & Frts. : October–December.

Distrib. : Borivli, R. R. Fernandez, 1226 (BLAT).

Sporobolus virginicus (L.) Kunth, Rev. Gram. 1: 67.1829; Hook. f. Fl. Brit. India 7: 249.1896; Blatt. & McC. Bombay Grass. 224.1935; Bor, Grass. Burma, Ceylon & Pakistan 634.1960. *Agrostis virginica* L. Sp. Pl. 63.1753.

Perennial grasses. Culms 10–30 cm tall, erect or basally geniculate from decumbent base. Leaves 2.5–8.0 cm, linear, margins involute, distichous. Spikelets ca. 0.25 cm long, ellipsoid, in panicles up to 5 cm long, somewhat appressed to rachis.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. op. cit. t. 149.

Distrib. : Versova, H. Santapau, 334 (BLAT).

THEMEDA Forssk.

- | | | |
|--|-----|------------------------|
| 1. Involucral spikelets inserted at different levels | ... | <i>T. tremula</i> |
| 1. Involucral spikelets inserted at the same level : | | |
| 2. Involucral spikelets more than 0.6 cm long | ... | <i>T. triandra</i> |
| 2. Involucral spikelets less than 0.6 cm long | ... | <i>T. quadrivalvis</i> |

Themeda quadrivalvis (L.) O. Ktze. Rev. Gen. Pl. 2: 794.1891; Bor, Grass. Burma, Ceylon, India & Pakistan 252.1960. *Andropogon quadrivalvis* L. in Murr. Syst. Veg. (ed. 13), 758.1774. *Anthistiria ciliata* L. f. Suppl. 113.1781; Hook. f. Fl. Brit. India 7: 213.1896. *Themeda ciliata* (L. f.) Hack. in DC. Mon. Phan. 6: 664.1889; Cooke, Fl. Pres. Bombay 3: 514.1958 (Repr. ed.). 'Fulora'

Stout, annual grasses. Culms up to 1 m tall, suberect or geniculately ascending. Leaves 15–20 × 0.4–0.6 cm, linear, acute, flat, flaccid. Spikelets of two types; involucral spikelets 0.4–0.6 cm long, pedicelled, sterile or imperfectly male, linear–lanceolate; bisexual or

fertile spikelets 0.4–0.5 cm long, linear-lanceolate, sessile, awned with two pedicellate male or sterile spikelets. Caryopsis linear-obovoid.

Fls. & Frts. : September–January.

Illus. : Patunkar, B. V. Grass. Marathwada 116. f. 35.1980.

Distrib. : Common, usually found along the cultivated fields, hedges and in open areas of the outskirts of the deciduous forest.

Themeda tremula (Nees ex Steud.) Hack. in DC. Mon. Phan. 6: 667.1889; Cooke, Fl. Pres. Bombay 3: 515.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 254.1960. *Anthistiria tremula* Nees ex Steud. Syn. Fl. Glum. 1: 401.1855; Hook. f. Fl. Brit. India 7: 214.1896. '*Fulora*'

Herbaceous or stout grasses. Culms 60–75 cm tall, erect or ascending from creeping rootstock. Leaves 10–30 × 0.4–0.9 cm, linear, scabrid on margins. Involucral spikelets in superposed paired, 0.6–0.8 cm long, bisexual spikelets 0.3–0.5 cm long, 2, sessile; pedicelled ones similar to involucral ones, all in paniculate fascicles of racemes.

Fls. & Frts. : October–February.

Illus. : Blatt. & McC. Bombay Grass. 119, t, 75, 1935.

Distrib. : Borivli, R. R. Fernandez, 634. (BLAT).

Themeda triandra Frossk. Fl. Aeg.–Arab. 123. & 178.1775; Bor, Grass. Burma, Ceylon, India & Pakistan 254.1960. *Anthistiria imberbis* Retz. Obs. Bot. 3: 11.1783; Hook. f. Fl. Brit. India 7: 211.1896. *Themeda imberbis* (Retz.) T. Cooke, Fl. Pres. Bombay 2: 993.1908 & [3: 513.1958 (Repr. ed.)]. '*Fulora*'

Stout, perennial grasses. Culms 1.5–2.0 tall, solid, erect. Leaves 15–30 × 0.4–0.6 cm, lanceolate, subcoriaceous, glabrescent. Involucral spikelets 0.7 cm long, lanceolate; sessile bisexual spikelets, 0.5–0.7 cm long, linear-oblong; pedicelled, spikelets ca. 0.65 cm long. Caryopsis 0.25–0.3 cm long, linear-obovoid.

Fls. & Frts. : August–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 943 & 944 1982.

Distrib. : Borivli, P. S. Herbert, 957 (BLAT).

TRAGUS Hall. (*nom. cons.*)

Tragus roxburghii Panigr. in Kew Bull. 29: 496.1974; *T. racemosus* Hook. f. Fl. Brit. India 7: 97.1896 non Scop.1777; Cooke,

Fl. Pres. Bombay 1, 535.1958 (Repr. ed.). *T. biflorus auct. non* Schult.1824; Bor, Grass. Burma, Ceylon, India & Pakistan 682.1960; *Nazia racemosa auct. non* O. Ktze, 1891; Blatt. & McC. Bombay Grass. 217.1935.

Herbaceous grasses; stems ascending or decumbent, 5–8 cm high. Leaves 1.0–3.5 × 0.1–0.4 cm, linear–lanceolate, acuminate at apex. Spikelets 2, 1-flowered in deciduous, sessile clusters ca. 0.4 cm long, in solitary, ca. 5 cm long racemes. Glumes dissimilar; upper ones narrowly lanceolate, echinulate, lower ones scarious; lemmas lanceolate. Caryopsis ca. 0.15 cm long, narrowly ellipsoid.

Fls. & Frts. : August–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2. tt. 949 & 950.1982.

Distrib. : Salsette, *Graham*, (1839).

TRILOBACHNE Schenck ex Henr.

Trilobachne cookei (Stapf) Schenck ex Henr. in Meded. Rijks–Herb. Leiden n. 67: 4.1931; Bor, Grass. Burma, Ceylon, India & Pakistan 268.1960. *Polytoca cookei* Stapf in Hook. Ic. Pl. t. 2333.1894; Hook. f. Fl. Brit. India 7: 101.1896; Cooke, Fl. Pres. Bombay 3: 518.1958 (Repr. ed.).

Annuals. Culms ca. 1m tall. Leaves 30–60 × 2–5 cm, linear–lanceolate, acuminate at apex, hispid–hairy. Spikelets unisexual, lanceolate–acuminate, in axillary fascicles from upper leaves; male spikelets 0.7–0.8 cm long, female spikelets 0.7–0.9 cm long, oblong, 3-lobed at apex. Caryopsis compressed, oblong.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. Bombay Grass. 5. t. 2.1935.

Distrib. : Salsette, *Jacquemont*, 706; *Lisboa* (1896).

TRIPLOPOGON Bor

Triplopogon ramosissimus (Hack.) Bor in Kew Bull.1954. 501.1954 & Grass. Burma, Ceylon, India & Pakistan 255. 1960; *Ischaemum ramosissimum* Hack. in DC. Mon. Phan. 6: 249.1889; Hook. f. Fl. Brit. India 7: 137.1896. *I. spathiflorum* Hook. f. *op. cit.* 138. Cooke, Fl. Pres. Bombay 3: 481.1958 (Repr. ed.). 'Kasur'.

Stout grasses. Culms 1.0–1.2 m high, much branched, rooting at lower nodes. Leaves 20–40 × 1.5–2.0 cm, linear, lanceolate, finely acuminate, with stout midrib, sparsely hairy. Sessile spikelets ca. 0.7 cm long, linear-lanceolate; pedicellate spikelets longer than the sessile ones, silky-villous, racemes 8–10 cm long.

Fls. & Frts. : October–November.

Illus. : Bor, *op. cit.* 256, 257, f. 28 & 29.

Distrib. : Common as undergrowth in forests, along hill slopes and stream banks etc. 167250.

TRIPOGON Roem. & Schult.

- | | | |
|---|-----|----------------------|
| 1. Median awn as long as or longer than the lemma | ... | <i>T. capillatus</i> |
| 1. Median awn shorter than the lemma | ... | <i>T. lisboae</i> |

Tripogon capillatus Jaub. & Spach. *Illus. Pl. Orient.* 4: 47, t. 332.1851; Hook, f. *Fl. Brit. India* 7: 285.1896; Cooke, *Fl. Pres. Bombay* 3: 558.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 521.1960.

Herbaceous grasses. Culms 15–45 cm tall, erect or geniculately ascending, tufted. Leaves 15–20 cm long, narrowly linear, convolute. Spikelets 0.5–0.7 cm long; lemmas bilobed, 3–4-flowered, distant, awned, in 10–25 cm long, spikes.

Fls. & Frts. : August–November.

Illus. : Blatt. & McC. *Bombay Grass.* 267. t.179.1935.

Distrib. : Borivli, R. R. Fernandez, 330 (BLAT).

Tripogon lisboae Stapf in *Kew Bull.* 1892: 84.1892; Hook. f. *Fl. Brit. India* 7: 286.1896; Cooke, *Fl. Pres. Bombay* 3: 558.1958 (Repr. ed.); Bor, *Grass. Burma, Ceylon, India & Pakistan* 522.1960.

Herbaceous or stout perennial grasses. Culms 60–90 cm tall, tufted. Leaves 20–30 × 0.4–1.0 cm, rigid, flat, convolute, linear-lanceolate. Spikelets 0.6–0.7 cm long, crowded, 5–12-flowered, in 12–25 cm long spikes. Caryopsis narrowly oblong, terete, glabrous.

Fls. & Frts. : September–December.

Illus. : Blatt. & McC. *Bombay Grass.* 267. t.180.1935.

Distrib. : Borivli, R. R. Fernandez, 1174 (BLAT).

VETIVERIA Bory de St. Vinc.

Vetiveria zizanioides (L.) Nash in Small, Fl. S. E. U. S. 67.1903; Bor, Grass. Burma, Ceylon, India & Pakistan 258.1960. *Phalaris zizanioides* L. Mant. Pl.183.1771. *Andropogon squarrosus* L. f. Suppl. Pl. 433.1781 (*nomen confusum*.); Hook, f. Fl. Brit. India 7: 186.1896; Cooke, Fl. Pres. Bombay 3: 511.1958 (Repr. ed.). 'Vala'.

Perennial grasses. Culms 1.2-1.5 m tall, tufted, slender. Leaves 12-20 × 0.2-0.5 cm, linear, rigid, flat or folded, ciliate on margins. Spikelets 0.5-0.6 cm long, narrowly linear, paired, dissimilar; sessile ones bisexual, lower glumes muriculate, laterally compressed; pedicelled ones male and dorsally compressed.

Fls. & Frts. : August-October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 955. & 956.1982.

Distrib. : Borivli, R. R. Fernandez, 909 (BLAT).

ZOYSIA Willd. (*nom. cons.*)

Zoysia matrella (L.) Merr. in Philipp. J. Sci. Bot. 7: 230.1912; Bor, Grass. Burma, Ceylon, India & Pakistan 684.1960. *Agrostis matrella* L. Mant. Pl. 2: 185.1771. *Zoysia pungens* Willd. in Ges. Naturf. Fr. Berlin, Neue Schr. 3: 441.1801; Hook, f. Fl. Brit. India 7: 99.1896; Cooke, Fl. Pres. Bombay 3: 537.1958 (Repr. ed.). *Osterdamia matrella* (L.) O.Ktze. Rev. Gen. Pl. 2: 781.1891; Blatt. & McC. Bombay Grass. 219.1935.

Rhizomatous perennial grasses. 10-20 cm long, spreading and rooting at nodes; rootstock wiry. Leaves 2-6 × 0.2 cm, linear to subulate margins inrolled, coriaceous, ligulate. Spikelets 0.25-0.3 cm long, ovoid, pedicelled, on solitary, erect, 2.5-3.0 cm long racemes; lower glumes coriaceous, lemmas hyaline, boat-shaped. Caryopsis oblong.

Fls. & Frts. : August-September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 959 & 960.1982.

Distrib. : Versova, Blatter & McCann (1935).

CULTIVATED SPECIES :

Bambusa arundinacea (Retz.) Willd. Sp. Pl. 2: 245.1799; Gamble in Hook. f. Fl. Brit. India 7: 395.1896; Cooke, Fl. Pres. Bombay

3: 569.1958 (Repr. ed.). *Bambos arundinacea* Retz. Obs. Bot. 5: 24.1789. 'Kalak'.

Arborescent grasses, 15–20 m tall, and 15–17 cm across; stems woody, stout, thorny, tufted. Leaves 15–20 × 2.0–2.5 cm, linear to linear-lanceolate, glabrous or puberulous beneath, margins scabrous. Spikelets 0.7–2.0 cm long, 0.4–0.5 cm wide, 3–6-flowered, oblong, terete in compound panicles with spikelets clustered in heads on spicate branches. Caryopsis 0.5–0.8 cm long, oblong, beaked, grooved on one side.

Fls. & Frts. : Period variable. (once in life time)

Illus. : Gamble in Ann. Roy. Bot. Gard. Calcutta 7: t. 48.1896; Matthew, Fur, Illus. Fl. Tamilnadu Carnatic 4: tt. 721 & 722.1988.

Distrib. : Koppikar (1974).

Dactyloctenium australe Steud. Syn. Pl. Glum. 1: 212.1854; Bor, Grass. Burma, Ceylon, India & Pakistan 489.1960.

Herbaceous grasses, perennial, stoloniferous. Culms 30–80 cm high, slender, erect or geniculately ascending. Leaf-blades 5–25 × 0.25–0.45 cm flat, softly pilose with tubercle-based hairs. Spikelets 4–6-flowered, 0.5–0.55 cm, long, linear-oblong, in 3–5 cm long spikes, mucros of the rachis 0.05–0.075 cm long.

Fls. & Frts. : August–December.

Distrib. : Versova, H. Santapau, 211–3 (BLAT).

Introduced, native of S. Africa and an excellent soil binder.

Eleusine coracana (L.) Gaertn. Fruct. Sem. Pl. 1: 8, t. 1, f. 11.1789; Hook. f. Fl. Brit. India 7: 294.1896; Cooke, Fl. Pres. Bombay 3: 561.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 492.1960. *Cynosurus coracanus* L. Syst. Nat. (ed. 10), 875.1759. 'Nagli'.

Annual, stout, robust grasses. Culms 0.3–1.2 m tall, 1.5–1.8 cm thick. Leaves 15–30 × 1.0–1.8 cm, linear. Spikelets 0.2–0.4 cm long, ovoid, apiculate, glabrous, in digitately umbellate, 6–10, 5–15 × 1.0–1.5 cm spikes, peduncles hairy. Caryopsis globose, edible.

Fls. & Frts. : August–December.

Illus. : Blatt. & McC. Bombay Grass; 260. t.173.1935; Matthew, Illus. Fl. Tamilnadu Carnatic 4 : tt. 768 & 769.1988.

Distrib. : Koppikar (1974).

ORYZA L.

Oryza sativa L. Sp. Pl. 333.1753; Hook. f. Fl. Brit. India 7: 92.1896; Cooke, Fl. Pres. Bombay 3: 565.1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 605.1960. 'Bhat'.

Stout, annual grasses. Culms 25–100 cm tall. Leaves 15–45 × 0.5–1.5 cm, linear, flat with scabrid margins and nerves beneath. Spikelets 0.6–1.0 cm long, ovate, oblong or ovoid, in 10–25 cm long, lax and drooping panicles. Caryopsis oblong, edible.

Fls. & Frts. : August–November.

Illus. : Blatt. & McC. Bombay Grass. 274. t.187.1935.

Distrib. : Borivli, P. S. Herbert, 1054 (cultivated.).

Pennisetum americanum (L.) K. Schum. in Engl. Pflanzenew. Ost. Afr. B. 51, C. t. 4. f. A & B.1895; Bor, in Rech. f. Fl. Iran 70 : 503.1970. *Panicum americanum* L. Sp. Pl. 56.1753. *Pennisetum typhoideum* L. C. Rich. in Pres. Syn. Pl. 1: 72.1805; Hook. f. Fl. Brit. India 7: 82.1896; Cooke, Fl. Pres. Bombay 3: 432.1958 (Repr. ed.). *P. typhoides* (Burm. f.) Stapf & C. E. Hubb. in Kew Bull.1933: 271.1933; Bor, Grass. Burma, Ceylon, India & Pakistan 350.1960; *P. spicatum* Roem. & Schult. Syst. Veg. 2: 499.1817; Blatt. & McC. Bombay Grass.182.1935. 'Bajri'.

Tall, herbaceous grasses, 2–3 m in height; nodes hairy. Leaves linear–lanceolate, scabrid. Spikelets 2–4–nate, often 1–2, ovoid–ellipsoid, ca. 0.3 cm long, in cylindrical panicles up to 30 cm long on pubescent peduncles.

Fls. & Frts. : September–November.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 814.1988.

Distrib. : Cultivated as food grain. Shah (1969).

GYMNOSPERMS

GNETACEAE

GNETUM L.

Gnetum ula Brongn. in Duperry. Voy. Coquille 7: 12.1829; Sant. Fl. Khandala ed. 3, 261.1967. *G.funiculare* Smith ex Wight, Ic. t.1955.1853, non Brongn. 1829.

Lianas. Leaves opposite, elliptic-ovate, acute, coriaceous. Male cones and female cones separate, plants dioecious. Seeds endospermous, enclosed by outer fleshy, middle stony and inner membranous envelopes forming a pseudofruit.

Sporophylls. : December-January.

Illus. : Wight, *op. cit.*

Distrib. : Frequent near Kanheri hill top Venkanna 121888; Pradhan *s. n.*

PTERIDOPHYTES

ACROSTICHACEAE

ACROSTICHUM L.

Acrostichum aureum L. Sp. Pl. 2: 1069.1753; Bedd. Ferns S. India 204.1865 & Handb. Ferns. Brit. India 440.1883; Dixit, Census Ind. Pteridophytes 73.1984.

Ferns with stout rootstock, covered with scales *ca.* 4 cm long. Stipe and frond together up to 3-4 m long, pinnae many, simple, only the upper ones fertile, sterile pinnae oblique, on 2 cm long stalk, blades *ca.* 50 × 10 cm, cuneate, to rounded, unequal at base, abruptly rounded, truncate to mucronate at apex, coriaceous; fertile pinnae smaller, upper most sessile.

Distrib. : Salsette, Shah (1962). Coastal fern growing in mangrove swamp.

ADIANTACEAE

ADIANTUM L.

Adiantum capillus-veneris L. Sp. Pl. 2: 1096.1753; Bedd. Ferns. S. India t. 4.1863 & Handb. Ferns Brit. India 84.1883; Blatt. & Almeida, Ferns Bombay 69.1922; Holttum, Fl. Malaya 2: 600.1968; Dixit, Census Ind. Pteridophytes 74.1984.

Herbs; rhizomes short, creeping, densely covered with brown linear scales. Stipes dark brown, shining, glabrous, wiry, scaly at base. Fronds bipinnate, tripinnate or decompose; leaflets *ca.* 1.0 cm long, shortly stalked, obovate-cuneate, upper margins 2-3-lobed. Sori formed by reflexed margins and covered with indusia; sporangia globose, spores tetrahedral.

Sori : August–October.

Illus. : Bedd. *op. cit.* & Blatt. & Almeida, *op. cit.* 60. f.19.

Distrib. : Versova, Collector ? (BLAT).

Adiantum philippense L. Sp. Pl. 2: 1094.1753; Holttum, Fl. Malaya : 598.1968; Dixit, Census Ind. Pteridophytes 75. 1984. *A. lunulatum* Burm. f. Fl. Ind. 235.1768; Bedd. Ferns S. India t. 1.1863 & Handb. Ferns Brit. India 82.1883 Blatt. & Almeida Ferns Bombay 59.1922.

Herbs, 20–40 cm tall, rhizomes densely covered with dark brown scales. Stipes 6–15 cm long, tufted, wiry, polished, dark brown. Fronds 10–20 cm long, simple–pinnate; pinnae suborbicular or oblong–ovate, oblique at base, margins slightly lobed in upper part. Sori linear, marginal.

Sori : July–October.

Illus. : Bedd. *op. cit.*; Blatt. & Almeida *op. cit.* 60. f.19.

Distrib. : Common along roadsides and in rocky crevices. 167220, 167809, 167977.

ATHYRIACEAE

ATHYRIUM Roth

Athyrium hohenackerianum (Kuntze.) Moore, Ind. Fil. 49.1857; Bedd. Ferns S. India t. 151.1865 & Handb. Ferns Brit. India 163.1883; Blatt. & Almeida, Ferns Bombay 111.1922; Dixit, Census Ind. Pteridophytes 127.1984. *Altantoidea hohenackeriana* Kuntze, Farnkr. 2: 63. t. 126.1850. ('hohenackeriana')

Herbs 20–50 cm tall. Stipes tufted, 5–10 cm long, covered with linear scales. Fronds 15–45 cm long, ovate–lanceolate; pinnae paired, 2.5–6.5 cm long, lanceolate, cut into ovate–oblong pinnules, margins serrate. Sori lateral, copious, linear–oblong, curved.

Sori : August–October.

Illus. : Blatt. & Almeida *op. cit.* opp. page 108. pl. 9.

Distrib. : Frequent in moist shaded parts of the forest. 167811, 167870.

LYGODIACEAE

LYGODIUM (L.) Sw.

Lygodium flexuosum (L.) Swartz in Schrad. J.1800 (2) : 106.1801; Bedd. Ferns S. India t. 63.1863 & Handb. Ferns Brit. India 457. t. 283.1883; Holttum, Fl. Malaya 2: 57.1968; Dixit. Census Ind. Pteridophytes 60.1984. *Ophioglossum flexuosum* L. Sp. Pl. 2: 1063.1753.

Herbs. Stems creeping or twining, rhizomatous. Fronds glabrous or slightly hairy, pinnate; pinnules pinnate or variously lobed, terminal lobes elongate, linear-oblong, margins serrulate, venations dichotomous. Sori projecting from the margins of the pinnules.

Sori. : August–October.

Illus. : Bedd. *op. cit.* t. 283. Holttum, *op. cit.* 11.

Distrib. : Common in shady moist patches. 167222, 168424.

Lygodium microphyllum (Cav.) R. Br. Prodr. Fl. Nov. Holl. 162.1810; Bedd. Handb. Ferns Brit. India 455, t. 282.1883; Dixit, Census Ind. Pteridophytes 60.1984. *Ugenia microphyllum* Cav. Icon. Descr. Pl. 6: 76. t. 595.1801; Bedd. Ferns S. India t. 61.1863.

Scandent ferns. Stems twining. Fronds pinnate, pinnules petioled, lobed, fertile pinnules triangular with rounded apex. Sori in marginal spikes.

Illus. : Bedd. *op. cit.*

Distrib. : Kanheri jungles, *Graham* (1839).

MARSILEACEAE

MARSILEA L.

Marsilea minuta L. Mant. 308.1771; Gupta, *Marsilea*, Monogr. 23.1962; Dixit, Census Ind. Pteridophytes 85.1984.

Herbs, rhizomatous, ca. 5–10 cm tall. Leaves with 4 leaflets; leaflets deltoid, obtuse, margins entire, crenate or serrate, petioles delicate, 4–8 cm long. Sporocarps bean-shaped, rounded or oval, basal.

Sori. : October–April.

Distrib. : Rare. Gawalikada near Chena beat. 168940.

NEPHROLEPIDACEAE

NEPHROLEPIS Schott

Nephrolepis cordifolia (L.) Presl, Tent. Pterid. 79.1836; Bedd. Handb. Ferns Brit. India 282, t. 144.1883; Blatt. & Almeida Ferns Bombay 157.1922. *Polypodium cordifolium* L. Sp. Pl. 2: 1089.1753.

Herbs; rhizomes short, erect clothed with tufted rusty scales, stoloniferous. Stipe tufted, brown, wiry. Fronds up to 60 cm long, pinnate; pinnae numerous, imbricating, 2.5–3.0 × 1.0–1.5 cm, margins entire or slightly crenate, cordate or rounded, auricled at base. Sori in a single row between margins and midrib. Indusium firm, persistent.

Illus. : Bedd. *op. cit.*

Distrib. : Frequent along shady moist parts. 167717.

OPHIOGLOSSACEAE

OPHIOGLOSSUM L.

Ophioglossum costatum R. Br. Prodr. Fl. Nov. Holl. 163.1810; Dixit, Census Ind. Pteridophytes 23: 1984. *O. fibrosum* Schum. Beskr. Guin. Pl. 452.1827; Bedd. Handb. Ferns Brit. India 465. t. 289.1883 & Suppl. 109.1892. *O. brevipes* Bedd. Ferns S. India 23. t. 72.1863.

Herbs; rhizomes rounded, bulbous with numerous fibrous rootlets. Stipes short. Sterile fronds 2.5–4.0 × 2 cm, elliptic-lanceolate, acute or obtuse, mostly basal. Fertile spikes 3–5 cm long, stipes 10–12 cm long.

Sori. : August–September.

Illus. : Bedd. *op. cit.*

Distrib. : Kanheri Caves, H. Santapau, 400. 10 Borivli & H. Santapau, 2340 (BLAT).

PARKERIACEAE

CERATOPTERIS Ad. Brongn.

Ceratopteris thalictroides (L.) Ad. Brongn. Bull. Sci. Soc. Philom. Paris 1821; 186.1822; Bedd. Ferns S. India t. 75.1863 & Handb. Ferns Brit. India 123. t. 83.1883; Holttum, Fl. Malaya 2: 578.1968; Dixit, Cenus Ind. Pteridophytes 84.1984. *Acrostichum thalictroides* L. Sp. Pl. 2: 1070.1753.

Aquatic herbs, rhizomes with fleshy roots. Stipes succulent up to 10 cm long, ribbed. Sterile fronds 12–15 cm long, pinnae deeply pinnatifid, variously lobed, fertile fronds 20–30 cm long with much branched pinnae; pinnae linear, dichotomously branched. Sporangia scattered.

Sori : October–November.

Distrib. : Vihar lake, H. Santapau, 400. 5. (BLAT).

POLYPODIACEAE

PYRROSIA Mirb.

Pyrosia adnascens (Swartz) Ching in Bull. Chin. Bot. Soc. 1: 45.1935; Holttum, Fl. Malaya 2: 144. Pl. 60.1968; Dixit, Census Ind. Pteridophytes 53.1984. *Polypodium adnascens* Swartz, Syn. Fil. 25. 222, t. 2, f. 2.1806. *Niphobolus adnascens* (Swartz) Kaulf. Enum. Fil. 124.1824; Bedd. Handb. Ferns Brit. India 323.1883.

Herbs, saprophytic with creeping wiry rhizomes, covered with ovate–lanceolate scales. Stipes 2.5–5.0 cm long with linear–lanceolate, hairy scales at base. Fronds dimorphic; sterile fronds 5–10 cm long, elliptic–lanceolate to spatulate, obtuse at apex, fertile ones 15–20 cm long, linear–oblong, obtuse or acute at apex, both types subfleshy, coriaceous, pubescent beneath. Sori scattered in the upper half. Sporangia stalked.

Sori : August–September.

Distrib. : Growing on *Mangifera indica* L. 167965.

PTERIDACEAE

PTERIS L.

Pteris pellucida Presl, Rel. Haenk. 1: 55.1825; Bedd. Ferns S. India t. 38.1863 & Handb. Ferns Brit. India 106.1883; Dixit, Census Ind. Pteridophytes 71.1984.

Herbs. Stipes up to 30 cm long, erect, glabrous; fronds 30–45 cm long, pinnate, ovate–lanceolate; pinnae 3–7, single or many, simple or the lowest pairs 2–fid. margins entire, undulate, crisped or crenulate. veins dichotomous. Indusium membranous, marginal. Sori usually all along the margins except at apex.

Illus. : Bedd. *op. cit.*

Distrib. : Ghodbundar, *J. F. D. Almeida*, 400. 8. (*BLAT*).

Pteris vittata L. Sp. Pl. 2: 1074.1753; Holttum, Fl. Malaya 2: 396.1968; Dixit, Census Ind. Pteridophytes 73.1984. *P. longifolia* Ogata Icon. Fil. Jap. 3: t. 146.1830 *non* L.1753; Bedd. Ferns S. India t. 33.1863 & Handb. Fern Brit. India 106. t. 55.1883; Blatt. & Almeida, Ferns Bombay 8.1922.

Herbs *ca.* 65 cm tall, rhizomes densely hairy and silky-scaly. Stipes 15–30 cm long, stout, erect. Fronds 30–60 cm long, 10–20 cm broad, oblong-lanceolate, imparipinnate; pinnae 7–10 cm long, linear, truncate, cordate or slightly auricled at base, obtuse or acute at apex. Sori marginal.

Sori. : July–September.

Illus. : Bedd. *op. cit.*

Distrib. : Infrequent, along lake walls. 167997, 168946.

SELAGINELLACEAE

SELAGINELLA P. Beauv.

Selaginella delicatula (Desv. ex Poir.) Alst. in J. Bot. 70 : 282.1932; Dixit, Census Ind. Pteridophytes 12: 1984. *Lycopodium delicatulum* Desv. ex Poir. in Lam. Encycl. Suppl. 3: 554.1814.

Herbs. Stems creeping, bearing rhizophores, dichotomously branched. Leaves small, numerous, simple, single-nerved, spirally and distichously arranged in two planes. Strobilii terminal; spores heterosporous.

Sori. : September–November.

Distrib. : Occasional on rocky crevices. 167967.

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