

**FLORA OF INDIA
SERIES-3**

**FLORA OF
AKOLA DISTRICT
MAHARASHTRA**

**S. Y. KAMBLE
S. G. PRADHAN**

BOTANICAL SURVEY OF INDIA

**Flora of
Akola District, Maharashtra**

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and
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FOREWORD

As a part of floristic survey and inventory of plant wealth at the national, regional and district levels, the Botanical Survey of India has been publishing the Flora of India under four series. The printing of the District Floras under series 3 would ultimately form the base work for State Floras. In this context "The flora of Akola District" is one of the districts that has been intensively explored during the years 1977—79 and it has been successfully completed.

The District of Akola is situated in the northern part of Maharashtra and borders Madhya Pradesh. The District is phytogeographically interesting and has few pockets of good reserve forest.

The introductory chapter gives topography and general features, general vegetation types, plants of medicinal, economical and horticultural importance. The systematic treatment deals with 651 species spread out under 391 genera and 96 families which includes 11 species of ferns and other Pteridophytes. Interesting species of Pteridophytes include *Ophioglossum lucitanicum* L. and *O. petiolatum* Hook. which also constitute new records for Maharashtra State. The dominant families are Poaceae, Fabaceae, Asteraceae, Euphorbiaceae, Cyperaceae and Acanthaceae. From this district 6 species of angiosperms have been recorded for the first time from Maharashtra State. These include *Vicia hirsuta* (L.) S. F. Gray, *Ipomoea peltaloidea* Choisy, *Datura ferox* L., *Pancratium longiflorum* Roxb., *Alectra thomsoni* Hook. f. and *Allmania nodiflora* (L.) R. Br. var. *dichotoma* (Roth) Hook. f. *Alectra parasitica* A. Rich. is a new record for India and besides is ethnobotanically important. The vegetation of the district is adversely affected due to biotic factors. Twenty three rare and endangered species with restricted distribution have been listed. All these specimens are housed in the regional herbarium of Western Circle, Botanical Survey of India at Pune (BSI).

I trust this flora will be useful to the students and teachers of Botany, officials of the forest and agricultural departments, persons concerned with plant products as raw materials and environmentalists interested in the protection and conservation of threatened species and natural plant wealth. This flora provides comprehensive coverage of floristics of the district and the authors would welcome any useful suggestions from the users of this flora for its improvement and incorporation in future editions.

Botanical Survey of India,
Calcutta.

10 May, 1988.

M. P. NAYAR
DIRECTOR

P R E F A C E

The impetus for plant exploration increased with the reorganisation of Botanical Survey of India in 1954. The main objective has been to concentrate on under-explored and unexplored regions and after intensive floristic survey of those areas, prepare floras at state/district levels. These accounts of district floras would form the basis of state floras and eventually lead to the completion of Flora of India. Against the above background the Flora of Akola district in Maharashtra was taken up and has been completed after intensive explorations during the years 1977-79.

The Akola district has a total area of about 10600 sq. km of which nearly 810 sq. km are covered by reserve forests. The flora deals with 651 species (including the Pteridophytes) spread out under 96 families and 391 genera. It is based on our present collections which are deposited in the regional herbarium of Botanical Survey of India, Pune (BSI). Requisite information about the district pertaining to its topography and general features, forest biota, vegetation types, floristic analysis, plants of medicinal, economic and horticultural importance, new records of interesting plants, endangered plants etc. have been incorporated in the text. Keys to the genera and species, correct nomenclature, selected synonyms, brief botanical description and notes on habitat, phenology, distribution and vernacular names etc. have been included.

This flora will be helpful to students of Botany at undergraduate and postgraduate levels, forest officials, pharmacologists, agriculturists etc. in their research and management programme.

It is our pleasant duty to express our deep sense of gratitude to Dr. M. P. Nayar, Director, Botanical Survey of India, for facilities, constant encouragement and keen interest in the publication of the flora. We are indebted to Dr. B. D. Sharma, Deputy Director, Dr. V. S. Agarval, Ex-Editor of Publications, Botanical Survey of India, Dr. R. S. Raghavan, Scientist 'SD', Dr. N. P. Singh, Scientist 'SD' and other fellow officers for their useful suggestions and encouragements during the preparation of this book. Thanks are also due to the Divisional Forest Officer and other forest officials in Akola district for their co-operation during our exploration work. Our thanks are due to our technical staff especially mounters and fieldmen who have assisted in collections and processing of specimens.

Any suggestions for the improvement and presentation of the flora are welcome for incorporation in future edition.

Botanical Survey of India,
Western Circle, Pune.
1988.

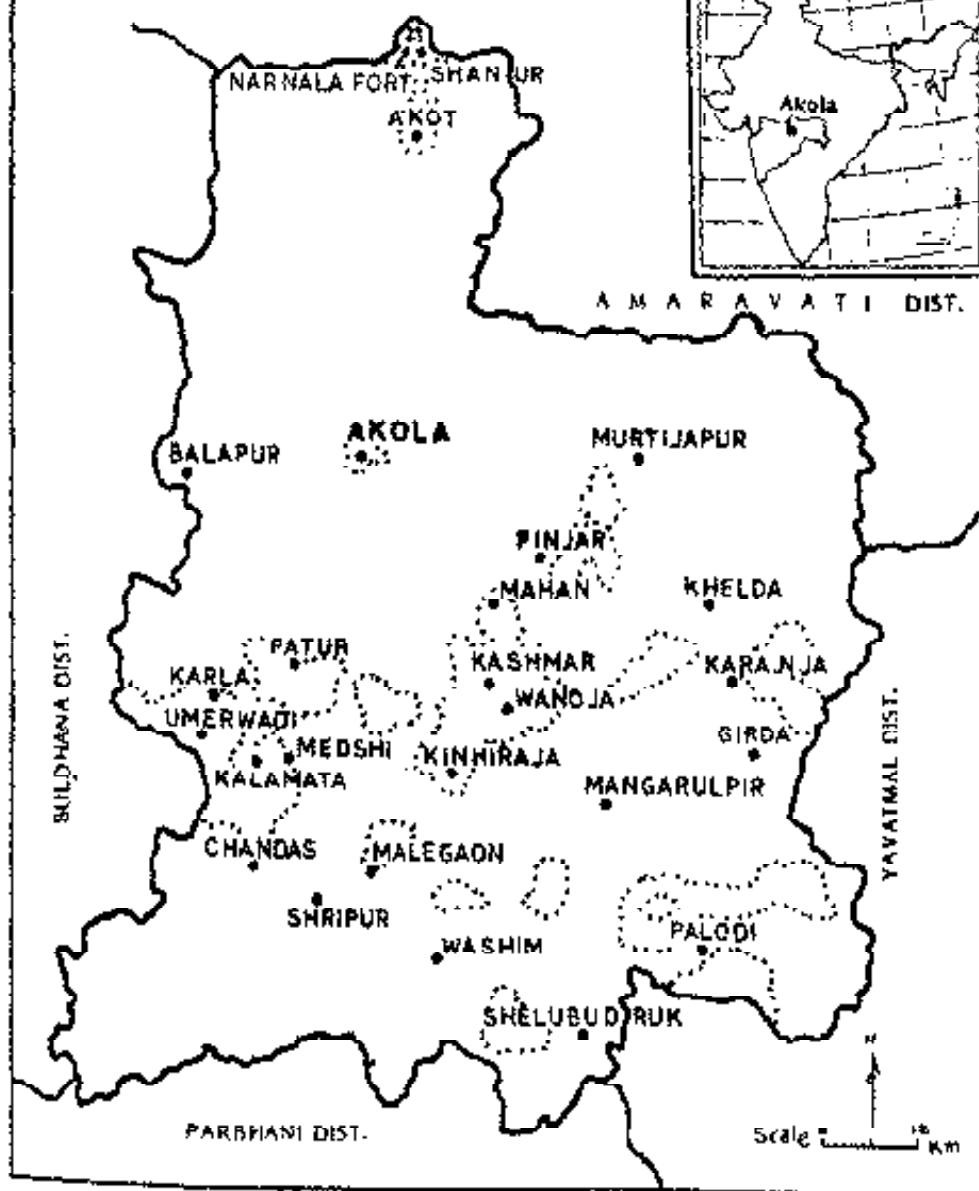
S. Y. KAMBLE
and
S. G. PRADHAN

ABBREVIATIONS

Bedd. Fl. Sylv.	Beddome, R. H. <i>Flora Sylvatica</i> for Southern India. 2 Vols., 1867-1874. Madras.
Bedd. Ic.	Beddome, R. H. <i>Icones Plantarum Indiae Orientalis</i> , or plates and description of new and rare plants from Southern India and Ceylon. Vol. I, Pts. I-15. 1868-1874. (cited as 1874). Madras.
Ann. Miss Bot. Gard.	Annals of Missouri Botanical Garden, St. Louis, U. S. A.
Curr. Sci.	Current Science, Bangalore, Karnataka.
Indian For.	Indian Forester, Dehra Dun, U. P.
Indian J. For.	Indian Journal of Forestry, Dehra Dun, U. P.
J. Bombay Nat. Hist. Soc.	Journal of Bombay Natural History Society, Bombay, Maharashtra.
J. Econ. Tax. Bot.	Journal of Economic and Taxonomic Botany, Jodhpur, Rajasthan.
J. Indian Bot. Soc.	Journal of Indian Botanical Society, Howrah, West Bengal.
Pflanzenfam.	Die natürlichen Pflanzen familien, etc. by Engler, A. & Prantl, K. (Ed. 2, 1924).
Pflanzenr.	Das Pflanzenreich Regni Vegetabilis Conspectus, etc. by Engler, A. (1900-1937).
Proc. Indian Acad. Sci. (Plant Sci.)	Proceeding of Indian Academy of Sciences (Plant Science). Bangalore.
Proc. Indian Nat. Sci. Acad.	Proceedings of the Indian National Science Academy. Allahabad.
p. p.	Pro parte
Sant. Fl. Khandala	Rev. Fr. Dr. H. Santapau, Records of the Botanical Survey of India, 16(1), ed. 3, 1967, Delhi.
Sci. & Cult.	Science & Culture, Calcutta, W. Bengal.
Wight, Icon.	Wight, R. <i>Icones Plantarum Indiae Orientalis</i> ; or figures of Indian Plants, 6 Vols. 1838-1853. Madras.
Wight, Illus.	Illustrations of Indian Botany. 2 Vols. 1840-1850. Madras.

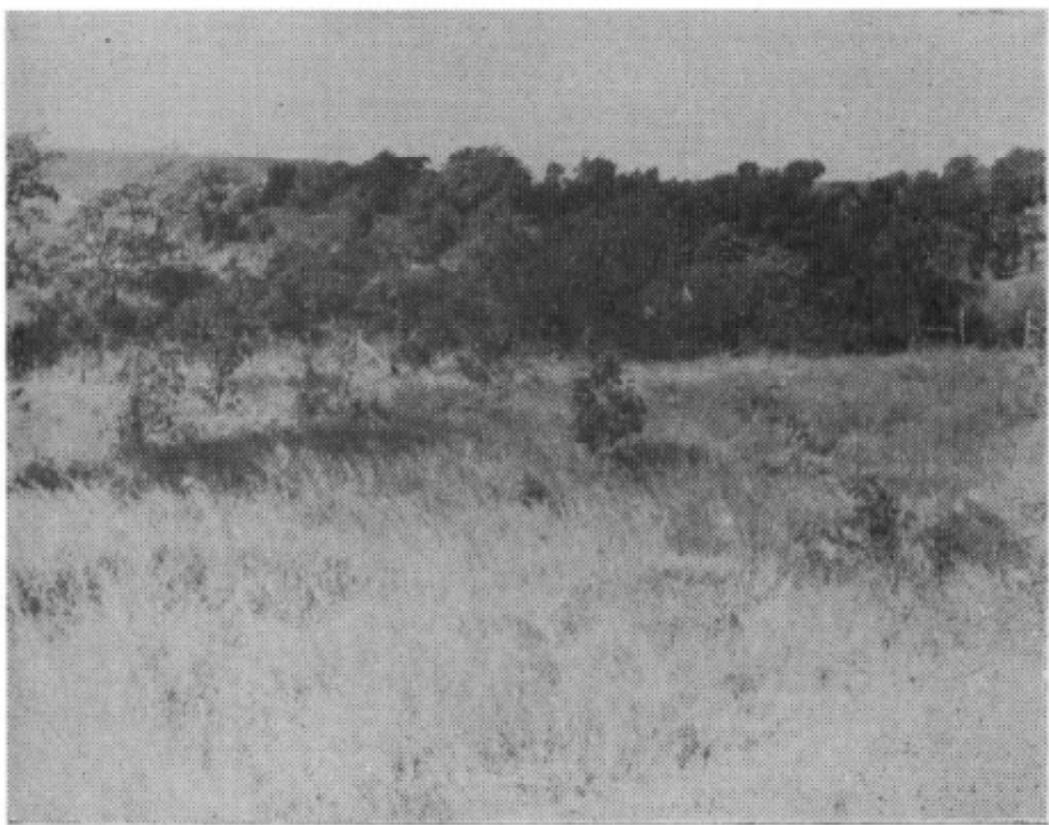
AKOLA DIST

AREA EXPLORED

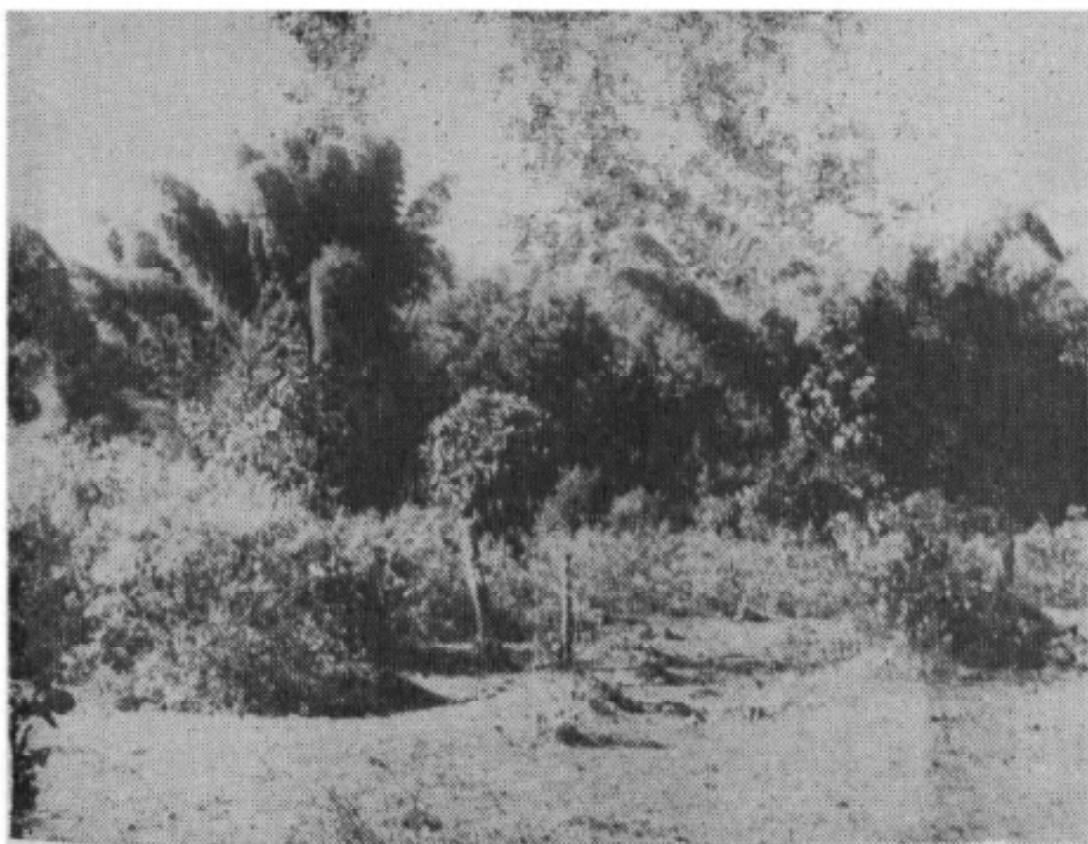




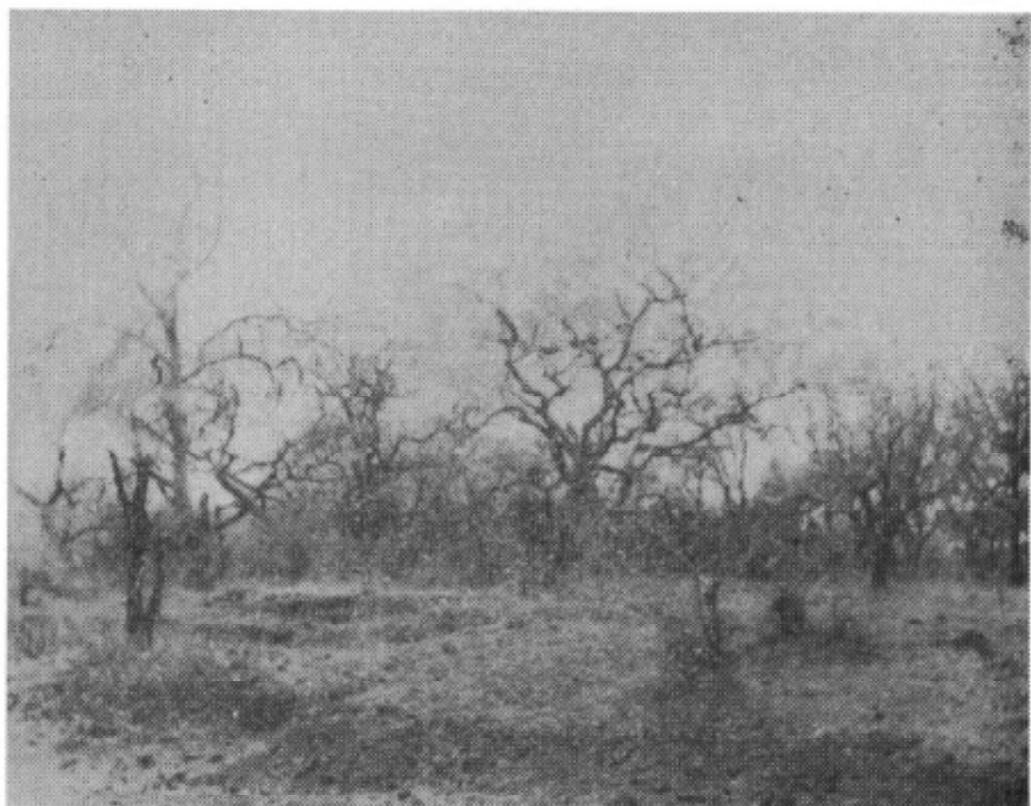
Vegetation near Chikhawal showing **Santalum album**, **Tectona grandis**, **Butea** sp., **Terminalia** sp., **Garuga pinnata**, **Mitragyna parvifolia**, **Buchanania lanza**, **Vitex negundo** etc.



Vegetation in open areas showing grasses **Themeda**, **Cymbopogon**,
Iseilema, **Chrysopogon**, **Apluda** in foreground and **Ficus sp.** &
Tectona sp. etc. in background.



Bamboos along the side of a nala near Chikhalwal intermingled
with *Tectona* and *Vitex*.



Boswellia serrata in the deciduous forest at the foot of the Narnala Fort.

INTRODUCTION

General and Floristic Note

Akola is one of the thirty districts of Maharashtra, situated at the Northern border. The district is situated between the meridians of longitudes $76^{\circ}51'$ and $27^{\circ}44'$ East and between the parallels of latitudes $19^{\circ}51'$ and $27^{\circ}17'$ North. It is surrounded on the north by district Amravati, on the east by Amravati and Yavatmal, on the south by Parbhani and Yavatmal and on the west by Buldhana. Its maximum length from North to South is about 145 km (90 miles) and its maximum breadth is about 100 km (62.5 miles). Its total area is about 10,606 sq.km (4,095 sq. miles). There is, considerable variation in the topography, geology and climate. It has about 812 sq. km (313 sq. miles) area of reserved forests which is not much as compared to its total area.

There is no reference of previous literature on the Flora of the Akola District proper. The district is thus remained botanically unexplored.

Reasons for Undertaking the Present Work and Its Importance

After the reorganisation of the Botanical Survey of India, its main function was the intensive survey of the country's flora. Keeping in view of the ultimate objective of Botanical Survey of India, it was planned to botanically explore areas which were not explored or under-explored. In this connection, it is obvious that for a satisfactory knowledge of our plant resources or floristic accounts, it was more appropriate that small areas should be comprehensively studied first and all resulting data pooled, reviewed and summarised for entire country. The floras of small areas such as district in the state will be helpful in writing State Flora and eventually State Floras in turn, will help to accomplish the fulsledged "Flora of India" which is the goal before Botanical Survey of India.

In view of this the present work on the 'Flora of Akola District' was undertaken and completed after detailed, intensive field studies and collections in the district to assist in the ultimate assembling of all plant inventories and plant wealth in the Flora of India.

PAST AND PRESENT WORK

1. Earlier work :

Akola District is the Northernmost district of the Vidarbha region in Maharashtra. There is up till now neither previous work on the Flora of

Akola District nor mention of botanical collections made from the Akola District proper.

2. Present work :

The present work is the result of planned plant explorations during the year 1977 to 1979 in the selected botanically rich areas of Akola District, together with the data on the habit, habitat and distribution of plants. During the exploration work, care was taken to cover different vegetational zones and to visit all areas in almost all the seasons so as to collect plants in flowering and fruiting and to give satisfactory coverage of the flora of the whole district. Observations were noted in the field book, specially prepared to elicit complete information from which the specimens collected were serially numbered. Field data covered notes especially of those characters that cannot be studied from the pressed specimens such as habit, pubescence, colour of a flower, odour if any, association and frequency etc. Specimens of the same species were collected from different localities in view of obtaining its distributional data. Apart from naturally occurring wild plants the flora includes many cultivated as well as exotic plants. Some bulbous and other herbaceous plants were cultivated in the experimental garden of Botanical Survey of India, Pune and studied. The careful exploration and critical studies yielded some new records for the Maharashtra State and India also.

B. Plan of the Flora :

For families the system and order followed in this flora is after Bentham and Hooker's system of classification with slight modification in the treatment of families.

The genera within families and the species within genera are arranged in simple alphabetical sequence. The key to the families has been prepared only for the plants reported from the district. Similarly key to the genera and species apply mostly to the plants included in the present study. Keys are dichotomous, based mostly on macroscopic characters. Efforts have been made to give most recent and correct nomenclature. While enumerating the species, the valid name is followed by the basyonym and synonyms relevant to proper understanding of the species. A reference to Hooker's Flora of British India and Cooke's Flora of Presidency of Bombay, irrespective of synonymy has also been made. Local names in inverted commas after citation have been given. Brief description of important characters has been given based on our own collections. It is followed by flowering and fruiting period, a reference to good illustration, distribution and frequency. While giving distribution, in case of rare taxa, the locality of collection is followed by the authors collection number.

TOPOGRAPHY AND GENERAL FEATURES

Configuration of the ground :— The chief hills of the divisions are the parts of Ajanta System towards the south and Satpudas in the North. The Balagat plateau situated on the Ajanta hills, covers the southern half of both the Akola and Buldhana divisions. Its surface is undulating with general slope towards south. The altitude of plateau in Akola District varies from 390-540 meters (1300-1800 feet) above mean sea level. On the slopes and the ridges of the plateau and in the valleys, intervening, lie the main blocks of forests.

The vast fertile plain of the river Purna is known as Payanghat. The area is quite monotonous with undulation just enough to maintain a natural system of drainage.

Towards the North of Payanghat is the third and the last natural feature, the ranges of Satpuda hills popularly known as Melghat, only a small part of the hills fall in Akola. The slopes of these hill ranges are generally steep and precipitous. The maximum elevation is 3,046 feet above the mean sea level, the average being 2,300 feet.

Geology and soil :— Only two geological formations are known to occur in this division viz. the Purna alluvium and the Deccan trap. The former is restricted to Purna valley and sometimes mixed up with a calcareous conglomerates. Efflorescence of soda salt occur in some of the babul (*Acacia nilotica* ssp. *indica*) forest situated on the Purna alluvium.

The Deccan trap which covers almost entire division belongs to the cretaceous period, when sheets of semimolten trap broke through the cretaceous strata and is found in this area in more or less horizontal layers. The underlying rock consists of hard gray basalt and numerous samples of amygdaloidal with zeolite vesicles.

The soil over the entire trap area varies from a light reddish sandy loams on the ridges and hill sides to black cotton soil in valleys and depressions and some plateaus. The reddish sandy loams of varying consistency intervened with the rounded fragments of the underlying rocks covers most of the forest areas. On the slopes the soil varies from Murrum to light black. Usually the hill slopes, flanking ravines are covered with boulders strewn over the surface. Teak especially grows well in such localities as these afford a safe lodgement for seeds and good foot-hold for tree growth. The basalt whenever in the form of hard impenetrable rocks or granular lateritic beds devoid of moisture is unsuitable for tree growth. The growth on such rocks is scanty, stunted and malformed.

The Purna alluvium consists of black cotton soil with calcareous conglomerates which lie immediately below it. It is invariably found along

the river courses along with a soil of light brown colour called Kunkery which contain high percentage of soda salts. The depth of these alluvial deposits exceeds, in some places 45 meters. In breadth it extends 15 miles to the North and 10 miles to the South of the river Purna. Patches of babul bans lie in these fertile plains.

Climate :— The tract shows a considerable variation in climate especially in summer temperature. In Akola district the summer is long and hot with 48.85°C as highest temperature on record reached in May 1878. The average mean daily maximum temperature recorded at Akola in 1919-69 is 38.33°C for the month of May and average mean daily minimum temperature is 12.8°C for the month of December. The winter in the district is moderate. The average daily mean temperature rarely goes below 4.4°C . It is of short duration from November to January. The increase in temperature is noticeable during February and the hot season seems to be extending from beginning of March to the end of October, hottest months being May and June.

In general the northern most part which comes under Melghat has cooler climate with occasional frost, than rest of the area in the district.

Rainfall :— The average rainfall varies from 75 to 100 cm. The bulk of the rainfall is received from south-west monsoons, which usually breaks in the latter half of June. It continues for nearly three months and usually end in the latter half of September.

FOREST BIOTA

The forest of Akola can be grouped together in an irregular strip of varying width extending from the western boundary towards east half way across it a distance of about 45 miles (72.5 km.). This includes the Chikhralal, Medshi, Patur, Morna, Pangra and Rai reserves having area of 142.5 sq. miles (366.5 sq. km) in extent, while Khapardari, Palodi and Sendona reserves form another group of 25.62 sq. miles lying in the south-east corner.

A few small blocks aggregating to about 8.059 sq. miles (20.72 sq. km) lie scattered. They are Wanoja, Fetra, Kasmar etc.

The Narnala reserves enclaves a block of 7.5 sq. miles (19.42 sq. km) of forest covering very mountainous country and lies in the extreme north of the district.

Acacia nilotica ssp. *indica* forests of the division called as babul-bans lie in scattered patches along fertile plains of Purna river. The total area of the forest is about 15.0 sq. miles (38.85 sq. km).

There are grass rannas or fodder reserves totalling 98.42 sq. miles lying scattered all over the division.

The range-wise distribution of forest is as follows :

Range	'A' Class	'B' 'C' Class	Protected	Total
Akola	29,737.17	18,199.00		48,436.17
Medshi	50,016.02	3,807.00	3,053.11	56,876.13
Karanja	28,821.17	30,546.00		59,367.17
Washim	31,855.38	7,097.00		38,952.38

The above table shows that the Medshi range has very good 'A' Class forest.

The total area of the reserved forest of Akola district is 313.42 sq. miles (811.75 sq. km), percentage of reserved forest being 7.79.

The maximum area of forests is in Washim, Akola and Murtizapur talukas. In some areas such as Chikhawal and Shahanur the biotic factors such as continuous grazing by the herds of cows of Kathiawari people has played an important role in preventing natural regeneration. Also the local inhabitants have cut trees illicitly for their firewood and grasses have been used as top food for their livestock. Thus the vegetation has been considerably modified by the biotic factors operating on it.

GENERAL VEGETATION TYPES

The major concentration of forests is found towards the Narnala fort which marks the northern border of the district and hilly portions of Patur Medshi and Palodi range. The plains are mostly devoid of forest cover.

The forest of the districts can be divided into following types.
(1) Dry deciduous forests and (2) Scrub forests.

The former type occurs in the hilly region of Feta, Kasmar, Narnala fort etc. and latter type in the plain areas of Morna, Chikhawal, Karanja etc. The rivulets and streams are covered with open grasslands with a few scattered shrubs and trees. These occur in patches in the hilly parts. The hill tops in some of these areas are barren. Thorny scrub jungle mixed with dry deciduous forest type is seen in small valleys and on slopes of hills.

(1) Dry deciduous forests

In dry deciduous forests small trees and shrubs are the chief woody components. Following trees are common in dry deciduous forests.

Anogeissus latifolia, Boswellia serrata, Ziziphus mauritiana, Ficus glomerata, Ficus benghalensis, Tectona grandis, Anona squamosa, Cochlospermum religiosum, Bauhinia racemosa, Butea monosperma, Dalbergia latifolia, Lagerstroemia parviflora, Terminalia bellirica, Lannea coromandelica, Wrightia tinctoria, Diospyros melanoxylon, Madhuca longifolia, Sterculia urens, Hardwickia binata. They are scattered and form the canopy of the area. Understorey of the slopes and other deciduous forest consist of mainly shrubby species and some trees. Common shrubs in such forests are *Grewia* species *Acacia, chundra, Meytenus emarginatus, Securinega leucopyrus, Clerodendrum serratum, Abrus precatorius, Ziziphus oenoplia, Helicteres isora, Morinda tomentosa, Wrightia tomentosa, Gardenia resinifera, Xeromphis spinosa* etc. In hill forests there are some climbers and woody twiners which include *Hemidesmus indicus, Celastrus paniculatus, Ceropogia bulbosa, Abrus precatorius, Tylophora fasciculata, Cocculus hirsutus, Combretum ovalifolium, Rivea hypocrateriformis, Jasminum roxburghianum, Dregea volubilis, Ventilago dentata, Aspidopteris cordata* etc.

In these forests, small herbs starts appearing just after the first rains' For example, *Scilla hyacinthina, Drimia indica, Iphigenia indica, Iphigenia pallida* and some of the grasses. During August and December herbaceous plants show their existence maximum and floor of the forest and open area also becomes green and forests look delightful. After the rainy season the herbaceous plants start drying and colour of the green carpet on the ground changes to pale brown. In the month of August-October herbs seen are *Alysicarpus* species, *Chlorophytum tuberosum, Chlorophytum laxum, Crotonaria* species, *Cassia pumila, Borreria verticillata, Aristida depressa, Fimbriostylis ferruginea, F. dichotoma, F. tenera, Iseilema antephoroides, Heteropogon contortus, Kyllinga triceps, Lavandula bipinnata, Polygala chinensis, Impatiens balsamina, Alysicarpus vaginalis, Ageratum conyzoides, Enicostema hyssopifolium, Polycarpea corymbosa, Bibens biternata, Sida species, Celosia argentea, Setaria glauca, Trichodesma amplexicaule, Aristida adscensionis, Echinochloa colonum, Eragrostis tenella* etc.

The vascular cryptogams are very few and represented by *Actiniopteris radiata, Cheilanthes farinosa, Adiantum caudatum* etc.

(2) Scrub forests

In the areas of rivulets and streams and some plain areas, there are savannah formations and area is covered with open grass lands with few scattered shrubs and trees.

Trees in such areas are *Dolichandrone salcata, Acacia nilotica subsp. indica, Ziziphus mauritiana, Acacia senegal, Balanites aegyptiaca, Capparis*

decidua, *Dicrostachys cinerea*, *Mimosa hamata* etc. The typical members of scrub forests are shrubs. Most common among shrubs are *Canthium parviflorum*, *Morinda tomentosa*, *Cassia auriculata*, *Ziziphus oenoplia* and *Z. nummularia*. In addition, some members typical of deciduous forests like *Diospyros melanoxylon*, *Butea monosperma*, *Bombax ceiba*, *Tectona grandis* etc. are found in the scrub forest.

Herbaceous species are abundant during August-October and very few during summer i.e. March-May.

The grasslands

As the rains commence the ground is covered by several grasses interspersed with other herbaceous species. After few summer showers in May and June, few bulbous or cormatus ephemerals like *Iphigenia indica*, *Scilla hyacinthina*, *Drimia indica*, *Crinum defixum* etc. come in flowers, some of them even before the leaves appear. Herbaceous species found in this area show maximum flowering in the month of August to October. The principle herbaceous species of such grasslands include *Alysicarpus tetragonolobus*, *A. rugosus*, *Borreria articulata*, *Boerhavia diffusa*, *Apluda mutica*, *Blepharis repens*, *Bothriochloa pertusa*, *Arthraxon prionodes*, *Cassia pumila*, *Cyanotis fasciculata*, *Desmodium triflorum*, *Digitaria* spp., *Cyperus* species, *Cyanotis tuberosa*, *Glossocardia bosvallea*, *Tridax procumbens*, *Tephrosia purpurea*, *Melanocenthris jaquemontii*, *Lophopogon tridentatus*, *Iseilema antephoroides*, *Sehima nervosum*, *Trichodesma amplexicaule*, *Lagascea mollis*, *Zornia diphylla*, *Urochloa panicoides*, *Striga gesnerioides*, *Sopubia delphinifolia* etc.

There are some tall grasses which form the patches or scattered here and there. These include *Cymbopogon martinii*, *Chrysopogon fulvus*, *Themeda quadrivalvis*, *Heteropogon triticeus*.

In addition to these main types of vegetation there are certain characteristic association which are as follows :—

(1) Vegetation of ponds and ditches

Most of the ditches and temporary ponds are filled up with water during monsoon. Around these ponds, herbs and grasses start appearing by the beginning of monsoon. The herbs include *Alternanthera sessilis*, *Caesulia axillaris*, *Echinochloa colonum*, *Aeschynomene indica*, *Urochloa panicoides*, *Marsilea minuta*, *Fimbristylis ovata*, *Hygrophila auriculata*, *Ammannia baccifera*, *Ageratum conyzoides* etc. There are few floating aquatics which include *Eichhornia crassipes*, *Nelumbo nucifera*, *Nymphaoides cristatum* etc. There are few submerged aquatics like *Vallisneria spiralis* and *Ceratophyllum demersum*.

After the monsoon is over pools start drying up because of rise in temperature. Species like *Commelina benghalensis*, *C. forskalaei* make their first appearance on the wet mud. Afterwards species other than hydrophytes like *Glinus lotoides*, *Heliotropium supium* *Chrozophora prostrata*, *Polygonum plebejum*, *Cyathocline purpurea*, *Merremia prostrata*, *Caesulia axillaris* grow on dry mud.

(ii) Vegetation along river and stream banks

The river beds are moist alluvial or sandy but at some places they are stony or rocky. The rivers, rivulets and streams are flooded during monsoon only and remain dry for major part of the year.

In the stony, rocky river beds some of the common plants are *Cryptocoryne retrospiralis*, *Homonoia riparia*, *Crinum defixum*, *Tamarix ericoides*, *Vitex negundo* etc. Along the banks of rivers, the trees generally seen are *Pongamia pinnata*, *Syzygium cumini*, *Acacia nilotica* subsp. *indica* and *Terminalia arjuna* etc. some of the shrubs grow there are *Vitex negundo*, *Kirganelia reticulata*, *Clerodendrum phlomidis* and *Woodfordia fruticosa*.

During monsoon, in the beds of rivers and rivulets herbaceous species found are *Eclipta prostrata*, *Alysicarpus bupleurifolius*, *Cyperus* spp., *Alternanthera sessilis*, *Alysicarpus tetragonolobus*, *Paspalidium flavidum*, *Hygrophila auriculata*, *Echinochloa colonum* etc.

(iii) Waste-land flora

The plants common in waste-land around villages are *Achyranthes aspera*, *Alternanthera pungens*, *Boerhavia diffusa*, *Amaranthus spinosus*, *A. tricolor*, *A. viridis*, *Ageratum conyzoides*, *Lagascea mollis*, *Abutilon indicum*, *Setaria tomentosa*, *Cassia sophera*, *Gomphrena celosioides*, *Tephrosia hirta*, *Tridax procumbens*, *Tribulus terrestris*, *Datura metel*.

The plants found common in the waste-land along roadsides are *Acanthospermum hispidum*, *Cynodon dactylon*, *Baliospermum montanum*, *Heteropogon contortus*, *Kyllinga triceps*, *Cleome viscosa*, *Eragrostiella brachyphylla*, *Argimone mexicana*, *Tridax procumbens*, *Aristida* spp., *Triumfetta rotundifolia*, *Iseilema anthephoroides*, *Eleusine indica*, *Euphorbia hirta*, *Xanthium strumarium*, *Calotropis procera* etc.

In addition salai forest (*Boswellia serrata*) covers extensive part of Narnala fort area. The Babul forests are found in scattered blocks along river nala banks. These are formed of *Acacia nilotica* subsp. *indica* and *A. nilotica* subsp. *vediana*.

FLORISTIC ANALYSIS

The present work enumerates 651 species belong to 390 genera and 96 families of flowering plants, ferns and other pteridophytes. It also includes 12 varieties and four subspecies belonging to these species.

TABLE No. 1

List of families in Akola district with their respective genera, species, subspecies and varieties.

Families	Genera	Species	subspecies	varieties
1. RANUNCULACEAE	1	1	—	—
2. ANNONACEAE	1	1	—	—
3. MENISPERMACEAE	3	3	—	—
4. NYMPHAEACEAE	1	1	—	—
5. PAPAVERACEAE	1	1	—	—
6. FUMARIAEAE	1	1	—	—
7. BRASSICACEAE	3	3	—	—
8. CAPPARACEAE	1	4	—	—
9. CLEOMACEAE	1	2	—	—
10. COCHLOSPERMACEAE	1	1	—	—
11. FLACOURTIACEAE	2	2	—	—
12. POLYGALACEAE	1	2	—	—
13. CARYOPHYLLACEAE	3	3	—	—
14. PORTULACACEAE	1	—	—	—
15. ELATINACEAE	1	1	—	—
16. MALVACEAE	7	10	1	—
17. BOMBACACEAE	1	1	—	—
18. STERCULIACEAE	4	5	—	—
19. TILIACEAE	3	10	—	—
20. LINACEAE	1	2	—	—
21. MALPIGHIACEAE	1	1	—	—
22. ZYGOHYLLACEAE	1	1	—	—
23. OXALIDACEAE	1	1	—	—
24. BALSAMINACEAE	1	1	—	—
25. RUTACEAE	3	3	—	—
26. SIMAROUBACEAE	1	1	—	—
27. BURSERACEAE	1	1	—	—
28. CELASTRACEAE	3	3	—	—
29. MELIACEAE	1	1	—	—
30. RHAMNACEAE	2	4	—	—
31. VITACEAE	3	4	—	—

(x)

Families	Genera	species	subspecies	varieties
32. LEEACEAE	1	1	—	—
33. SAPINDACEAE	2	2	—	—
34. ANACARDIACEAE	3	3	—	—
35. MORINGACEAE	1	2	—	—
36. FABAEE	29	62	1	2
37. CAESALPIN-ACEAE	7	15	—	—
38. MIMOSACEAE	6	13	1	—
39. COMBRETACEAE	3	6	—	—
40. MYRTACEAE	1	—	—	—
41. LECYTHIDACEAE	1	1	—	—
42. LYTHRACEAE	5	7	—	1
43. CUCURBITACEAE	8	9	—	—
44. MOLLUGINACEAE	3	4	—	—
45. APIACEAE	3	3	—	—
46. RUBIACEAE	11	17	—	—
47. ASTERACEAE	31	38	—	—
48. PRIMULACEAE	1	—	—	—
49. SAPOTACEAE	—	—	—	—
50. EBENACEAE	1	1	—	—
51. OLEACEAE	2	2	—	—
52. APOCYNACEAE	1	2	—	—
53. ASCLEPIADACEAE	7	9	—	2
54. PERIPLOCACEAE	3	3	—	—
55. GENTIANACEAE	6	7	—	—
56. BORAGINACEAE	5	11	—	—
57. CONVOLVULACEAE	6	17	—	—
58. CUSCUTACEAE	1	2	—	—
59. SOLANACEAE	3	9	—	—
60. SCROPHULARIACEAE	12	17	—	—
61. BIGNONIACEAE	1	1	—	—
62. PEDALIACEAE	1	2	—	—
63. MARTYNIACEAE	1	1	—	—
64. ACANTHACEAE	14	26	—	—
65. VERBENACEAE	6	8	—	1
66. LAMIACEAE	13	21	—	—
67. NYCTAGINACEAE	1	2	—	—
68. AMARANTHACEAE	9	16	1	3
69. CHENOPODIACEAE	2	2	—	—
70. POLYGONACEAE	2	4	—	1
71. ARISTOLOCHIACEAE	1	1	—	—
72. SANTALACEAE	1	1	—	—

Families	Genera	species	subspecies	varieties
73. LORANTHACEAE	3	3	—	—
74. EUPHORBIACEAE	14	28	—	—
75. ULMACEAE	2	2	—	—
76. MORACEAE	1	6	—	—
77. CANNABINACEAE	1	1	—	—
78. CERATOPHYLLACEAE	1	1	—	—
79. HYDROCHARITACEAE	2	2	—	—
80. ORCHIDACEAE	3	7	—	—
81. ZINGIBERACEAE	1	1	—	—
82. AMARYLLIDACEAE	3	3	—	—
83. AGAVACEAE	1	1	—	—
84. DIOSCOREACEAE	1	2	—	—
85. LILIACEAE	9	15	—	—
86. COMMELINACEAE	4	13	—	—
87. TYPHACEAE	1	1	—	—
88. ARACEAE	3	3	—	—
89. POTAMOGETONACEAE	1	1	—	—
90. ERIOCAULACEAE	1	1	—	—
91. CYPERACEAE	12	28	—	—
92. POACEAE	49	86	—	2

PTERIDOPHYTES

93. MARSILIACEAE	1	1	—	—
94. OPHIOGLOSSACEAE	1	6	—	—
95. ADIANTACEAE	2	3	—	—
96. PTERIDACEAE	1	1	—	—

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Table No. 1 gives the familywise list of the genera, species, subspecies and varieties. It is evident from this table that Leguminosae (*sensu lato*) and Poaceae are the largest families amongst the Dicotyledons and Monocotyledons respectively. Leguminosae (*sensu lato*) is represented by 12 genera and 90 species whereas 17 families are represented by a single genus each and 32 families by a single species ea h. There are 28 families having minimum five species each. Following are the ten dominant families in this district with genera/species in parenthesis. 1. Poaceae (49/86), 2. Fabaceae (29/62), 3. Asteraceae (31/38), 4. Euphorbiaceae (14/28), 5. Cyperaceae (12/28), 6. Acanthaceae (14/26), 7. Lamiaceae (13/21), 8. Scrophulariaceae (12/17), 9. Rubiaceae (11/17), and 10. Convolvulaceae (6/17).

The following table shows the total number of families, genera and species in the district.

	Dicot		Monocot		Pteridophytes		Total
	No.	%	No.	%	No.	%	
Families	78	81.2	14	14.5	4	4.2	96
Genera	294	75.4	91	23.3	5	1.3	390
species	477	73.3	163	25.0	11	1.6	651

During botanical explorations of the district, few plants were recorded for the first time from Maharashtra. These include *Vicia hirsuta*, *Ipomoea petaloidea*, *Datura ferox*, *Alectra thompsoni*, *Allmania nodiflora* var. *dichotoma*, *Pancratium longiflorum*, *Ophioglossum lucitanicum* and *Ophioglossum petiolatum*. Only one plant *Alectra parasitica* A. Rich has been found to be new record for India.

PLANTS OF MEDICINAL, ECONOMIC AND HORTICULTURAL IMPORTANCE

A large number of plants collected from this district have either medicinal or economic use. Some of the exotic plants which now naturalised in India have also grown in gardens as ornamental plants. Here about 52 species belonging to the 33 families have been enumerated and arranged familywise in order of Bentham & Hooker's system of classification.

ANNONACEAE

***Annona squamosa* (L.) Diels.**—A native of South America and West Indies has been cultivated for sweet edible fruits. It grows as an escape. The powder of seeds and leaves used as insecticides.

MENISPERMACEAE

***Cocculus hirsutus* (L.) Diels.**—Pest of powdered leaves has cooling effect on gonorrhoea and eczema. Roots used as laxative demulcent.

***Tinospora cordifolia* (Willd.) Miers**—Starch from roots and stem used in diarrhoea and dysentery. Dried stem and bark is used as tonic and aphrodisiac.

PAPAVERACEAE

***Argemone mexicana* L.** — Seeds are used in semi drying oils useful as an illuminant and lubricant.

BRASICACEAE

Raphanus sativus L.—Growing as an escape and mainly cultivated for vegetable.

MALVACEAE

Hibiscus cannabinus L.—Used as a vegetable. The fibres from the stem are used for making ropes, cartage and paper pulp.

Kydia calycina Roxb.—A small ornamental tree. The bark fibre is used for cartage and ropes and the mucilaginous substance from the stem is used for clarifying sugar.

LINACEAE

Linum usitatissimum L.—Oil from the seeds is used in making paints, varnishes, soft soap and printing ink.

RUTACEAE

Limonia acidissima L.—Fruits are edible and the gum is obtained from the stem and branches.

Aegle marmelos (L.) Corr.—Ripe fruits are edible and unripe fruits are used as astringent and also in the treatment of diarrhoea.

CELASTRACEAE

Celastrus paniculatus Willd.—Leaves are used as an antidote for opium poisoning.

RHAMNACEAE

Ziziphus mauritiana Lamk. & **Z. oenoplea** (L.) Miller—The fruits are edible. The bark is used for tanning.

SAPINDACEAE

Sapindus laurifolius Vahl.—The fruits of plant are used for washing woolen cloths and as a hair shampoo.

ANACARDIACEAE

Buchanania lanzen Spreng.—The bark is used for tanning. The seeds are edible and carry a great market value. The gum obtained from the stem is used for printing cloths and dyeing.

Semecarpus anacardium L.f.—The black resin obtained from the seeds is used as marking ink for cloths. The seed is used as the protection from white ants and for floor dressing. The nuts are also used for tanning.

MORINGACEAE

Moringa oleifera Lamk.—The green fruits are used as vegetable and the oil obtained from the seeds is used medicinally in acute rheumatism.

FABACEAE

Abrus precatorius L.—Decoction of leaves and roots useful for cough and cold.

Butea monosperma Lamk.—Flowers are the source of a yellow dye and leaves are woven and used as a substitute for plates.

Clitoria ternatea L.—Roots are used as purgative and diuretic. Blue flowers yield dye.

Crotalaria retusa L.—The fibre obtained from the stem and bark is used for cartage and canvas.

Dalbergia sissoo Roxb.—The wood being very hard and heavy is used for furniture, carving etc.

Derris indica (Lamk.) Bennett.—Leaf juice is used for dyspepsia and diarrhoea and for treatment of leprosy. Stem bark for treatment of bleeding piles. Flowers in diabetes and seed oil in soap making and in the treatment of rheumatism.

Indigofera tinctoria L.—Used in the preparation of indigo (blue dye).

Psoralea corylifolia L.—Seeds yield oleo-resinous substance which is used in the treatment of leucoderma and leprosy.

CAESALPINIACEAE

Cassia fistula L.—A tree cultivated as an ornamental. The pulp of the fruit is used as a purgative.

Tamarindus indica L.—Tree grown as an avenue. The fruits are edible and are also used medicinally as laxatives and carminative. The unripe fruits yield tartaric acid. The bark and leaves are used for tanning

MIMOSACEAE

Acacia nilotica (L.) Del.—Pods are used as a fodder. The barks used in tanning and the gum obtained from the bark is used in confectionery.

COMBRETACEAE

Terminalia bellirica (Gaertn.) Roxb.—Fruits are used in indigestion and diarrhoea, as a brain tonic and for soothing eyes. It is one of the ingredients of 'Triphala'.

T. chebula Retz.—Fruits are used as mild laxative, stomachic tonic alternative for tanning. It is also one of the ingredients of 'Triphala'.

MYRTACEAE

Syzygium cumini (L.) Skeels—Fruits are edible.

LYTHRACEAE

Woodfordia fruticosa (L.) Kurz.—Drug consists of dried fruits, flower buds and broken inflorescence used in haemorrhages & seminal weakness. Leaves and bark yield tannin. Flowers yield red dye.

CUCURBITACEAE

Momordica charantia L.—Fruits are edible and eaten as vegetables.

Momordica dioica Roxb. ex Willd.—Fruits used as vegetable.

ASTERACEAE

Blumea eriantha DC.—This plant yields essential oil.

Zinnia elegans Jacq.—Used as an ornamental in gardens.

SAPOTACEAE

Madhuca longifolia (Koen.) Macbride—Bark decoction useful in curing itch, bleeding, ulcers. Flowers for tonic, expetorant and also used in liquor preparation.

PERIPLOCACEAE

Hemidesmas indicus (L.) R. Br.—Dried roots used in fever, skin diseases, loss of appetite, syphilis, rheumatism and as a blood purifier.

BORAGINACEAE

Cordia dichotoma Forsk. f.—Stem bark as an astringent, mild tonic, decoction in dyspepsia & fevers. Fruits edible, as astringent, anthelmintic, diuretic, demulcent and expectorant and also used in urinary troubles.

SOLANACEAE

Withania somnifera (L.) Dunal—Dried roots (drug) used as diuretic in sexual weakness and general weakness. Leaves used as anthelmintic & febrifuge.

SANTALACEAE

Santalum album L.—Oil from wood is used in perfumery. Wood is highly valuable.

EUPHORBIACEAE

Mallotus philipensis Muell. Arg.—Red dye obtained from the seeds, also a remedy for thread worm.

Ricinus communis L.—Seeds are the source of castor oil which is mainly used as a lubricant and as a purgative. The seed cake is used as a fertilizer.

MORACEAE

Ficus benghalensis L.—Latex applied externally in muscular pain, rheumatism and lumbago. Bark used as an astringent.

HYDROCHARITACEAE

Ottelia alismoides (L.) Pers. & **Vallisneria spiralis** L. are used for decorating tropical fish aquaria.

ZINGIBERACEAE

Cucumis longa L.—Rhizome is aromatic, stimulant tonic, carminative, antiperiodic, blood purifier and used as a condiment and as a dye stuff.

AMARYLLIDACEAE

Crinum asiaticum L.—Bulb is bitter and used as a tonic, laxative, expectorant. Roots are emetic. Leaves applied to reduce inflammations.

DIOSCOREACEAE

Dioscorea hispida Dennst.—Tubers are poisonous and used for the production of industrial starch.

LILIACEAE

Iphigenia stellata Blatt.—Seeds yield 1.5—2% colchicine a commercially important chemical.

POACEAE

Chionachne koenigii (Spreng.) Thw.—The nuts are used for rosaries, beds and ornamental purpose.

Coix lacryma-jobi L.—Fruits decoction used for catarrhal. Seeds used for rosaries and necklaces.

Cymbopogon martinii (Roxb.) Watson—Yield rosha oil which is used in lumbago, baldness, skin diseases and bilious complaints. Plant is also used as mosquito repellent.

INTERESTING PLANTS OF BOTANICAL VALUE

During botanical exploration of Akola district from August 1977 to December, 1979 some botanically noteworthy plants were found. They have botanical significance because some of them are reported for the first time from Maharashtra. Only one plant i.e. *Alectra parasitica* A. Rich. var. *parasitica* proper has been reported for the first time from India.

Teretologically interesting specimen of *Ophioglossum gramineum* was collected from the district which has a bifurcated spike.

Following are the plants which form new records for the State of Maharashtra.

OPHIOGLOSSACEAE

***Ophioglossum lucitanicum* L.**—A rare plant was collected from Medshi (S. Y. Kamble, 154098) and is new record for the State. It is 2.5-5 cm tall with elliptic-lanceolate tropophylls and 0.6-1 cm long strobilus on 2-3 cm long stalk.

***O. petiolatum* Hook.**—This is rhizomatous herb with lanceolate to ovate-lanceolate tropophylls. Strobilus upto 1.5 cm long on 2-3 cm long stalk. It was collected from Morna which occasionally grows on road side. This also forms new record for the State.

FABACEAE

***Vicia hirsuta* (L.) S. F. Gray**—A slender trailing herb with tendrilar leaves. Flowers blue in capitate racemes; pods flat upto 1 cm long. It was collected from cultivated fields near Patur. It also forms new record for the State.

CONVOLVULACEAE

***Ipomoea petaloidea* Choisy**—A shrubby climber with ovate elliptic, shallowly cordate leaves. Flowers yellow in 1-many flowered cymes. It is rare plant and was collected from Morna (S. Y. Kamble, 152761). It is also new record for the State of Maharashtra.

SOLANACEAE

***Datura ferox* L.** An undershrub upto 1.5 m tall, found it wast places near village. Leaves angular sinuate, glabrous; flowers white, solitary, axillary, capsules ovoid 5-8 cm long, with thick conical spines.

Rate at Medshi (S. Y. Kamble, 150101) and forms new record for Maharashtra.

AMARANTHACEAE

Allmania nodiflora (L.) R. Br. var. **dichotoma** (Roth) J. Hooker — A branched diffuse herb upto 50 cm tall with alternate, shortly petioled, broadly elliptic, glabrous leaves. Flowers in globose or ovoid, sessile or peduncled, axillary or terminal heads.

It was collected from Medshi and Palodi growing occasionally along road sides. This also forms new record for the State.

AMARYLLIDACEAE

Pancratium longiflorum Roxb. —A scapigerous herb with tunicated bulbs and narrow, linear lanceolate leaves. Scape 10-15 cm long, shorter than the leaves. Flowers white with petaloid membranous cup. It is new record for the State which grows occasionally at Kalamata and Narnala fort.

LILIACEAE

Iphigenia magnifica Ansari et Rolla Rao-An erect herb upto 60 cm tall with linear leaves and dark purple flowers. This species occurs frequently in Chikkalwal, Karnja and Morna region. Recently this was described as new species from Dhulia district and our collection confirms its extended distribution towards the east of Dhulia ie. Akola district.

SCROPHULARIACEAE

Alectra thomsoni Hook. f. —An erect, somewhat branched, parasitic herb found under *Barleria* sp. This is rare at Shahanur (S. Y. Kamble, 150497) and forms new record for the State.

A. parasitica A. Rich. Var. **parasitica** proper —An erect unbranched herb, upto 25 cm tall, found under *Vitex negundo* with dark purple stem and bright orange-red rhizome. Leaves scaly. Flowers yellow and filaments glabrous.

Found occasionally under *Vitex negundo* as a root parasite at Shahanur and Kalamata.

ENDANGERED PLANTS

The majority of the best forests of the district are restricted to the hilly regions and are irregular strips of which Narnala reserve enclaves a block of 7.58 sq. miles (19.42 sq. km.) of the district. Many of the plants collected from Narnala reserve show restricted distribution because these plants were not collected from other parts of the district. These plants not only show restricted distribution but are also rare and appears to be endangered because some plants such as *Alectra parasitica* and *A. thomsoni* being medicinally useful, are invariably collected by the tribals and other local people. All such rare and endangered species have been listed below :

Clematis triloba Heyne ex Roth—Occasionally found growing on the fort wall, Narnala.

Fumaria indica (Haussk.) Pugsley, **Vaccaria pyramidata** Medic. and **Spergula arvensis** L.—are rare in cultivated fields at Akot.

Casearia graveolans Dalz.—very few plants were noticed at Narnala fort only.

Melochia corchorifolia L.—Rare in the marsh places near Rhishi lake, Karanja.

Oagenia oogenesis Roxb.—Rare at Morna.

Ipomoea petaloidea Choisy—Rare at Mahan.

Euphorbia perbracteata Gage and **Aspodelus tenuifolius** Cav. are rare at Patur. Only few plants of **Dipacadi ursulae** Blatt. and **Urginia indica** (Roxb.) Kunth, were collected from Khaperdari.

Following are the few more plants collected from Narnala fort which are rare and appears to be endangered.

Linum mysorensse L., **Crotalaria filipes** Benth., **Rotala occultiflora** Kochne., **Sesili diffusum** (Roxb. ex Em.) Sant., **Pimpinella candolleana** W. & A., **Habenaria gibsonii** Hook. f., **H. longicorniculata** Graham., **H. multiflora** Sedgew., **Naravelia aragoana** Gaud., **Chloris dolichostachya** Lagasca., **Ophioglossum lucitanicum** L. and **O. petiolatum** Hook.

CLASSIFICATION OF THE NATURAL ORDERS OF FLOWERING PLANTS REPRESENTED IN THE FLORA OF AKOLA

The sequence of Natural Orders in this work is adopted from Bentham and Hooker's 'Genera Plantarum' (1862-1883) with some modifications.

KEY TO THE FAMILIES

1. Plants with 2 cotyledons; flowers usually 4-5 merous; venation usually reticulate

2. Perianth differentiated into calyx and corolla :

3. Petals free; flowers dichlamydous :

4. Calyx of distinct sepals; ovary superior or immersed in the disc :

5. Torus small or elongated

6. Stamens few (not more than 10) :

7. Carpels free; trailing shrubs

8. Carpels united; herbs, shrubs or trees :

9. Flowers zygomorphic :

10. Sepals 5, two inner enlarged, petaloid, stamens 8, filaments united for their lower half, placentation axile

11. Sepals 2, scale like, not enlarged, stamens 4 or 6 in 2 bundles, placentation parietal

12. Flowers actinomorphic :

13. Placentation parietal :

14. Petals cruciform, stamens 6, tetradyamous; disc in the form of four glands opposite sepals

15. Petals not cruciform; stamens if 6, not tetradyamous; disc never in the form of glands

16. Placentation free-central :

17. Sepals 2; petals 4-5; leaves fleshy

MENISPERMACEAE

POLYGALACEAE

FUMARIACEAE

BRASSICACEAE
(Cruciferae)

CAPPARACEAE

PORTULACACEAE

12. Sepals & petals 5 each,
leaves not fleshy
- CARYOPHYLLACEAE
10. Placentation axile or sometimes basal
11. Leaves opposite; sepals imbricate; plants not stellately hairy
- ELATINACEAE
13. Leaves alternate; sepals valvate; plants stellately hairy
- STERCULIACEAE
14. Stamens monadelphous
- TILIACEAE
14. Stamens free
6. Stamens numerous (more than 15) :
15. Gynoecium apocarpous, usually many :
16. Plants aquatic
- NYMPHAEACEAE
16. Plants terrestrial :
17. Herbs; if woody twiners, style long, persistent, feathery; leaves simple & variously lobed
- RANUNCULACEAE
17. Trees or shrubs, if climbing, style not as above; leaves simple, never lobed
- ANNONACEAE
15. Gynoecium syncarpous, carpels 2 or more :
18. Placentation free-central or basal central
- PORTULACACEAE
18. Placentation usually axile sometimes basal :
19. Stamens free, arising from a raised or contracted torus, 2-celled
- TILIACEAE
19. Stamens monadelphous; anthers 1-2-celled :
20. Anthers one celled :
21. Mostly herbs or shrubs; fruit a dehiscent capsule or of indehiscent cocci, carpels 5-many; pollen rough
- MALVACEAE
21. Trees; fruit a capsule or woody berry; carpels 2-5; pollen smooth
- BOMBACACEAE
20. Anthers two celled
- STERCULIACEAE
18. Placentation parietal, sometimes spuriously 2 or more celled by prolongation of the placentas :
22. Ovary raised on a gynophore
- CAPPARACEAE
22. Ovary sessile :
23. Plants usually with yellow or milky sap; flowers bright-yellow or red; petals present :

24. Trees with palmately or digitately divided leaves; sepals 5 .. COCHLOSPERMACEAE
24. Herbs; leaves not as above; sepals 2-3 .. PAPAVERACEAE
23. Plants without sap; petals absent; flowers pale greenish-yellow .. PLACOURTIACEAE
5. Torus thickened or expanded into fleshy disc :
25. Placentation parietal; fruit a 3-valved capsule; seeds winged MORINGACEAE
25. Placentation axile or axile-pendulous; fruit not elongated; seeds not winged :
26. Flowers zygomorphic :
27. Flowers spurred; anther syngenesious; leaves simple .. BALSAMINACEAE
27. Flowers not spurred; anther free; leaves ternately compound .. SAPINDACEAE
26. Flowers actinomorphic :
28. Ovary syncarpous with 1-5 free styles :
29. Plants usually woody, twining or sarmentose; fruits winged .. MALPIGHIACEAE
29. Plants not twining or sarmentose; fruits not winged :
30. Leaves simple .. LINACEAE
30. Leaves compound .. OXALIDACEAE
28. Ovary syncarpous but styles more or less connate or solitary :
31. Plants usually climbing or twining :
32. Inflorescence usually leaf-opposed, often tendrillar .. VITACEAE
32. Inflorescence not as above, plants tendrillar :
33. Fruit indehiscent, winged or not; seeds exarillate .. RHAMNACEAE
33. Fruit a dehiscent capsule, not winged; seeds arillate .. CELASTRACEAE
31. Plants usually herbs, shrubs or trees; if twining, plants armed :
34. Leaves aromatic, gland-dotted .. RUTACEAE
34. Leaves not gland dotted :
35. Stamens monadelphous .. MELIACEAE
35. Stamens free :
36. Plants usually with acrid resinous juice .. ANACARDIACEAE

45. Flowers zygomorphic; not in heads : ..
46. Flowers papilionaceous; odd petal adaxial .. FABACEAE
46. Flowers not papilionaceous; odd petal not adaxial .. CAESALPINIACEAE
44. Leaves simple; fruit a capsule, achene, drupe, berry, nut or schizocarpic : ..
47. Plants always tendril-bearing .. CUCURBITACEAE
47. Plants without tendrils : ..
48. Stamens usually indefinite : ..
49. Calyx free from the ovary (ie. ovary superior) .. LYTHRACEAE
49. Calyx adnate to the ovary (ie. ovary inferior) : ..
50. Leaves opposite, glandular-punctate; with intramarginal nerves .. MYRTACEAE
50. Leaves alternate, without intramarginal nerves and not glandular punctate .. LECYTHIDIACEAE
48. Stamens usually definite not more than 10 : ..
51. Ovary inferior or half inferior : ..
52. Flowers in simple or compound umbels; foliage aromatic; fruit of 2 indehiscent mericarps .. APIACEAE
52. Flowers axillary, solitary or in racemes, spikes or cymes : ..
53. Herbs .. ONAGRACEAE
53. Trees, shrubs or woody climbers .. COMBRETACEAE
51. Ovary superior ..
54. Petals absent; seeds reniform, variously striate, rugulose .. MOLLUGENACEAE
54. Petals usually present, seeds not reniform, smooth .. LYTHRACEAE
3. Petals united
55. Ovary inferior or half inferior : ..
56. Inflorescence on involucrate head; calyx absent or modified; anthers united; ovary 1-celled .. ASTERACEAE
56. Inflorescence various but not involucrate head; calyx present; anthers free or connivent in a ring around the style; ovary 2 or more celled .. RUBIACEAE
55. Ovary superior : ..
57. Leafless, non-green, root or stem parasite : ..

58. Stem parasites	CUSCUTACEAE
58. Root parasites	SCROPHULARIACEAE
57. Plants green, not parasites :	
59. Carpels more than 2 :	
60. Flowers usually unisexual; stamens inserted on the receptacle	EBENACEAE
60. Flowers bisexual; stamens inserted on the corolla	SAPOTACEAE
59. Carpels 2 (rarely 3-4 and then plants aquatic) :	
61. Plants with milky latex or greenish-yellow sap :	
62. Pollen masses not agglutinated into pollinia; style 1; anthers sagittate; stigma dumbel-shaped	APOCYNACEAE
62. Pollen masses agglutinated into pollinia; style usually 2; anther and stigma not as above	
63. Filaments united; anthers with horny wing	ASCLEPIADACEAE
63. Filaments free; anthers without horny wings	PERIPLOCACEAE
61. Plants without milky-latex or greenish-yellow sap	
64. Flowers actinomorphic :	
65. Inflorescence usually secund or one sided cymes	BORAGINACEAE
65. Inflorescence not as above :	
66. Leaves usually alternate :	
67. Plants erect or diffuse but not twining; ovary 2-celled; ovules many in each loculus	SOLANACEAE
67. Plants twining, at times trailing, diffuse or erect; ovary 2-celled; ovules 2 in each loculus or 4 celled with one ovule in each loculus	CONVOLVULACEAE
66. Leaves opposite or atleast lower ones opposite :	
68. Stamens 2	OLEACEAE
68. Stamens 4-5 :	

69. Ovary 1-celled
70. Placenta free
central; stamens
opposite the petals
70. Placenta
parietal; stamens
alternate with petals
69. Ovary 2-celled:
placentation axile
64. Flowers zygomorphic
71. Leaves usually compound; if simple seeds
winged; fruit elongated ..
71. Leaves usually simple; seeds not winged; fruit
not elongated
72. Flowers with conspicuous bracts and bracteoles;
bracts seldom absent;
stem often with swollen joints ..
72. Flowers without bracts and bracteoles or
bracts & bracteoles inconspicuous; stem
not nodose :
73. Flowers with extra floral glands at base
of pedicels :
74. Placenta axile; fruit a capsule
or indehiscent and spinous ..
74. Placenta parietal; fruit with
hooked prongs ..
73. Flowers without extra floral glands at
base of pedicels :
75. Ovules many in each loculus ..
75. Ovules 1-2 in each loculus :
76. Inflorescence a verticillaster;
style gynobasic plants aromatic ..
76. Inflorescence not as above;
style terminal plants not aromatic ..
2. Perianth generally calycine, single or absent :
77. Ovary superior :
78. Flowers bisexual :
79. Leaves with ochreate stipules ..
79. Leaves exstipulate :
80. Perianth petaloid ..
- PRIMULACEAE
- GENTIANACEAE
- SCROPHULARIACEAE
- BIGNONIACEAE
- ACANTHACEAE
- "
- PEDALIACEAE
- MARTYNIACEA
- SCROPHULARIACEAE
- LAMIACEAE
- VERBENACEAE
- POLYGONACEAE
- NYCTAGINACEA

80. Perianth not petaloid; if petaloid bracts and bracteoles scarious :
81. Bracts & bracteoles absent, or if present, plants herbaceous
- CHENOPodiaceae
81. Bracts & bracteoles scarious
- AMARANTHACEAE
78. Flowers unisexual or polygamous :
82. Trees or shrubs
83. Ovary 3-celled
- EUPHORBIACEAE
83. Ovary 1-celled :
84. Plants with milky juice; anthers inflexed in bud; leaves not oblique at base; fruit commonly multiple
- MORACEAE
84. Plants with watery sap; anther erect in bud; leaves oblique at base; fruit a samara, nut or drupe
- ULMACEAE
82. Herbs
85. Aquatics; leaves verticillate, dichotomously cleft into filiform minutely toothed lobes; stamens 20-30 with 2-toothed or truncate connective
- CERATOPHYLLACEAE
85. Terrestrials; leaves not as above; stamens definite, if indefinite connective not as above :
86. Ovary 3-celled
- EUPHORBIACEAE
86. Ovary 1-celled :
87. Leaves exstipulate
- AMARANTHACEAE
87. Leaves stipulate
- CANNABACEAE
77. Ovary inferior :
88. Parasites, shrubs or trees; flowers actinomorphic; fruit a drupe or berry :
89. Root parasites; flowers unisexual; disc epigynous or perigynous
- SANTALACEAE
89. Stem parasites; twiggy shrubs; flowers bisexual or unisexual; disc absent
- LORANTHACEAE
88. Plants not parasitic, trailing or twining, perennial herbs or shrubs; flowers zygomorphic; fruit a capsule
- ARISTOLOCHIACEAE
1. Plants with one cotyledon; flowers usually trimerous; venation usually parallel :
90. Perianth present, usually of 2 series, atleast the inner one petaloid, not of bristles or scales :
91. Ovary superior :

92. Plants aquatic .. POTAMOGETONACEAE
92. Plants terrestrial :
93. Plants climbing or twining .. LILIACEAE
93. Plants not as above :
94. Flowers in terminal, solitary compact head; leaves radical .. ERIOCaulaceae
94. Flowers and leaves not as above :
95. Plants usually xerophytic; leaves mostly fibrous and thick in a dense tuft .. AGAVACEAE
95. Plants not as above :
96. Outer segment of perianth calyx like and different from the inner corolla segment.. COMBELLINACEAE
96. Outer and inner segment of perianth essentially alike, petaloid .. LILIACEAE
91. Ovary inferior :
97. Plants usually xerophytic; leaves mostly fibrous & thick or fleshy in dense tuft; flowers in large panicles .. AGAVACEAE
97. Plants and inflorescence not as above :
98. Flowers regular (rarely irregular) and then stamens 3 or more; no petaloid staminodes ..
99. Submerged herbs .. HYDROCHARITACEAE
99. Terrestrials :
100. Plants twining; flowers unisexual; capsule winged or not, but seeds winged; leaves reticulately veined .. DIOSCOREACEAE
100. Plants not twining; flowers bisexual; fruit and seeds not winged; leaves parallel veined .. AMARYLLIDACEAE
98. Flowers zygomorphic; fertile stamens 1-2, at times only half anther fertile the other becoming petaloid staminodes and more conspicuous than the perianth:
101. Corolla spurred; ovary spirally twisted; gynostemium typical; pollinia present; epiphytic or terrestrial plants .. ORCHIDACEAE
101. Corolla not spurred; ovary not twisted; gynostemium absent; pollinia absent; plants terrestrial .. ZINGIBERACEAE

90. Perianth none, at least in male flowers (if the flowers unisexual) or rudimentary or of scales or bristles, not petaloid :

102. Perianth represented by scales or bristles; if perianth absent, inflorescence not made of spikelets; flowers not subtended by dry chaffy bracts (glume or scales) ..

ARACEAE

102. Perianth O; flowers subtended by dry, chaffy usually imbricating bracts (glumes); inflorescence various, of spikelets :

103. Stem, trigonous, mostly solid; leaves not ligulate; leaf sheaths not split; fruit a compressed or trigonous nut ..

CYPERACEAE

103. Stem mostly hollow, cylindrical or flattened; leaves ligulate; leaf sheaths split; fruit a caryopsis ..

POACEAE

SYSTEMATIC TREATMENT

RANUNCULACEAE

CLEMATIS L.

Clematis triloba Heyne ex Roth. Nov. Pl. Sp. 251. 1821; Hook. f. & Thoms. Fl. Brit. India 1 : 3. 1872; Cooke, Fl. Pres. Bombay 1 : 2. 1958 (Repr. ed.).

Climbers with sulcate stem, young branches sericeo villous; leaves trifoliate, leaflets 1-3 lobed, lamina ovate-elliptic with mucronate apex, puberulous on both sides. Flowers white, showy, 3 cm across, in axillary panicles. Achenes ovoid, upto 0.6 cm long, with feathery tail.

Fls. & Frts. : October-February.

Illus. : Gupta in Bull. Nat. Bot. Gard Lucknow, No.54. t.18. 1961.

Distrib. : Rare in open thickets and on Fort walls; Akot, Kamble 152840, BSI.

ANNONACEAE

ANNONA L.

Annona squamosa L. Sp. Pl. 537. 1753. Hook. f. Fl. Brit. India 1 : 78. 1872; Cooke, Fl. Pres. Bombay 1 : 15. 1958 (Repr. ed.).
Mar. : 'Sitaphal'.

Shrubs or small trees with grey scaly bark. Leaves oblong-lanceolate, 1.5—9.0 × 1.5—3.0 cm, glabrous. Flowers greenish-yellow, solitary or more in a short leaf opposed peduncle. Fruits fleshy, globular, cordate, syncarp; pulp sweet.

Fls. & Frts. : May-October.

Illus. : Mart. in Fl. Bras. 13 : 14. t. 5. fig. 1. 1841.

Distrib. : An escape, naturalised on hill slopes, Patur, Mahan.

MENISPERMACEAE

- 1. Woody climbers; bark corky; stems glabrous; leaves deciduous.. *Tinospora*
- 1. Herbaceous twiners; bark not corky; stem hirsute; leaves persistent :
 - 2. Leaves peltate, female flowers with foliaceous bracts; sepals & petals 4 .. *Cocculus*
 - 2. Leaves not peltate, female flowers without any bracts; sepals & petals 6 .. *Cissampelos*

CISSAMPELOS L.

Cissampelos pareira L. Sp. Pl. 1031. 1753; Hook. f. and Thoms. Fl. Brit. India 1 : 103. 1872; Cooke, Fl. Pres. Bombay 1 : 24. 1958 (Repr. ed.)

Mar. : 'Pahadvel'.

Slender shrubby climbers. Leaves peltate, 3.2—7.0 × 3.2—8.0 cm, alternate, orbicular or reniform, slightly broader than long, pubescent beneath, minutely mucronate at apex, petiolate. Flowers minute, greenish. Male flowers in axillary cymes; sepals 4. Female flowers in pendulous racemes; sepal & petal one each. Drupes subglobose, glabrescent, red.

Fls. & Frts. : August - October.

Illus. : Engler & Prantl, Pflanzenf 3 (2) : 84-85. fig. 62 and Mahesh., Illus. Fl. Delhi fig. 2. 1966.

Distrib. : Common in hedges; Akot.

COCCULUS A. P. de Candolle *nom. cons.*

Cocculus hirsutus (L.) Deils in Engl. Pflanzn. 46 : 236. 1910. *C. villosus* DC. Syst. 1 : 525. 1818; Hook. f. Fl. Brit. India 1 : 101. 1872; Cooke, Fl. Pres. Bombay 1 : 22. 1958 (Repr. ed.). *Menispermum hirsutum* L. Sp. Pl. 341. 1753. *Mar.* : 'Vasan-vel'.

Herbaceous climbers, young parts densely and softly villous. Leafblade ovate, obtuse or acute, mucronate at the apex, densely tomentose beneath. Drupelets reddish-purple, 2.0-3.0 mm across.

Fls. & Frts. : February - August.

Distrib. : Common in fields. Akot, Chikhaliwal, Karla, Medshi, Patur.

TINOSPORA Miers.

Tinospora cordifolia (Willd.) Miers ex Hook. f. & Thoms. Fl. Ind. 184. 1855. *er* 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. Mar. : *Gulvel'*

Deciduous climbing shrubs, bark grayish-white, lenticellate, grooved. Leaves membranous, cordate; petiole upto 8 cm. Racemes axillary or terminal or from the old wood. Drupes dorsally convex, ventrally flat, 0.4-0.5 cm across, deep-red, turning black on drying.

Fls. & Frts. : January - May.

Distrib. : Not very common, on hedges and on shrubs. Karla, Narnalafort, Akot.

NYMPHAEACEAE

NELUMBO Adans.

Nelumbo nucifera Gaertn. Fruct. 1 : 73. t. 19. f. 2. 1788. *Nelumbium speciosum* Willd. Sp. Pl. 2 : 1258. 1800; Hook. f. & Thoms. Fl. Brit. India 1 : 116. 1872; Fl. Pres. Bombay 1 : 28 (Repr. ed.). Mar. : *Kamal'*

Large aquatic, perennial, rhizomatous herbs with slender, creeping stems. Leaves orbicular, glaucous-green, glabrous, petiolate. Flowers 10-20 cm across, solitary, above water, white or rosy in colour. Sepals small, petals 5-14 cm long; thalamus 3-6 cm broad, fleshy.

Fls. & Frts. : July - October.

Illus. : Wealth of India, 7 : 7. Pl. 2 (Col.) & ff. 4-5. 1966.

Distrib. : Abundant in ponds. Karanja. Scarcely distributed.

PAPAVERACEAE

ARGEMONE L.

Argemone mexicana L. Sp. Pl. 508. 1753. Hook. f. and Thoms. Fl. Brit. India 1 : 117. 1872; Cooke, Fl. Pres. Bombay 1 : 27. 1958 (Repr. ed.).
Mar. : 'Pivala-dhotra'.

Prickly herbs upto 90 cm tall. Leaves caudate and radical, bluish-green, variegated white, pinnatisect, spiny on margins and veins. Flowers bright-yellow, 3-4 cm across, solitary, terminal. Capsules 2-3.5 cm long, spinous; erect. Seeds black, globose, reticulately veined.

Fls. & Frts. : Almost throughout the year.

Illus. : Wight, Illus. f. 11. 1840.

Distrib. : Weed in waste places. Karla, Manora, Medshi, Mangrulpur; Palodi.

FUMARIACEAE

FUMARIA L.

Fumaria indica (Haussk.) Pugsley in Journ. Linn. Soc. 44 : 313. 1919.
F. parviflora Wight & Arn. Prodr. 18. 1834. (non Lamk.). *F. parviflora* Lamk. var. *vallantii* auct. Pl. (non *F. vallantii* Loisel 1809); Hook. f. & Thoms. Fl. Brit. India 1 : 258. 1855; Cooke, Fl. Pres. Bombay 1 : 30. 1958 (Repr. ed.).
Mar. : 'Pitpada'.

Erect or spreading, 20-30 cm tall herbs. Leaves pinnatisect. 1-2.5 cm long, narrowly linear. Flowers pale pink, 0.5-0.6 cm long congested in 3-6 cm long, terminal racemes. Fruits round, papilose upto 2 mm across, apiculate at apex, pale yellowish-green.

Fls. & Frts. : December - February.

Illus. : Syme, Eng. Bot. 1 (ed. 3) : 113. t. 77 and Mahesh., Illus. Fl. Delhi fig. 4. 1966.

Distrib. : Found in cultivated fields and waste places. Akot.

BRASSICACEAE (Cruciferae)

1. Pods indehiscent	..	<i>Raphanus</i>
1. Pods dehiscent :		
2. Pods long and terete or compressed; replum broad	..	<i>Rorippa</i>
2. Pods short and broad.; replum narrow	..	<i>Lepidium</i>

LEPIDIUM L.

Lepidium sativum L. Sp. Pl. 649. 1753; Hook. f. & Thoms. Fl. Brit. India 1 : 159. 1872; Cooke, Fl. Pres. Bombay 1 : 37. 1958 (Repr. ed.).
Mar. : 'Haliv'.

Erect, slender herbs upto 30 cm tall. Leaves $1.5-6 \times 0.4-1$ cm, petiolate, glabrous, basal ones pinatipartite, gradually becoming entire. Flowers white, in 5-10 cm long terminal racemes; pods $0.3-0.5 \times 0.2-0.3$ cm, broadly elliptic-oblong, glabrous, compressed. Seeds minute, reddish brown.

Fls. & Frts. : January - April.

Distrib. : A weed in cultivated fields. Akot.

RAPHANUS L.

Raphanus sativus L. Sp. Pl. 669. 1753; Hook. f. & Thoms. Fl. Brit. India 1 : 166. 1872; Cooke, Fl. Pres. Bombay 1 : 37. 1958 (Repr. ed.).
Mar. : 'Mula'.

Biennial herbs, 40-70 cm tall, hispidly hairy. Leaves radical or caudine, radical ones $20-40 \times 5-8$ cm, irregularly pinnatifid, petiolate, caudine ones $2.5-7 \times 0.5-2$ cm, linear to linear-lanceolate. Racemes 10-20 cm long, terminal; seeds ellipsoid, reticulately veined, brown.

Fls. & Frts. : November - April.

Distrib. : Cultivated or as an escape. Akot.

RORIPPA Scop.

Rorippa indica (L.) Hiern, Cat. Afr. Pl. Welw. 26. 1896. *Nasturtium indicum* (L.) DC. Prodr. 1 : 139. 1824; Hook. f. & Thoms. Fl. Brit. India 1 : 134. 1872 pro parte (excl. var. *benghalense*); Cooke, Fl. Pres. Bombay 1 : 31. 1958 (Repr. ed.).

Erect, glabrous herbs upto 50 cm tall. Lower leaves petioled, pinnatifpartite with 1-4 segments on either side; upper leaves sessile, lanceolate-oblong. Flowers pedicellate, yellow, in racemes. Pods 1-1.6 cm long, linear, shortly beaked. Seeds sub-reniform, reddish-brown, glabrous.

Fls. & Frts. : January - June.

Distrib. : Common in agricultural fields and watersides of irrigational canals. Medshi, Narnalla (Akot), Palcdi.

CAPPARACEAE

- | | | |
|---|----|-----------------|
| 1. Erect or climbing shrubs; fruits berry | .. | <i>Capparis</i> |
| 1. Annual herbs; fruits capsule | .. | <i>Cleome</i> |

CAPPARIS L.

- | | | |
|---|----|---------------------|
| 1. Leafless shrubs | .. | <i>C. decidua</i> |
| 1. Leafy shrubs or trees : | | |
| 2. Fruits upto 1 cm across; inflorescence umbel | .. | <i>C. sepiaria</i> |
| 2. Fruits more than 1 cm across; inflorescence not as above : | | |
| 3. Inflorescence corymb | .. | <i>C. grandis</i> |
| 3. Inflorescence supra-axillary | .. | <i>C. zeylanica</i> |

***Capparis decidua* (Forsk.) Edgew. in Journ. Linn. Soc. 6 : 184. 1862. Jacobs in Blumea 12 (3) : 424. 1965. *Sodada decidua* Forsk. Fl. Aegypt-Arab. 81. 1775. *Capparis aphylla* Roth, Nov. Pl. Sp. 238. 1821; Hook. f. & Thomas. Fl. Brit. India 1 : 174. 1872.; Cooke, Fl. Pres. Bombay 1 : 49. 1958 (Repr. ed.). Mar. : 'Nepti'.**

Straggling glabrous shrubs 2-5 m tall, grayish green in colour, armed with straight sharp stipular spines. Leaves linear-oblong, spinous tipped, glabrous, nearly sessile. Flowers scarlet red in short corymbs. Fruits 0.8-1.5 cm across, spherical, red when ripe.

Fls. & Frts. : February - July.

Illus. : Pax in Engl. & Prantl., Pflanzenf. 3(2) : 230 & 231. fig. 139 (not of Edgew.) and Mahesh., Illus. Fl. Delhi fig. 12. 1966.

Distrib. : Common on roadsides.

***Capparis grandis* L. f. Suppl. 263. 1781. Hook. f. & Thoms. Fl. Brit. India 1 : 176. 1872; Jacobs in Blumea 12 (3) : 456. 1965; Cooke, Fl. Pres. Bombay 1 : 50. 1958 (Repr. ed.)**
Mar. : 'Panchundra'.

Large shrubs or small trees upto 10 m tall, often with longitudinally fissured yellowish-brown bark. Leaves 2.5—7 × 2—6 cm, young parts brownish tomentose becoming glabrous with age, petiolate. Flowers white, in corymbs upto 2.5 cm across. Fruits globose, rusty-brown.

Fls. & Frts. : February - June.

Distrib. : Occasional near villages. Patur, Kamble 152810.

Capparis sepiaria L. Syst. Nat. ed. 10. 2 : 1071. 1759. Hook. f. & Thoms. Fl. Brit. India 1 : 177. 1872; Jacobs in Blumea 12(3) : 489. 1965; Cooke, Fl. Pres. Bombay 1 : 51. 1958 (Repr. ed.).

Woody climbing shrubs. Leaves elliptic-ovate, glabrous, $1-1.25 \times 1-5$ cm, coriaceous, emarginate or apiculate. Flowers white, pedicellate, in axillary & terminal umbels. Fruits smooth, globose, black when ripe.

Fls. & Frts. : February - June.

Illus. : Woodr. Journ. Bomb. Nat. 11 : 123. 1897 and Mahesh., Illus. Fl. Delhi fig. 13. 1966.

Distrib. : Common on hedges. Akot, Medshi, Shegaon.

Capparis zeylanica L. Sp. Pl. (ed. 2) 720. 1762; Jacobs in Blumea 12 (3) : 505. 1965. **Capparis horrida** L. f. Suppl. 264. 1781; Hook. f. & Thoms. Fl. Brit. India 1 : 178. 1872; Cooke, 1 : 51. 1958 (Repr. ed.).

Mar. : 'Tarati'.

Climbing shrubs with hooked spines and reddish-brown tomentum in younger parts. Leaves $2.5-6.5 \times 2-5$ cm, ovate, obovate or elliptic oblong. Flowers white, solitary or 2-3, pedunculate. Fruits ellipsoid or nearly globose, glabrous.

Fls. & Frts. : January - July.

Distrib. : Not common. Chikhalwal, Patur.

CLEOME L.

1. Glandular herbs with yellow flowers	..	<i>C. viscosa</i>
1. Glabrous herb with pink or purple flowers :		
2. Leaves simple	..	<i>C. simplicifolia</i>
2. Leaves 3-7 foliate	..	<i>C. chelidonii</i>

Cleome chelidonii L. f. Suppl. 300. 1781; Hook. f. & Thoms. Fl. Brit. India 1 : 170. 1872; Cooke, Fl. Pres. Bombay 1 : 42. 1958 (Repr. ed.); Jacobs in Van Steen. Fl. Malesiana Ser. 1 (2) : 102. 1962.

Annuals upto 60 cm tall, glabrous. Leaves palmately compound, petiolate; petioles upto 9.5 cm long. Leaflets oblanceolate to obovate or linear-

lanceolate, $1-5 \times 0.2-2.0$ cm. Flowers bright-rosy, 2.2-2.5 cm across. Capsule 5-10 cm long, linear, glabrous with parallel, wavy striations. Seeds warty, brownish-yellow.

Fls. & Frts. : June - August.

Distrib. : A weed in moist places of irrigated cultivated fields.
Kinhiraja, Morna, Palodi.

Cleome simplicifolia (Camb.) Hook. f. & Thoms. Fl. Brit. India 1 : 169 1872; Cooke, Fl. Pres. Bombay 1 : 40. 1958 (Repr. ed.). *Polenesia simplicifolia* Camb. in Jacq. Voy. Bot. 20 t. 20. 1844.

Scabrid herbs 5-20 cm tall. Leaves obovate-oblong to oblanceolate, $1-3.5 \times 0.2-2.0$ cm, scabrid. Flowers pink upto 0.5 cm across. Capsules 1.5-2.5 cm long linear, beaked, glabrous, bent at angle with pedicel. Seeds brownish yellow, smooth, glabrous.

Fls. & Frts. : July - September.

Illus. : Camb. in Jacq. Voy. Bot. P. 20. 1844.

Distrib. : Occasional, along dried nala; Kalakamta, Medshi, Pinjar.

Cleome viscosa L. Sp. Pl. 672. 1753; Hook. f. & Thoms. Fl. Brit. India 1 : 170. 1872; Cooke, Fl. Pres. Bombay 1 : 41. 1958. (Repr. ed.). *C.icosandra* Jacobs in Van Steen. Fl. Malesiana Ser. 1 (2) : 103. 1962.

Viscous-pubescent upto 1.5 m tall herbs. Leaves 3-5 foliate; leaflets $1-4 \times 0.5-2$ cm, elliptic oblong, glabrous above and pubescent beneath. Flowers 1-1.5 cm across, axillary, solitary or in lax racemes. Capsules 4-9 cm long, cylindrical, viscidly hairy. Seeds 0.1 cm across, dark brown, reniform.

Fls & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi fig. 9. 1966.

Distrib. : Common in wet places and in cultivated fields.

COCHLOSPERMACEAE

Cochlospermum religiosum (L.) Alston in Trimen, Handb. Fl. Ceylon 6 : 14. 1931. **Bombax religiosum** L. Sp. Pl. 552. 1753. **Cochlospermum gossypium** DC., Prodr. 1 : 527. 1824; Hook. f. & Thoms. Fl. Brit. India 1 : 190. 1872; Cooke, Fl. Pres. Bombay 1 : 56. 1958 (Repr. ed.).
Mar. : 'Ganer'.

Small trees upto 20 feet tall with ash coloured bark. Leaves palmately 3-5 lobed, glabrous above and tomentose beneath, petiolate. Flowers 3"-5" in diameter, showy, bright yellow, in terminal corymbose panicles, appearing before leaves. Petals obovate, deeply emarginate, veined; anthers basifixd, many.

Fls. & Frts. : February - April.

Distrib. : Occasional; Medshi, Narnala, Patur.

FLACOURTIACEAE

- | | |
|---|-------------------|
| 1. Flowers bisexual; plants unarmed; fruit capsule; seeds arillate .. | <i>Casearia</i> |
| 1. Flowers unisexual; plants thorny; fruit a drupe; seeds without aril .. | <i>Flacourtia</i> |

CASEARIA N. Jacquin.

Casearia graveolens Dalz. in Kew Journ. Bot. 4 : 107. 1852; Hook. f. Fl. Brit. India 2 : 592. 1872; Cooke, Fl. Pres. Bombay 1 : 553. 1958 (Repr. ed.). *Casearia glomerata* Talb., For. Fl. 2 : 69. 1911 (*non* Roxb. 1814). Mar. : 'Bokhada'.

Trees upto 9 m tall with pale-yellowish lenticellate bark. Leaves broadly elliptic or elliptic-oblong, petiolate, glabrous. Flowers greenish-yellow, fascicled, axillary or in leafless branches. Fruit subglobose or ellipsoidal, smooth, many seeded.

Fls. & Frts. : February to July.

Distrib. : Occasional in deciduous forest; Narnala fort.

FLACOURTIA L'Heritier

Flacourtia indica (N. Burman) Merrill, Interpr. Rumph. Herb. Amb. 377. 1917; Sant. Fl. Khandala ed. 3. 10. 1967. *Gmellina indica* Burm. f. Fl. Ind. 132. t. 39 f. s. 1768. *Flacourtia ramontchi* L. 'Herit., Strip. Nov. 3 : 59, t. 30 & 30 : 13. 1785; Hook. f. & Thoms. Fl. Brit. India 1-193. 1872; Cooke, Fl. Pres. Bombay 1 : 59. 1958 (Repr. ed.). Mar. : 'Girgot'.

Small armed trees, 4 m tall. Leaves obovate, acute, acuminate or sometimes emarginate, crenate, serrate, glabrous or hairy. Petals 4, greenish-yellow; stamens many with hairy filament; anthers versatile. Fruits fleshy, globose, edible berry turning red with age.

Fls. & Frts. : February - September.

Illus. : Roxb., Cor. Pl. 1 : 49. t. 69. 1976.

Distrib. : Common in wet deciduous forests; Medshi, Narnala, Patur, Umarwadi felling series.

POLYGALACEAE

POLYGALA L.

Capsules ciliate on the margins only; leaves glabrescent ..	<i>P. arvensis</i>
Capsules ciliate all over; leaves densely hairy ..	<i>P. eriopetra</i>

Polygala arvenis Willd. Sp. Pl. 3 (2) : 876. 1802. *P. chinensis* auct. non L. Hook. f. & Thoms. Fl. Brit. India 1 : 204. 1872.; Cooke, Fl. Pres. Bombay 1 : 64. 1958 (Repr. ed.).

Small annual herbs. Leaves sessile, $0.3-2.3 \times 0.2-1.2$ cm, obovate, oblanceolate, obtuse to acute, mucronate, scabrous. Racemes axillary, shorter than the leaves. Flowers yellow, outer sepal ovate, acuminate, glabrous; petals 3. Capsules emarginate and symmetrical. Seeds strophiolate and hairy.

Fls. & Frts. : August - December.

Illus. : Chodat, Monogr. Polygal. Part 2 : 387. t. 29, figs. 47-48.

Distrib. : Common in open areas and undergrowth. Patur, Pinjar, Shelu-budruk.

Polygala eriopetra DC Prodr. 1 : 326. 1824; Hook. f. & Thoms. Fl. Brit. India 1 : 203. 1872; Cooke, Fl. Pres. Bombay 1 : 63. 1958 (Repr. ed.).

Annual herbs upto 30 cm high, branched from the base; branches ascending. Leaves $0.6-2.5 \times 0.2-0.6$ cm, oblong lanceolate, narrowed at the base, clothed on both surfaces; apex rounded obtuse. Flowers yellow or yellowish pink, axillary, few in racemes; capsules oblique, emarginate; seeds strophiolate & hairy.

Fls. & Frts. : February - August.

Illus. : Chodat, Monogr. Polygal. part. 2 : 342. t. 28. figrs. 1-4.

Distrib. : Common; Alegaon, Mahan, Patur.

CARYOPHYLLACEAE

1. Leaves opposite, exstipulate; flowers large attractive ..	i	<i>Vaccaria</i>
1. Leaves in false whorls, stipules scarious; flowers small :		
2. Capsule 5-valved; styles 5; free ..		<i>Spergula</i>
2. Capsule 3-valved; styles 3, united ..		<i>Polycarpaea</i>

POLYCARPAEA Lamark *nom. cons.*

Polycarpaea corymbosa (L.) Lam. Tab. Encycl. 2 : 129. 1797; Hook. f. & Thoms. Fl. Brit. India 1 : 245. 1872; Cooke, Fl. Pres. Bombay 1 : 70. 1958 (Repr. ed.). *Achyranthes corymbosa* L. Sp. Pl. 205. 1753.

Erect annual herbs upto 30 cm tall. Leaves whorled at node, 0.5—2.2 × 0.1—2.5 cm, sessile linear, mucronate; stipules fimbriate. Flowers light pink, in dense much branched terminal cymes. Sepals lanceolate, scarious. Capsule minute, oblong-obovoid, shining brown.

Fls. & Frts. : August - January.

Illus. : Wight, Icon. t. 712. 1843.

Distrib. : Common; Wanoja.

SPERGULA L.

Spergula arvensis L. Sp. Pl. 440. 1753. Hook. f. & Thoms. Fl. Brit. India 1 : 243. 1872; Cooke, Fl. Pres. Bombay 1 : 69. 1958 (Repr. ed.).

Annual, erect, suberect or diffuse, 12-30 cm tall herbs, glabrous or pubescent; stems geniculate, branched from the root. Leaves upto 5.5 cm long, in false whorls, linear-subulate, semiterete, somewhat fleshy. Flowers yellowish white, stalked in terminal sub-umbellate cymes. Capsules ovate or sub-globose, glabrous. Seeds many, black or dark brown, granulose or papilose.

Fls. & Frts. : November - February.

Illus. : Mahesh., Illus. Fl. Delhi fig. 69. 1966.

Distrib. : A rare weed in cultivated field; Akot (*Kamble*, 152899, *BSI*).

VACCARIA Medic.

Vaccaria pyramidata Medic. Phil. Bot. 1 : 96. 1789. *Saponaria vaccaria* L. Sp. Pl. 409. 1753; Hook. f. & Thoms. Fl. Brit. India 1 : 217. 1872. Cooke, Fl. Pres. Bombay 1 : 66. 1958 (Repr. ed.). Mar. : 'Sabani'.

Erect, glabrous, annual herbs, upto 40 cm tall. Leaves sessile, 1.8—7.5 × 0.2—1.7 cm. The lower oblong, upper oblong-lanceolate, opposite. Flowers rosy in dichotomous cymes; pedicels slender upto 4 cm long; calyx 1.3 to 1.5 cm long. Petals obovate or oblong obovate, 1.5-1.2 cm long. Stamens 10; styles 2; capsules included, ovoid. Seeds blakish.

Fls. & Frts. : February - March.

Distrib. : Rare in cultivated fields; Akot (*Kamble*, 152898 *BSI*).

PORTULACACEAE

POROULACA L.

Nodes without scales or hairs; leaves cuneate to linear, upto 4 cm long; flowers clustered ..	<i>P. oleracea</i>
Nodes with a ring of few or abundant hairs; leaves lanceolate to ovate, upto 1.0 cm long; flowers solitary ..	<i>P. quadrifida</i>

Portulaca oleracea L. Sp. Pl. 445. 1753; Hook. f. Fl. Brit. India I : 246. 1872; Cooke, Fl. Pres. Bombay I : 72. 1958 (Repr. ed.).
Mar. : 'Ghol'.

Prostrate succulent herbs, stems reddish. Leaves obovate, alternate, opposite, subsessile, 0.2—2.0 × 1.5—4.0 cm. Flowers in clusters; petals 5-6, yellow; stamens 8-12; style 3-5 fid. Capsules ovoid, 0.6-0.8 cm; seeds numerous, black, concentrically striate.

Fls. & Frts. : February - June.

Illus. : Sprague & Gray, Ill. Gen. Fl. Amer. V. 1. t. 99.

Distrib. : Common. Kasmar, Fetra, Patur, Medshi.

Portulaca quadrifida L. Mant. 1 : 73. 1767; Hook. f. Fl. Brit. India I : 247. 1872; Cooke, Fl. Pres. Bombay I : 72. 1958 (Repr. ed.).

Small diffused annuals with radially spreading branches. Leaves fleshy, opposite, 0.4—0.6 × 0.2—0.3 cm, sessile. Flowers terminal, solitary; petals 4, yellow; stamens 8. Capsules ovoid or conical, 0.2-0.4 cm long. Seeds blackish brown, minutely tubercled, concentrically or horizontally ribbed.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ill. V. 2. t. 1og. 1850.

Distrib. : Occasional; Medshi, Patur.

ELATINACEAE

BERGIA L.

Bergia ammanoides Roxb. Hort. Beng. 34. 1814; Roth, Nov. Pl. Sp. 219. 1821; Hook. f. Fl. Brit. India 1 : 251. 1872; Cooke, Fl. Pres. Bombay 1 : 77. 1958 (Repr. ed.)

Prostrate, suberect or erect herbs, 15-40 cm tall, glandular hairy. Leaves 0.6—3.5 × 0.2—1.2 cm, oblanceolate, base tapering into a short petiole; margin serrate; flowers in axillary clusters, petiolate. Sepals 5, petals 5. Capsules sublobose. Seeds minute, polished.

Fls. & Frts. : November - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 22. 1966.

Distrib. : Common in wet places. Medshi, Narnala, Patur etc.

MALVACEAE

1. Fruit a schizocarp of five or more cocci separating from the central axis :
 2. Mericarp more or less trigonous, at apex muticous or biaxistate *Sida*
 2. Mericarp flat, reniform :
 - .3 Epicalyx absent, pedicels long about 5 cm, jointed .. *Abutilon*
 3. Epicalyx present, pedicels short about 1 cm, jointless .. *Malvastrum*
1. Fruit a capsule, dehiscent :
 4. Calyx spathaceous, cauducous soon after fertilization .. *Abelmoschus*
 4. Calyx not spathaceous, persistent :
 5. Herbs or shrubs; capsules not woody; pedicels articulated .. *Hibiscus*
 5. Trees; capsules woody; pedicels inarticulate :
 6. Flowers bisexual; fruits not winged; epicalyx cauducous; style undivided or divided into 5 club-shaped branches; seeds one per cell .. *Thespesia*
 6. Flowers polygamous; fruits winged due to persistent epicalyx; style divided into 3, branched; seeds one per cell.. *Kydia*

ABELMOSCHUS Medic.

1. Epicalyx segments subulate or linear to linear-lanceolate, persistent in young fruits; plants covered with irritating appressed hairs; capsule long, fusiform sulcate, 10-25 cm long .. *A. esculentus*
1. Epicalyx segments ovate to oblong, cauducous at early stage; plants covered with few prickly hairs; capsule ovoid, 5- angular, hispid 2-7, cm long .. *A. manihot*
ssp. *tetraphyllum*

Abelmoschus esculentus (L.) Moench. Method. Pl. 617. 1784; Van Borssum J. W. Blumea 14 (1) : 100. 1966. *Hibiscus esculentus* L. Sp. Pl. 676. 1753; Hook. f. Fl. Brit. India 1 : 343. 1872; Cooke, Fl. Pres. Bombay 1 : 119. 1958 (Repr. ed.).

Mar. : 'Bhendi'.

50-200 cm tall, hispidly hairy herbs. Leaves large, 3-5 lobed, petiolate; petiole upto 10 cm long. Flowers yellow with purple spot within, axillary, solitary. Capsules 6-15 cm long, 6-9 angled with stiff hairs.

Fls. & Frts. : Throughout the year.

Illus. : K. Schum. in Engl. & Prantl, Pflanzenf. 3 (6) : 48. f. 20. 1890.

Distrib. : Occasional in cultivated fields and in the hedges; Kinhiraja.

Abelmoschus manihot (L.) Medic. Malv. 47. 1787 subsp. *tetraphyllus* (Roxb. ex Hornem.) Borss. Stat. nov. var. *tetraphyllus* Blumea 14 (1) : 96-98. 1966. *Hibiscus tetraphyllus* Roxb. (Hort. Beng. 52. 1814 nom. nud.) ex Hornem. Hort. Hafn. 661 1815.

Woody, perennial, herbs. Leaves orbicular shallowly to deeply 3-5 lobed, 2.5—15 × 3.0—18 cm. Flowers in terminal racemes, 4-5 cm across, yellow with purple spot in the throat. Capsules 3-6 cm long, 4-5 valved, ovoid, oblong, strigose. Seeds globose or reniform, rufous-hairy.

Fls. & Frts. : August to January.

Distrid. : Occasional; Akot, Karanja, Palodi and Patur.

ABUTILON Miller

Capsules densely silky tomentose, slightly globose; calyx lobes reaching the full height of the capsule; pedicels stout .. *A. glaucum*

Capsules hairy becoming glabrescent, sharply truncate; calyx lobes not reaching over the length of the capsule; pedicels slender .. *A. indicum*

Abutilon glaucum (Cav.) Sw. Hort. Brit. 54. 1826; *Sida glauca* Cav. Icon 5 : 8. t. 11. 1791. *Abutilon muticum* G. Don, Gen. Syst. I : 502. 1831; Hook f. Fl. Brit. India 1 : 327. 1872; Cooke, Fl. Pres. Bombay 1 : 102. 1958 (Repr. ed.).

Mar. : 'Kasili'.

1-1.5 m tall, tomentose, glaucous under shrubs. Leaves ovate or suborbicular, petiolate, upto 70 cm long and almost as much broad; margin

toothed; petiole 3-8 cm long. Flowers axillary, 2-4.5 cm across; corolla orange yellow; fruits 1.2-2.2 cm across, globose, depressed at the summit, silky villous; carpels about 25.

Fls. & Frts. : January to April.

Distrib. : Rare, Medshi.

Abutilon indicum (L.) Sweet Hort. Brit. ed. 1. 54. 1826; Van Berrsum Blumea 14(1) : 170. 1966; Hook. f. Fl. Brit. India 1 : 326. 1872; Cooke, Fl. Pres. Bombay 1 : 102. 1958 (Repr. ed.). *Sida indica* L. in Torner, Cent. II Pl. 26. 1756.

Mar. : 'Mudra'.

Much branched, weak, minutely hoary tomentose shrubs. Leaves upto 10 cm long, 5 cm broad, broadly ovate, cordate, acuminate, toothed, sometimes subtrilobed, petiolate. Petioles 4-8 cm long; stipules linear, acute, deflexed. Flowers yellow, solitary, axillary, pedicellate; pedicels articulate. Fruits 1-2.5 cm across. Carpels 15-20 shining, dark brown.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 12. 1838.

Distrib. : Common, Akot, Medshi, Patur.

HIBISCUS L. *nom. cons.*

- | | |
|--|--|
| 1. Plants prickly; calyx lobes prickly; involucral bracts and calyx apices linear with spinulose margin .. | <i>H. cannabinus</i> |
| 1. Plants not prickly; calyx and involucral bracts not as above : | |
| 2. Small herbs upto 2 feet tall; pedicels slender upto 2.5 cm long .. | <i>H. lobatus</i> |
| 2. Tall shrubs upto 6 feet in height; pedicels stout and short upto 1.5 cm long : | |
| 3. Seeds cottony .. | <i>H. ovalifolius</i>
(<i>H. micranthus</i>), |
| 3. Seeds not cottony : | |
| 4. Glabrous shrubs with purple stem; pedicels jointed near the base; seeds not villous .. | <i>H. sabdariffa</i> |
| 4. Plants densely tomentose with greenish tomentum; pedicels jointed near the middle; seeds villous .. | <i>H. pandurafolius</i> |

Hibiscus cannabinus L. Syst. Nat. ed. 10, 2 : 1149. 1759; Hook. f. Fl. Brit. Indida : 1339. 1872; Cooke, Fl. Pres. Bombay 1 : 116. 1958 (Repr. ed.)

Mar. : 'Ambadi'.

1-3 m tall, erect, glabrescent or hairy undershrub. Stem prickly. Leaves deeply 3-5 lobed except at the base which are often undivided, serrate. Petioles upto 5 cm long; stipules subulate. Flowers yellow with purple spot, axillary shortly pedicillate. Involucral bracts 7-10, linear, free, upto 1.3 cm long. Capsule ovoid, beaked, very hairy.

Fls. & Frts. : August - February.

Distrib. : Common. Largely cultivated for fibres. Medshi, Patur.

Hibiscus lobatus (J. A. Murray) O. Kuntze, Rev. Gen. Pl. 31, 2 : 19. 1898; Van Borssum in Blumea 14(1) : 77. 1966. *Solandra lobata* J. A. Murray Commentat. Soc. Begiae Sci. Goett. 6 : 20. t. 1. 1785. *Hibiscus solandra* L. Herit., Strip. Nov. 1 : 103, t. 49. 1788; Hook. f. Fl. Brit. India 1 : 336. 1872; Cooke, Fl. Pres. Bombay 1 : 114. 1958 (Repr. ed.).

Erect, branched herbs upto 60 cm in height. Leaves 1-8 × 1-7 cm, entire or 3-5 lobed, orbicular ovate, obtuse or acute, crenate. Flowers white in terminal lax racemes, pedicillate; pedicels upto 4 cm. Capsules ovoid, shortly beaked, hairy, 5-valved. Seeds chocolate coloured, minutely tubercled.

Fls. & Frts. : August - December.

Distrib. : Common. Karanja, Palodi, Patur.

Hibiscus ovalifolius (Forsk.) Vahl, Symb. 1 : 50. 1790; *Urena ovalifolia* Forskal, Fl. Aegypt-Arab. 124. 1775. *Hibiscus micranthus* L. f. Suppl. 308. 1781; Hook. f. Fl. Brit. India 1 : 335; Cooke, Fl. Pres. Bombay 1 : 113. 1958 (Repr. ed.)

Tall, slender, erect shrubs. Branches terete. Leaves ovate oblong, 1—2.5 × 0.4—1.5 cm serrate, obtuse or acute; petioles upto 1.5 cm. Stipules subulate. Flowers pinkish white, axillary, solitary and in terminal racemes. Capsules globose, 0.6-1.0 cm broad, 5-valved. Seeds reniform, cottony.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi f. 29. 1966.

Distrib. : Common. Karanja, Mahan, Palodhi, Patur.

Hibiscus panduriformis Burm. f. Fl. Ind. 151. t. 47, f. 2. 1768; Hook. f. Fl. Brit. India 1 : 338. 1872; Van Borssum in Blumea 14(1) : 20. 1966. Cooke, Fl. Pres. Bombay 1 : 115. 1958 (Repr. ed.).

Shrubs upto 2 m tall. Stem and branches clothed with rigid hairs. Leaves 1.0—7.5 × 0.6—5.5 cm. broadly ovate, 3—5 lobed, irregularly toothed,

tomentose on both the surfaces; petioles upto 6 cm. Flowers axillary, solitary or in pairs, yellow with purple centre; involucral bracts 6-9, dialated upwards. Pedicels stout. Capsule ovoid and very hairy.

Fls. & Frts. : August - February.

Distrib. : Occasional ; Karanja, Medshi.

Hibiscus sabdariffa L. Sp. Pl. 695. 1753; Hook. f. Fl. Brit. India 1 : 340. 1872; Van Borssum in Blumea 14(1) : 64. 1966; Cooke, Fl. Pres. Bombay 1 : 117. 1958 (Repr. ed.).

Mar : 'Lal Ambadi'.

1-2 m tall, deciduous, glabrous herbs with purple stem. Leaves entire or 3-5 lobed, cuneate at the base; midrib of leaf glandular beneath. Flowers solitary, axillary, purple; pedicels stout upto 1 cm long. Capsules ovoid, beaked and hairy.

Fls. & Frts. : October - December.

Distrib. : Cultivated, seldom an escape. Mahan.

KYDIA Roxburgh

Kydia calycina Roxb. Pl. Cor. t. 215. 1811; Hook. f. Fl. Brit. India 1 : 348. 1872; Cooke, Fl. Pres. Bombay 1 : 100. 1958 (Repr. ed.).

Mar. : 'Varang'.

Deciduous trees upto 15 m tall; leaves 6—15×7—17 cm, cordate or ovate, 3-5 angular or lobed, stellately pubescent above, tomentose beneath. Petioles upto 4 cm. Panicles many flowered, axillary or terminal, densely tomentose. Epicalyx segments 4-6, spathulate and acrescent. Flowers white or pink. Capsules longitudinally 5-valved.

Fls. & Frts. : August - December.

Illus. : Wight, Icon. t. 879. 80. 1844-45.

Distrib. : Rare, Narnala fort 150449.

MALVASTRUM A. Gray *Nom. Cons.*

Malvastrum coromandelianum (L.) Gracke in Bonplandia 5 : 295. 1857; Van Borssum in Blumea 14(1) : 152. 1966. **Malva coromandellana** L. Sp. Pl. 687. 1753. **Malvastrum tricuspidatum** A. Gray, Pl. Wright. 1 : 16. 1852; Hook. f. Fl. Brit. India 1 : 321. 1872.

Erect, appressed hairy herbs upto 70 cm tall. Leaves 2—4.5 × 1—3 cm, glabrescent to hairy, crenate, elliptic. Flowers axillary, solitary, subsessile or shortly petiolate. Fruits upto 0.7 cm across, globose, depressed at apex. Carpels many, reniform.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh. Illus. Fl. Delhi f. 26. 1966.

Distrib. : Occasional. Patur, Palodi.

SIDA L.

- | | |
|--|----------------------|
| 1. Petioles with short spines at the base; leaves elliptic obtuse .. | <i>S. alba</i> |
| 1. Petioles without spines at the base; leaves not as above : | |
| 2. Prostrate or ascending herbs; mericarp blunt or muticous; leaves cordate with petiole upto 4 cm long .. | <i>S. cordata</i> |
| 2. Ascending or erect undershrubs; mericarps acute or awned; leaves not as above : | |
| 3. Mericarp stout, coriaceous, prominently two beaked; stipules linear lanceolate, glabrous, ciliate on the margin only .. | <i>S. acuta</i> |
| 3. Mericarps membranous; each acute apex with round lobe, hairy at the apex; stipules filiform, hairy .. | <i>S. mysorensis</i> |

Sida acuta Burm. f. Fl. Ind. 147. 1768; emend K. Schum. in Fl. Bras. 12 (3) : 326. 1891; Van Borssum in Blumea 14(1) : 186. 1966. Cooke, Fl. Pres. Bombay 1 : 98. 1958 (Repr. ed.). *Sida carpinifolia* L. f. Suppl. 307. 1781; Hook. f. Fl. Brit. India 1 : 323. 1872.

30-60 cm tall, nearly glabrous under shrubs. Leaves 1.5—10 × 0.5—6 cm, petiolate, serrate. Flowers yellow or pale orange, axillary, solitary or in fascicles. Fruits upto 0.6 cm broad, ovoid, beaked. Carpels 6-7, cuneate, glabrous, reticulate, pale brown. Seeds dark-brown or blackish-brown.

Fls. & Frts. : August - February.

Illus. : Wight, Icon. t. 95. 1838.

Distrib. : Common weed of dry places. Akot, Kinhiraja, Palodi, Patur.

Sida cordata (Burm. f.) Van Borssum in Blumea 14 (1) : 182. 1966. *Melochia cordata* N. Burman, Fl. Ind. 143. 1768. *Sida veronicifolia* Lam. Encycl. Meth. 1 : 5. 1783; Cooke, Fl. Pres. Bombay 1 : 97. 1958 (Repr. ed.). *Sida hirsutis* Cav. Diss. 5. 227. t. 134. f. 2. 1788; Hook. f. Fl. Brit. India 1 : 322. 1872.

Perennial branched herbs. Branches trailing or prostrate, slightly hairy. Leaves cordate, ovate, acute, $1.5-7 \times 2.0-6.5$ cm, petiolate, appressed hairy on both the surfaces. Flowers pale yellow, axillary, solitary or in pairs. Fruits upto 0.6 cm across, globose. Carpels 5. Seeds brown.

Fls. & Frts. : Throughout the year.

Distrib. : Common. Kinhiraja, Patur.

Sida mysorensis Wight & Arn. Prodr. 1 : 59. 1834; Hook. f. Fl. Brit. India 1 : 322. 1872. Van Borssum J. W. in Blumea 14(1) : 180. 1966. *Sida glutinosa* Cav. Diss. 1 : 16. t. 2. f. 8. 1785; Cooke, Fl. Pres. Bombay 1 : 97. 1958 (Repr. ed.)

Suberect hairy herbs upto 80 cm tall. Leaves $2.5-10 \times 1.8$, membranous, broadly ovate to ovate-lanceolate, petiolate, appressed hairy. Flowers yellow, axillary, solitary or fascicled into apparent racemes. Fruits upto 0.3 cm broad, ovate, thinly hairy. Carpels 5. Seeds dark brown.

Fls. & Frts. : June - January.

Distrib. : Rare; Narnala fort (Kamble, 153796 BSI).

Sida alba L. Sp. Pl. (ed. 2) 960. 1762. *Sida spinosa* L. Sp. Pl. 683. 1753 p. p.; Hook. f. Fl. Brit. India 1 : 323. 1872; Cooke, Fl. Pres. Bombay 1 : 98. 1958 (Repr. ed.)

60-100 cm tall, branched under shrubs. Leaves, oblong-ovate or ovate-elliptic, obtuse or acute, $0.7-5.5 \times 0.5-4.0$ cm, crenate, petiolate, glabrous or nearly so above, tomentose beneath. Stipules hairy, subulate. Flowers yellow or white, axillary, solitary or crowded at the end of branches. Fruits ovoid, 0.6 cm across. Carpels 3, rarely 6, pubescent.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi f. 23. 1966.

Distrib. : Common weed of open dry places. Mahan, Medshi, Patur.

THESPESIA Solander ex Correa *Nom. Cons.*

Thespesia lampas (Cav.) Dalzell & Gibson, Bombay Fl. 19. 1861; Hook. f. Fl. Brit. India 1 : 345. 1872. Van Borssum in Blumea 14 (1) : 115. 1966. *Hibiscus lampas* Cav. Diss. 3 : 154, t. 56, f. 2. 1787. *Thespesia micraphylla*

Bl. Bijdr. 73. 1825; Cooke, Fl. Pres. Bombay 1 : 121. 1958 (Repr. ed.)
Mar. : 'Ranbhendi'.

Shrubs upto 2.5 m tall. Leaves upto 7 x 8 cm, ovate, acute, sometimes lanceolate, truncate or cordate at the base, generally 3-lobed; lobes triangular, acuminate. Petioles 4-9 cm. Flowers axillary, solitary, 6 cm across; corolla bright yellow with crimson centre. Capsules ovoid, pointed, upto 3 cm long

Fls. & Frts. : August - December.

Illus. : Wight, Icon. t. 5. 1838.

Distrib. : Common in wet deciduous forest. Mahan, Patur.

BOMBACACEAE

BOMBAX L.

Bombax ceiba L. Sp. Pl. 511. 1753; Robyns in Taxon 10 : 68 and 160. 1961. *Bombax malabaricum* DC. Prodr. 1 : 479. 1824; Hook. f. Fl. Brit. India 1 : 349. 1872; Cooke, Fl. Pres. Bombay 1 : 127. 1958 (Repr. ed.). *Salmalia malabarica* (DC.) Schottl. & Endl. Melet. 35. 1832; Chatterjee in Ind. For. 76 : 184. 1950.

Mar. : 'Kate-saver'.

Deciduous trees upto 30 m tall, with gray, glabrous bark; prickles conical. Leaves petiolate, large; leaflets 3-5, ovate, lanceolate or elliptic-lanceolate, glabrous. Flowers 6-8 cm across, sessile, crowded at the ends of leafless branches. Corolla bright red, tomentose. Stamens more than 60. Capsule 8-12 cm long, ovoid. Seeds ovoid, packed in white silky cotton.

Fls. & Frts. : February - May.

Illus. : Bedd., Fl. Syst. t. 82. 1871.

Distrib. : Occasional in deciduous forest. Mahan, Narnala, Patur.

STERCULIACEAE

1. Flowers unisexual or polygamous; petals absent ..	<i>Sterculia</i>
1. Flowers bisexual; petals present :	
2. Follicles spirally twisted ..	<i>Helleoteres</i>
2. Follicles not spirally twisted :	
3. Stamens more than 10; trees ..	<i>Eriolaena</i>
3. Stamens not more than 10; woody herbs or undershrubs ..	<i>Melochia</i>

TILIACEAE

1. Fruits echinate or prickly	<i>Triumfetta</i>
1. Fruits not echinate nor prickly :	
2. Petals glandular at base; fruit drupaceous, 2-4 lobed	<i>Grewia</i>
2. Petals eglandular; fruit elongate, capsular	<i>Corchorus</i>

CORCHORUS L.

1. Capsules angular :		
2. Capsule beak trifid	<i>C. aestuans</i>
2. Capsule beak entire	<i>C. trilocularis</i>
1. Capsules cylindrical or linear cylindrical :		
3. Capsules pubescent, three valved, upto 1.5 cm long	<i>C. fascicularis</i>
3. Capsules glabrous, 4-5 valved, upto 5.0 cm long	<i>C. olitorius</i>

Corchorus aestuans L. Sust. Nat. (ed. 10) 1079. 1759; *Corchorus acutangulus* Lam. Encycl. 2 : 104. 1786; Hook. f. Fl. Brit. India 1 : 398. 1872; Cooke, Fl. Pres. Bombay 1 : 160. 1958 (Repr. ed.).

Prostrate or diffuse herbs, pubescent in younger parts. Leaves 2.3—7.0 × 1.5—4.5 cm, crenate-serrate, acute to rounded at tip, subcordate at base, petiolate, sparsely hairy or nearly glabrous. Flowers small, yellow solitary or 2-3 flowered, extra axillary. Capsules 6 angled, 2.5-4.5 cm long; beak trifid. Seeds brownish-black.

Fls. & Frts. : August - January.

Illus. : Mahesh., Illus. Fl. Delhi, f. 35. 1966.

Distrib. : Common weed. Akot, Shahanur, Medshi.

Corchorus fascicularis Lam. Encycl. Meth. 2 : 104. 1786; Hook. f. Fl. Brit. India 1 : 398. 1872; Cooke, Fl. Pres. Bombay 1 : 159. 1958. (Repr. ed.)

Annual herbs, much branched from the base. Stems and branches terete & glabrous. Leaves 1.5—5.5 × 0.5—1.5 cm, elliptic-oblong or obovate-oblong, serrate. Flowers yellow in leaf-opposed sessile cymes. Capsules 0.9-1.5 cm long, pubescent, 3-valved, shortly beaked. Seeds black, cuneate, angular.

Fls. & Frts. : September-March.

Distrib. : Common weed. Akot, Palodi, Patur, Medshi.

Corchorus olitorius L. Sp. Pl. 529. 1753; Hook. f. Fl. Brit. India 1 : 397. 1872; Cooke, Fl. Pres. Bombay 1 : 158. 1958 (Repr. ed.)

Annual, 1-1.5 m tall, glabrous herbs. Leaves broadly elliptic lanceolate, serrate, glabrous with marginal filiform appendages, stipulate. Flowers pale yellow. Capsules 2.5-6.0 cm, linear, 5-valved. Seeds dark-brown or blackish-brown.

Fls. & Frts. : August - March.

Illus. : Mahesh., Illus. Fl. Delhi f. 33. 1966.

Distrib. : Common. Akot, Palodi, Kalamata, Shahanur.

Corchorus trilocularis L. Mant. 77. 1767; Hook. f. Fl. Brit. India 1 : 397. 1872; Cooke, Fl. Pres. Bombay 1 : 158. 1958 (Repr. ed.).

Annual herbs. Stems and branches more or less hairy. Leaves 1.5—10.5 × 0.7—1.3 cm, elliptic or oblong lanceolate, acute or obtuse, serrate, stipulate with lower marginal filiform appendages. Flowers yellow, solitary or 2-3 fascicled, leaf opposed. Capsule upto 7.5 cm long, straight or slightly curved, glabrous, scabrous, 3-4-gonus. Seeds trigonous.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi f. 34. 1966.

Distrib. : Common in cultivated fields. Medshi, Palodi, Patur.

GREWIA L.,

1. Flowers polygamous; leaves ovate-lanceolate to lanceolate ..	<i>G. hirsuta</i>
1. Flowers all bisexual; leaves ovate, cordate or oblique :	
2. Shrubs; stipules subulate, hairy; drupes fleshy, hairy, wrinkled, 1.3 cm across ..	<i>G. abutilifolia</i>
2. Trees; stipules leafy, auricled; drupes glabrous, 0.3-0.5 cm across ..	<i>G. tiliacefolia</i>
3. Petals glandular at base ..	<i>G. tiliacefolia</i> var. <i>tiliacfolia</i>
3. Petals eglandular at base ..	<i>G. tiliacefolia</i> var. <i>leptopetala</i>

Grewia abutilifolia Vent. ex Juss. in Ann. Mus. Paris 4 : 92. 1804; Hook. f. Fl. Brit. India 1 : 390. 1872; Cooke, Fl. Pres. Bombay 1 : 152. 1958 (Repr. ed.). *Grewia aspera* Roxb. Hort. Beng. 42. 1814 (nomen) and Fl. Ind. 2 : 591. 1832.

Straggling shrubs, upto 4 m tall; young parts hairy. Leaves 2.5—16.0 × 1.3—13.0 cm, entire or often more or less lobed, stipulate, irregularly serrate, scabrous above, hairy beneath; petiole upto 1.8 cm long. Flowers upto 1 cm across in umbellate cymes. Drupe upto 1.5 cm across.

Fls. & Frts. : June - February.

Distrib. : Occasional in open forest.

Grewia hirsuta Vahl, Symb. Not. 1 : 34. 1790; Hook. f. Fl. Brit. India 1 : 391; Cooke, Fl. Pres. Bombay 1 : 153. 1958 (Repr. ed.).

Branched shrubs with pubescent young parts. Leaves 8—15 × 1—3.5 cm, glabrescent or stellate hairy above, densely villous beneath, serrate. Flowers pale or bright yellow in umbellate cymes. Drupes upto 1.5 cm in diameter, fleshy, wrinkled, hairy and slightly four lobed.

Fls. & Frts. : August - November.

Illus. : Wight, Icon. t. 76. 1838.

Distrib. : Common. Karla, Mahan, Palodi.

Grewia tiliaefolia Vahl var. *leptopetala* Cooke, Fl. Pres. Bombay 1 : 142. 1958 (Repr. ed.).

Branched trees and underside of leaves glabrous to densely tomentose. Petiole gland reduced.

Fls. & Frts. : June - October.

Distrib. : Occasional, Mahan, Medshi, Palodi.

Grewia tiliaefolia Vahl Symb. 1 : 35. 1790; Hook. f. Fl. Brit. India 1 : 386. 1872, var. *tiliaeifolia* Cooke, Fl. Pres. Bombay 1 : 150. 1958 (Repr. ed.) Mar. : 'Dhaman'.

Trees reaching 6-9 m high with young parts pubescent. Leaves 2.0—14.5 × 1.5—13.0 cm, cordate, oblique at base, ovate, acuminate, crenate. Flowers small in umbellate, axillary clusters. Flowers white, densely villous on margins. Drupes 0.4-0.5 cm across, globose, often two lobed.

Fls. & Frts. : April - August.

Illus. : Bedd., Fl. Syst. t. 108. 1871.

Distrib. : Common in dry deciduous forest. Karla, Mahan, Narnala fort.

TRIUMFETTA L.

- | | |
|--|------------------------|
| 1. Inflorescence of terminal racemes; spines of the fruits pubescent;
leaves rotundate | <i>T. rotundifolia</i> |
| 1. Inflorescence of axillary clusters; spines of the fruits ciliate on
margins only; leaves 3-5 lobed | <i>T. rhomboidea</i> |

Triumfetta rhomboidea N. Jacq. Enum. Pl. Carib. 22. 1760; Hook. f. Fl. Brit. India 1 : 395. 1872. Cooke, Fl. Pres. Bombay 1 : 156. 1958. (Repr. ed.).

Suffruticose, 0.75-1.7 m tall herbs. Leaves 3—12 × 2—5 cm, coarsely toothed, 3-5 lobed. Flowers 0.8 cm across, yellow in terminal and less opposed cymes. Fruits echinate, with spines with recurved claws, 0.4-0.7 cm in diameter.

Fls. & Frts. : September - December.

Illus. : K. Schum. in Engl. & Prantl. Pflanzenf 3(6). f.13. 1877.

Distrib. : Common on road side and in cultivated fields. Karanja, Mahan, Patur.

Triumfetta rotundifolia Lam. Encycl. Meth. 3 : 421. 1789; Hook. f. Fl. Brit. India 1 : 395. 1872; Cooke, Fl. Pres. Bombay 1 : 157. 1958. (Repr. ed.).

Upto 60 cm tall, erect, suffruticose herbs. Leaves orbicular, irregularly toothed, glabrescent above, softly grey-tomentose beneath, petiolate. Flowers yellow, 0.8 cm across, in racemes. Fruits echinate with recurved spines, 0.4-0.5 cm, globose or ovoid, indehiscent.

Fls. & Frts. : February - November.

Distrib. : Common in open areas and waste lands. Karla, Medshi.

LINACEAE

LINUM L.

- | | |
|---|-------------------------|
| 1. Flowers blue, large upto 2.5 cm across | <i>L. usitatissimum</i> |
| 1. Flowers yellow, small upto 0.6 cm across | <i>L. mysorense</i> |

Linum mysorense Heyne ex Benth. Edward's Bot. Reg. 16 : 5, t. 1326. 1830; Hook. f. Fl. Brit. India 1 : 411. 1872; Cooke, Fl. Pres. Bombay 1 : 164. 1958 (Repr. ed.).

20-30 cm tall, slender, pale yellowish herbs. Leaves narrowly elliptic-oblong, oblanceolate or linear-lanceolate, glabrous. Flowers yellow in terminal, corymbose panicles. Capsules globose, apiculate with persistent sepals. Seeds 10 in number, elliptic, compressed, smooth.

Fls. & Frts. : September - November.

Illus. : Heyne ex Benth. *loc. cit.*

Distrib. : Rare. Narnala fort, Kamble 150466, BSI.

Linum usitatissimum L. Sp. Pl. 277, 1753; Hook. f. Fl. Brit. India 1 : 164. 1958 (Repr. ed.).

Mar. : 'Jawas'.

30-50 cm tall, slender, simple or sparingly branched, glabrous herbs. Leaves 1—3 × 1—0.7 cm, sessile, glabrous, linear-lanceolate. Flowers blue, about 2.5 cm across, axillary, solitary or in corymbose panicles. Capsules 0.6-1.0 cm across, mucronate, ovoid or sub-globose, glabrous. Seeds glabrous, shining brown, compressed.

Fls. & Frts. : September - March.

Distrib. : Occasional. Karla, Medshi, Patur.

MALPIGHIACEAE

ASPIDOPTERYS A. Juss.

Aspidopterys cordata (Wall.) A Juss. Ann. Sci. Nat. Bot. ser. 2, 13 : 267. 1840; Hook. f. Fl. Brit. India 1 : 421. 1872; Cooke, Fl. Pres. Bombay 1 : 168. 1958 (Repr. ed.). *Hivaea cordata* Heyne ex Wall. Pl. As. Rar, 1 : 13. 1829.

Mar. : 'Burvel'.

Weak climbers; young parts tomentose. Leaves 7.0—18.0 × 5.5—14.5 cm, broadly ovate or suborbicular, acuminate, glabrous above, white-tomentose beneath, with cordate base; petioles upto 4-5 cm. Flowers 0.5 across, pale-yellow, in axillary and terminal panicles. Fruit samara, orbicular or slightly elliptic, 1.5-2.0 cm across, membranous, reticulately veined.

Fls. & Frts. : September - January.

Distrib. : Rare. Narnala fort (Kamble 150445, BSI.)

ZYGOPHYLLACEAE

TRIBULUS L.

Tribulus terrestris L. Sp. Pl. 387. 1783; Hook. f. Fl. Brit. India I : 423. 1872; Cooke, Fl. Pres. Bombay I : 170. 1958 (Repr. ed.).
Mar : ' *Sarata* ', ' *Gokhru* '.

Procumbent or prostate herbs; young parts silky villous. Leaves opposite, unequal, abruptly pinnate, stipulate. Stipules lanceolate, hairy. Leaflets oblong, obovate, mucronate, 4-7 pairs. Flowers yellow, axillary or leaf opposed, solitary, pedicelled. Fruits globose, consisting of usually five woody cocci, glabrous or hairy, often muricate, each with two hard unequal spines.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi f. 38. 1966.

Distrib. : Common weed of waste places. Mahan, Karanja, Palodi, Patur.

OXALIDACEAE

BIOPHYTUM de Candolle

Biophytum sensitivum (L.) DC, Prodr. I : 690. 1824; Hook. f. Fl. Brit. India I : 436. 1872; Cooke, Fl. Pres. Bombay I : 177. 1958 (Repr. ed.).
Oxalis sensitiva L. Sp. Pl. 434. 1753.

Erect annual upto 25 cm tall, glabrous. Leaves 5-10 cm long, pinnately compound. Leaflets suborbicular, ovate, oblong, obtuse or subacute, glabrous, sessile, increasing in size from base to apex. Flowers yellow, tinged with red, 0.5 cm across, shortly pedicillate in terminal umbels. Capsule ellipsoid, apiculate, glabrous. Seeds ovoid, transversely ridged.

Fls. & Frts. : August - March.

Illus. : Reiche in Engl. & Prantl, Pflanzenf. 3 (4):16. f. 149. 1837.

Distrib. : Common. Kalakamata, Shelubudruk, Wanoja.

BALSAMINACEAE

IMPATIENS L.

Impatiens balsamina L. Sp. Pl. 938. 1753; Hook. f. Fl. Brit. India I : 453. 1872; Cooke Fl. Pres. Bombay I : 184. 1958 (Repr. ed.)
Mar. : ' *Terada* '

Annuals erect, glabrous or pubescent, 0.3-1.0 m tall herbs. Leaves 2.5-16 × 1—3 cm, oblanceolate, serrate, glabrous. Buds yellow, tomentose and mucronate. Flowers rose-coloured, showy, pedicillate, axillary, solitary, spurred. Capsules tomentose. Seeds reticulate.

Fls. & Frts. : August - October.

Distrib. : Common Medshi, Shahanur, Wanoja.

RUTACEAE

1. Shrubs with unifoliate leaves; petiole winged; fruit rind leathery ..	<i>Citrus</i>
1. Trees with multifoliate leaves; petiole not winged; fruit rind woody :	
2. Leaves 3-foliate; stamens numerous ..	<i>Aegle</i>
2. Leaves imparipinnate with 5-9 leaflets; stamens 10-12 ..	<i>Limonia</i>

AEGLE Corr. *nom. cons.*

Aegle marmelos (L.) Corr. in Trans-Linn. Soc. London 5 : 223. 1800; Hook. f. Fl. Brit. India 1 : 516. 1872; Cooke, Fl. Pres. Bombay 1 : 204. 1958 (Repr. ed.). *Crateva marmelos* L. Sp. Pl. 444. 1753.
Mar. : 'Bel'.

Thorny deciduous trees. Leaves three-foliate, petiolate. Leaflets 1.5—7.5 × 0.6—0.6 cm, lanceolate to elliptic-lanceolate or ovate-lanceolate, glabrous. Flowers whitish green in axillary panicles. Fruits globose, 4-11 cm across. Pulp orange coloured. Seeds obliquely lenticular or oblong, wrinkled.

Fls. & Frts. : April-November.

Illus. : Wight, Icon. t. 16. 1838.

Distrib. : Common. Palodi, Chikhalwal.

CITRUS L.

Citrus aurantifolia (Christn.) Sw. in Journ. Wash. Acad. Sci. 3 : 465. 1913; Maheshwari, Fl. Delhi, 25. 1963. *Limonia aurantifolia* Christn. in Linn. Pflanzen. Syst. 1 : 618. 1777.
Mar. : 'Imbu'.

Large shrubs upto 5.5 m tall, with purple and glabrous young shoots. Leaves alternate, elliptic-ovate to elliptic-lanceolate, obtuse, crenate. Flowers

white, tinged with red. Fruits globose or ovoid, yellow when ripe. Seeds ellipsoid, white, glabrous.

Fls. & Frts. : Throughout the year.

Distrib. : Cultivated. Karla. Mahan.

LIMONIA L.

Lomonia acidissima L. Sp. Pl. (ed. 2) 554. 1762. *Schinus limonia* L. Sp. Pl. 389 1753. *Feronia elephantum* Corr. in Trans. Linn. Soc. 5 : 225. 1800; Hook f. Fl. Brit. India. 1 : 516. 1875; Cooke, Fl. Pres. Bombay 1 : 203. 1958 (Repr ed.)

Mar. : 'Kavath'.

Armed evergreen trees upto 10 m tall with alternate, compound leaves. Leaflets 0.2—2.7×0.5—1.8 cm, cuneate to obovate, tip often crenulate, glabrous. Flowers small, numerous, dull red, in terminal or axillary panicles. Fruits globose, grey, 6-8 cm across.

Fls. & Frts. : March - October.

Illus. : Engler in Engl. & Prantl, Pflanzenf. 3 (4) : 193. f. 112. 1896.

Distrib. : Wild or planted. Chikhawal, Palodi.

SIMAROUBACEAE

BALANITES Del. nom. cons.

Balanites aegyptiaca (L.) Del. Illustr. Fl. d'Eg. 263. t. 28. f. 1. 1813; *Ximenia aegyptiaca* L. Sp. Pl. 1194. 1753. *Balanites roxburghii* Planch. in Ann. Nat. Sci. (Ser 4), 4 (2) : 258. 1854; Hook. f. Fl. Brit. India 1 : 522. 1872; Cooke, Fl. Pres. Bombay 1 : 207. 1958 (Repr. ed.).

Mar. : 'Hinganbet'.

Armed, deciduous, trees upto 8 m tall; young parts pubescent. Leaves 2-foliate, petiolate with sharp, straight 2.5-3.5 cm long spines; leaflets 1—3.5×0.4—1.8 cm, elliptic or obovate, obtuse or subacute. Flowers small, greenish-white, in shortly peduncled cymes. Drupes large, ovoid, woody, 2.5-5.0 cm long, five grooved.

Fls. & Frts. : January - August.

Illus. : Engl. & Prantl, Pflanzenf. 3 (4) : 355. f. 189. 1896.

Distrib. : Common on roadside. Akola-Akot, Roadside.

BURSERACEAE

BOSWELLIA Roxb. ex Colebrooke

Boswellia serrata Roxb. ex Colebr. Asiat. Res. 9 : 379, . 5. 1807; Bennet in J. D. Hooker, Fl. Brit. India 1 : 528. 1875; Cooke, Fl. Pres. Bombay 1 : 210. 1958 (Repr. ed.). *Chloroxylon dupada* Ham., Journ. Mysore 1 : 184. 1807, nom. subnud.

Mar. : 'Salai'.

Deciduous medium sized trees. Bark ash coloured. Young parts pubescent. Leaves 15-20 cm long, alternate at the ends of branches; leaflets 8-12 pairs, 2—6.5 × 1.0—2.5 cm, sessile, ovate to ovate-lanceolate. Flowers white in axillary racemes. Drupes trigonous.

Fls. & Frts. : December - April.

Illus. : Bedd., Fl. Sylv. t. 124. 1871.

Distrib. : Common in deciduous forest. Chikhawal, Patur. Narnala fort.

MELIACEAE

SOYMIDA A. Juss.

Soymida febrifuga (Roxb.) A. Juss. in Mem. Mus. Paris 19 : 251. t. 22. f. 26. 1830; Hook. f. Fl. Brit. India 1 : 567. 1875; Cooke, Fl. Pres. Bombay 228. 1958 (Repr. ed.). *Swietenia febrifuga* Roxb. Pl. Cor. 1 : 18. t. 17. 1795

Mar. : 'Rohan'.

Tall deciduous trees with dark brown bark. Leaves 22-45 cm long, crowded towards the ends of the branches. Leaflets 3-6 pairs, 3—15 × 1—11 cm, sessile or subsessile, elliptic or oblong, obtuse, glabrous. Flowers upto 1 cm across, greenish-white, in large, terminal or in axillary panicles. Capsules 3.4—7.5 × 2.3—4.1 cm, ovoid, woody, reddish-purple.

Fls. & Frts. : February - June.

Illus. : Bedd., Fl. Sylv. t. 8. 1869.

Distrib. : Rare on the slopes of Narnala fort. Narnala fort Kamble, 152878, BSI.

CELASTRACEAE

- | | |
|---|------------------|
| 1. Scandent shrubs; inflorescence a pendulous raceme | <i>Celastrus</i> |
| 1. Shrubs or trees; inflorescence a dichotomous cyme : | |
| 2. Armed shrubs; fruit a capsule; leaves alternate | <i>Meytenus</i> |
| 2. Unarmed small tree; fruit a drupe; leaves opposite or sub-opposite | <i>Cassine</i> |

CASSINE L.

Cassine glauca (Rottb.) O. Ktze, Rev. Gen. Pl. 1 : 114. 1891; Ding Hou in Steenis, Fl. Malesiana Ser. I. 6 (2) : 286. 1962; *Mangifera glauca* Rottb. Nye Simmal. Vid. Selsk. Skrift. 2 : 534. t. 4. f. 1. 1783. *Eleodendron glaucum* (Rottb.) Pers. Syn. I : 241. 1805; Hook. f. F. Brit. India 1 : 623. 1875; Cooke, Fl. Pres. Bombay 1 : 248. 1958 (Repr. ed.).

Mar. : 'Bhutikes.'

Small trees with elliptic, acute, acuminate, crenate, serrate, glabrous leaves. Flowers greenish-yellow, axillary or extra axillary in dichasial cymes. Drupes obovoid, 0.5-1.4 cm long, apiculate, glabrous.

Fls. & Frts. : February - August.

Illus. : Bedd., Fl. Sylv. t. 148. 1871.

Distrib. : Frequent. Mahan, Chikhalwal, Narnala fort, Patur.

CELASTRUS L.

Celastrus paniculatus Willd. Sp. Pl. 1 : 1125. 1797; Hook. f. Fl. Brit. India 1 : 617. 1875; Cooke, Fl. Pres. Bombay 1 : 245. 1958 (Repr. ed.); Ding Hou in Van Steenis, Fl. Malesiana ser. I. 6 (2) : 235. 1962.

Mar. : 'Malkanguni'.

Climbing unarmed shrubs with pale-brown lenticular bark. Leaves 3.5—11 × 3—6 cm, alternate, broadly elliptic-ovate or elliptic-oblong, glabrous, shortly acuminate, crenate, serrate. Flowers unisexual, yellowish white or greenish-white in terminal panicles. Capsules 0.5-1.0 cm across, subglobose, bright-yellow, 3-valved. Seeds 5—6 brown with scarlet fleshy aril.

Fls. & Frts. : June - November.

Illus. : Wight, Icon. t. 158. 1839.

Distrib. : Occasional. Karanja, Bodkha, Fetra.

MEYTENUS Molina *emend.* Bose

Meytenus emarginatus (Willd.) Ding Hou in Van Steenis, Fl. Malesian ser. I. 6 (2) : 241. 1962. *Celastrus emarginatus* Willd. Sp. Pl. 1, 2 : 1128. 1798. *Gymnosporia montana* Benth. Fl. Austr. I : 400. 1863; Lawson in Hook. f. Fl. Brit. India I : 621. 1875; Cooke, Fl. Pres. Bombay I : 247. 1958 (Repr. ed.). *Gymnosporia emarginata* Thw. Enum. Pl. Zeyl. 409. 1864. *G. spinosa* (Blanco) Merr. & Rolfe in Philip. Journ. Sci. Bot. 3 : 109. 1908. *Meytenus senegalensis* auct. non Lam.

Mar. : 'Mal-Kangoni'.

Thorny shrubs, 2-5 m tall, with greyish-brown bark. Leaves 1.5—6.7 × 0.6—4.8 cm, coriaceous, elliptic-ovate or obovate, entire or crenulate, tapering into a short petiole. Flowers 0.2-0.3 cm, creamy-white, in axillary, dichotomously branched cymes or on the spines. Capsule 0.3-0.6 cm across, globose, glabrous. Seeds arillate, glabrous, rugose.

Fls. & Frts. : October - February.

Illus. : Mahesh, Illus. Fl. Delhi f. 43. 1966 and Wight, Icon. t. 382. 1840.

Distrib. : Common in open situations. Fетра, Mahan, Shahanur

RHAMNACEAE

- | | |
|---|------------------|
| 1. Unarmed, lianas, fruit dry, indehiscent, 1-celled, often winged .. | <i>Ventilago</i> |
| 1. Armed, erect trees shrubs or rarely unarmed, scandent, fruit drupaceous, stone 1-4 celled .. | <i>Ziziphus</i> |

VENTILAGO Gaertn.

Ventilago denticulata Willd. in Ges. Naturf. Fr. Neue Schr. 3 : 417. 1801. *V. calyculata* Tulasne in Ann. Sci. Nat. (ser. 4) 8 : 124. 1857; Hook. f. Fl. Brit. India I : 631. 1875; Cooke, Fl. Pres. Bombay I : 254. 1958 (Repr. ed.). Mar. : 'Lokhandi'.

Large scandent shrubs; young parts yellow, pubescent. Leaves 5.0—17.0 × 2.3—8.7 cm, ovate to broadly elliptic or ovate oblong, crenate-serrate, more or less undulate. Flowers 0.2-0.4 cm across, creamy-white in terminal panicles. Nuts 0.4-0.6 cm across, globose or subglobose; wing 4—5 × 0.7—1.0 cm, linear oblong, minutely bifid at tip.

Fls. & Frts. : October - February.

Distrib. : Occasional in hill forests. Mahan, Medshi.

ZIZIPHUS Miller

- | | |
|---|----------------------|
| 1. Fruits stony; more than 2.5 cm across | <i>Z. xylopyrus</i> |
| 1. Fruits not stony; not more than 1.5 cm across : | |
| 2. Straggling shrubs with acute to subacuminate leaves | <i>Z. oenoplia</i> |
| 2. Small bushy trees with leaves rounded at both the ends | <i>Z. mauritiana</i> |

Ziziphus mauritiana Lamk. Encycl. Meth. Bot. 3 : 319. 1789. *Z. jujuba* Lamk. Encycl. Meth. Bot. 3 : 318. 1789; Hook. f. Fl. Brit. India 1 : 632. 1875; Cooke, Fl. Pres. Bombay 1 : 256, 1958 (Repr. ed.).

Mar. : 'Bor'.

Large shrubs with softly pubescent young parts. Leaves 1.5—4 × 1.0—2.5 cm, ovate, elliptic, slightly unequal at the base, denticulate, glabrous above. Flowers greenish yellow, in axillary cymes. Drupe edible, globose, smooth, yellow or orange when ripe.

Fls. & Frts. : August - October.

Illus. : Mahesh., Illus. Fl. Delhi f. 44. 1966.

Distrib. : Common. Patur, Bodkha, Chikhawal.

Ziziphus oenoplia (L.) Miller, Gard. Dict. ed. 8, 3. 1768; Hook. f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 257. 1958.(Repr. ed.).
Rhamnus oenoplia L. Sp. Pl. 194. 1753.

Mar. : 'Bor'

Scandent or climbing, armed shrubs, rusty tomentose in younger parts. Leaves 2—5 × 1—3.5 cm, numerous, distichous, ovate or ovate-lanceolate with oblique base. Stipular spines in pairs of one straight and one hooked. Flowers greenish yellow, in paniculate cymes. Drupe edible, 0.6-0.7 cm across. black, shining.

Fls. & Frts. : August-October.

Distrib. : Common in hill forests. Karanja, Chikhawal, Akot.

Ziziphus xylopyrus (Retz.) Willd. Sp. Pl. 1 : 1104. 1798; Hook. f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 258. 1958. (Repr. ed.).
Mar. : 'Gutiber'.

Straggling shrubs upto 6 m tall, armed or unarmed young parts grey tomentose. Leaves 4—8 × 2.1—6.2 cm, elliptic-oblong or suborbicular, crenate, serrate, glabrous above, tomentose beneath. Flowers creamy white

or greenish yellow in axillary paniculate cymes. Drupes hard, globose, covered with grey tomentum.

Fls. & Frts. : April - September.

Distrib. : Common. Medshi, Fetra, Patur.

VITACEAE

- | | |
|--|---------------------|
| 1. Leaves compound; inflorescence leaf-opposed compound cymes; peduncles without tendrils; berries 2-4 seeded; seeds deeply pitted | <i>Cayratia</i> |
| 1. Leaves simple, entire or variously lobed; inflorescence on leaf opposed tendrils; berries 1-3 seeded; seeds faceted, furrowed or smooth : | |
| 2. Flowers hermaphrodite, tetramerous; berries usually 1-seeded; seeds ellipsoid or pyriform, smooth .. | <i>Cissus</i> |
| 2. Flowers polygamo-dioecious, tetra or pentamerous; berries 2-3 seeded, oblong or obovoid; convex on back, 2-furrowed on face .. | <i>Ampelocissus</i> |

AMPELOCISSUS J. E. Planch. *nom. cons.*

Ampelocissus latifolia (Roxb.) Planch. in Journ. Vigne Amer. 374. 1884 and in DC. Mon. Phan. 5(2) : 370. 1887. *Vitis latifolia* Roxb. Hort. Beng. 18. 1814 (*nomen*) and Fl. Ind. 1 : 661. 1832; Hook. f. Fl. Brit. India 1 : 652. 1875; Cocke, Fl. Pres. Bombay 1 : 269. 1958 (Repr. ed.).

Weak, glabrous climbers with forked tendrils. Leaves 5—18 × 6—20 cm, petiolate, cordate, orbicular, 3-7 lobed, irregularly dentate; petioles upto 9 cm. Flowers small, reddish brown in pyramidal cymes. Berries about 1 cm across, smooth, globose, glabrous, black.

Fls. & Frts. : June - October.

Distrib. : Occasional. Medshi, Chikhalwal

CAYRATIA A. L. Juss. *nom. cons.*

- | | |
|--|----------------------|
| Mostly slender climbers; leaves digitately 3-foliate, leaflets rotund-ovate, small 2-10 cm long; leaves and stem with soft pubescence .. | <i>C. trifoliata</i> |
| Large extensive climbers; leaves digitately 5-foliate, leaflets oblong-anceolate, upto 5-15 cm long; leaves and stem glabrous .. | <i>C. auriculata</i> |

Cayratia auriculata (Roxb.) Gamble, Fl. Madras Pres. 237. 1918. *Cissus auriculata* Roxb. Fl. Ind. 1 : 130. 1820. *Vitis auriculata* Wall. Cat. 6031.

1828 (*nomen.*); Hook. f. Fl. Brit. India 1 : 658. 1875; Cooke, Fl. Pres. Bombay 1 : 273. 1958 (Repr. ed.).

Mar. : 'Kali-vel'.

Extensive climbers; branches succulent; young parts softly pubescent; tendrils leaf-opposed. Leaves 5-foliate; leaflets obovate or ovate-rhomboidal, glabrous above, pubescent beneath. Flowers 4-merous, fruit a berry, globose, smooth. Shining, deep purple to almost black when ripe.

Fls. & Frts. : August - December.

Distrib. : Occasional on the trees in jungle. Narnala, Chikhralwal

Cayratia trifoliata (L.) Domin, Biblioth. Bot. 89 : 370. 1927. *Vitis trifolia* L. Sp. Pl. 203. 1753; Cooke, Fl. Pres. Bombay 1 : 271. 1958 (Repr. ed.). *Cayratia carnosia* (Lamk.) Gagnep. Not. Syst. 1 : 347. 1911. *Vitis carnosia* Wall. (Cat. 6018. 1831) ex Wt. & Arn. Prodri. 127. 1834; Hook. f. Fl. Brit. India 1 : 654. 1875 (excl. syn. *Cissus auriculata* Roxb.).

Mar. : 'Ambar-vel'.

Small to moderate sized climbers with a thick perennial root stock. Tendrils short, slender usually branched. Leaves 3-foliate; leaflets thick 3—6 × 2—3 cm, round-ovate, ovate-lanceolate, acute or obtuse, crenate-serrate, more or less pubescent on both surfaces. Flowers in long-peduncled cymes. Berries turbinate, fleshy, 1.2-2.0 cm long, 2-4 seeded.

Fls. & Frts. : August - September.

Illus. : Wight, Icon. 1. f. 171; 1839; Mahesh. Illus. Fl. Delhi f. 46. 1966.

Distrib. : Frequent in hilly forest ranges and on trees in the deciduous forests. Karla, Mahan, Wanoja.

CISSUS L.

Cissus vitiginea L. Sp. Pl. 117. 1753. *Vitis linnaei* Wall. Cat. 5987. 1828; Hook. f. Fl. Brit. India 1 : 649. 1875; Cooke, Fl. Pres. Bombay 1 : 268. 1958 (Repr. ed.)

Climbers, clothed with fulvous pubescence, branches terete. Leaves 5—13 × 4—11 cm, rotund-ovate, orbicular, cordate or truncate at the base, 3-5 lobed, irregularly dentate; petioles 1.5-4.0 cm long. Flowers 4-merous, in umbellate cymes. Berries 0.8 cm long, pyriform.

Fls. & Frts. : August - October.

Distrib. : Common. Karla, Medshi, Fetra.

LEEACEAE

Leea edgeworthii Santapau, Rec. Bot. Surv. India 16 (1) : 54. 1953. *L. aspera* Edgew. Trans. Linn. Soc. London 20 : 36. 1841; Hook. f. Fl. Brit. India 1 : 665. 1875; Cooke, Fl. Pres. Bombay 1 : 277. 1958. (Repr. ed.) non Wall. in Roxb., Fl. Ind. 2 : 468. 1932.

Under shrubs upto 3.0 cm tall. Leaves 10-22 cm, usually simpley pinnate; leaflets 5-7, usually lower one compound, elliptic, glabrous or sparsely hairy above, finely pubescent beneath, irregularly serrate, cordate at the base. Flowers white, or with pinkish tinge, in leaf-opposed trichotomous cymes. Berries 0.3-1.3 cm across, 4-6-lobed, subglobose, nearly black.

Fls. & Frts. : June-September.

Distrib. : Not frequent. Chikhalwal, Palodi.

SAPINDACEAE

- | | |
|--|----------------------|
| 1. Tendriler, climbing, herbaceous plants; leaves bi or triternate;
fruits inflated capsule .. | <i>Cardiospermum</i> |
| 1. Trees or shrubs, etendriler; leaves simple or compound but not
ternate; fruits not as above .. | <i>Sapindus</i> |

CARDIOSPERMUM L.

Cardiospermum helicacabum L. Sp. Pl. 366. 1753; Hook. f. Fl. Brit. India 1 : 670. 1875; Cooke, Fl. Pres. Bombay 1 : 280. 1958 (Repr. ed.).

Mar. : 'Kapal-phodi'.

Tendril-bearing climbing, glabrous or sparsely hairy herbs. Leaves alternate, petioles 5-8 cm long; leaflets ovate, acuminate 0.5—7.3 × 0.3—1.5 cm, glabrous or sparsely hairy. Flowers small, yellow or whitish-yellow in terminal cymes. Capsules upto 2.4 cm broad, trigonously fusiform, bladdery, 3-valved, truncate at tip. Seeds black, globose, smooth.

Fls. & Frts. : August - February.

Illus. : Wight, Icon. t. 508. 1841; Mahesh., Illus. Fl. Delhi f. 47. 1966.

Distrib. : Common on the hedges. Karanja, Medshi, Patur.

SAPINDUS L.

Sapindus emarginatus Vahl, Symb. Bot. 3 : 54. 1794. *S. laurifolius* var. *emarginatus* Cooke, Fl. Pres. Bombay 1 : 284. 1958 (Repr. ed.). *S. trifoliatus* auct. non Linn.; Hiern in J. Hooker, Fl. Brit. India 1 : 682. 1875.

Mar. : 'Ritha'.

Trees upto 10 m tall and very similar to *S. laurifolius* Vahl, but differs from the latter having leaflets broadly ovate-oblong, elliptic-oblong, or obovate-oblong, rounded or emarginate at the apex. Petals glabrous within except for a few hairs below. Fruits sparsely hairy, of 3 druplets, connate upto half their length.

Fls. & Frts. : September - March.

Illus. : Bedd., Fl. Sylv. t. 154. 1871.

Distrib. : Cultivated at some places; Karanja, Kasmar, Patur.

ANACARDIACEAE

1. Leaves compound	..	<i>Lannea</i>
1. Leaves simple:		
2. Flowers bisexual; stamens twice as many as petals; styles 5-6	..	<i>Buchanania</i>
2. Flowers unisexual; polygamodioecious; stamens as many as petals; styles 3	..	<i>Semecarpus</i>

BUCHANANIA Spreng.

Buchanania lanzae Spreng. in J. Bot. (Shrader) 2 : 234. 1800; 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.

Mar. : 'Charoli'.

Trees upto 15 m tall, with straight trunk and blackish brown bark. Leaves 8—31 × 3.5—12.0 cm, thickly coriaceous, glabrous above, villous beneath, broadly oblong, obtuse, sometimes emarginate. Flowers creamy white, small, sessile, in axillary pyramidal panicles. Ovaries one perfect, conical, villous, other 4 reduced to cylindrical filaments. Drupes 0.6-1.2 cm long, smooth, single-seeded.

Fls. & Frts. : December - April.

Illus. : Bedd., Fl. Sylv. t. 165. 1871.

Distrib. : In the deciduous forest. Karla, Patur.

LANNEA A. Rich. *nom. cons.*

Lannea coromandelica (Houtt.) Merr. in J. Arnold Arbor. 19 : 353. 1939.
Dialium coromandelicum Houtt. Mat. Hist. (Ser. II) 2 : 39. t. 5. f. 2. 1774.
Odina wodier Roxb. Hort. Beng. 29. 1814 (*nomen*) & Fl. Ind. 2 : 293. 1832;
 Hook. f. Fl. Brit. India 2 : 29. 1875; Cooke, Fl. Pres. Bombay 1 : 296. 1958
 (Repr. ed.).

Mar. : ' *Moin*' .

15 m tall, deciduous trees with ash-coloured bark. Leaves 14-29 cm long, crowded at the ends of branches; leaflets 5-11, 1.3—12.1 × 0.8—5.2 cm, ovate, elliptic-oblong or elliptic-lanceolate, glabrous. Flowers yellow, appearing when the tree is devoid of leaves, crowded in cymose fascicles, the male racemes compound, the female simple. Drupes smooth, glabrous, reniform.

Fls. & Frts. : February - June.

Illus. : Wight, Icon. t. 60. 1838.

Distrib. : Common in the deciduous forests. Karla, Morna, Shahanur.

SEMECARPUS L. f.

Semecarpus anacardium L. f. Suppl. 182. 1781; Hook. f. Fl. Brit. India 1 : 80. 1875; Cooke, Fl. Pres. Bombay 1 : 296. 1958 (Repr. ed.).

Mar. : ' *Bibba*' .

Trees upto 8 m tall. Leaves 7—34 × 5—15 cm, coriaceous, broadly ovate-oblong, rounded, acute at tip, truncate-cordate at base, glabrous above, silky white-pubescent beneath. Panicles upto 30 cm long, terminal, hairy. Flowers yellowish. Drupes upto 1.9 cm long, obliquely ovoid or oblong, smooth or shining, black when ripe, seated on a fleshy receptacle or hypocarp about 1.5 cm long.

Fls. & Frts. : July-December.

Illus. : Wight, Icon. t. 558. 1842.

Distrib. : Common in dry wet deciduous forests. Fatra, Kalakamta, Shelubudruk.

MORINGACEAE

MORINGA Lamk.

- | | | |
|---|----|-----------------------|
| 1. Leaves 2-pinnate; veins distinct; flowers creamy white with red tinge; wild. | .. | <i>M. concanensis</i> |
| 1. Leaves 3-pinnate; veins not distinct, flowers white; mostly planted or self-sown | .. | <i>M. oleifera</i> |

Moringa concanensis Nimmo in Grah. Cat. Bombay Pl. 431839; Hook. f. Fl. Brit. India 2 : 45. 1878; Cooke, Fl. Pres. Bombay 1 : 301. 1958. (Repr. ed.).

8-10 m tall trees, glabrous except the young parts and the inflorescence, Leaves bipinnate, 25-40 cm long; leaflets 15-20, broadly elliptic or suborbicular rarely obovate, glabrous. Flowers yellowish-white in panicles. Fruits 30-55 cm long, pendulous. Seeds triangular, winged.

Fls. & Frts. : October- December.

Illus. : Matthew, Illus. Fl. Tamil. Carn. t. 178. 1982.

Distrib. : Rare in the forest; Morna (Kamble, 152752).

Moringa oleifera Lamk. Encycl. Meth. Bot. 1 : 398. 1785; *Moringa pterigosperma* Gaertn. Fruct. 2 : 314. 1791; Hook. f. Fl. Brit. India 2 : 45. 1876; Cooke, Fl. Pres. Bombay 1 : 301. 1958 (Repr. ed.)

Mar. : 'Shevga'.

Middle sized deciduous trees, with corky bark. Leaves alternate, 3-pinnate, 15-40 cm long; leaflets ovate, obovate or oblong, glabrous. Flowers white in large 30-60 cm long panicles which are axillary or at the ends of branches. Pods 30-50 cm long, pendulous, subtorulose, deeply striate. Seeds triangular, winged on angles, 1-1.5 cm long.

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

Illus. : Beed., Fl. Sylv. t. 80. 1871.

Distrib. : Generally cultivated near houses; Patur, Medshi.

FABACEAE

1. Leaves 2-foliate	..	<i>Zornia</i>
1. Leaves simple, 3-foliate or pinnate :		
2. Flowers yellow (whitish in <i>Dalbergia</i>) :		
3. Leaves simple or 1-foliate :		
4. Pods boat shaped	..	<i>Elettis</i>
4. Pods not as above :		
5. Pods flattened	..	<i>Gonilogyna</i>
5. Pods turgid	..	<i>Crotalaria</i>
3. Leaves 3-foliate or pinnate :		

6. Stamens diadaliphous forming two bundles of 5 stamens each :
- 7. Terrestrial trees with 5-7 leaflets .. *Dalbergia*
 - 7. Aquatic or marshy herbs with many leaflets .. *Aschynomene*
6. Stamens diadaliphous forming two bundles one of 9 and other of 1 stamen :
- 8. Leaves gland-dotted beneath :
 - 9. Seeds 1-2 only .. *Rhynchosia*
 - 9. Seeds 3 or more .. *Atylosia*
 - 8. Leaves not gland dotted beneath :
 - 10. Leaflets 4 or more .. *Sesbania*
 - 10. Leaflets 2 :
 - 11. Plants erect .. *Mellilotus*
 - 11. Plants twining, prostrate or suberect :
 - 12. Stigma oblique .. *Phaseolus*
 - 12. Stigma terminal .. *Dolichos*
 - 2. Flowers not yellow :
 - 13. Stamens less than 10 .. *Abrus*
 - 13. Stamens 10 :
 - 14. Stamens monadelphous :
 - 15. Leaves simple or 1 foliate .. *Psoralea*
 - 15. Leaves 3- foliate or pinnate :
 - 16. Trees :
 - 17. Leaflets 3; flowers red or white; pods moniliform .. *Erythrina*
 - 17. Leaflets 5-7; flowers white or pink; pods flat .. *Derris*
 - 16. Herbs .. *Teramnus*
 - 14. Stamens diadaliphous, always in two bundles of 9:1
 - 18. Leaves simple or 1- foliate :
 - 19. Anthers apiculate; hairs medifixed .. *Indigofera*
 - 19. Anthers not apiculate but blunt; hairs not medifixed :
 - 20. Joints of the pod echinate .. *Taverniera*
 - 20. Joints of the pod not echinate :
 - 21. Joints of the pod folded one above the other .. *Uraria*

21. Joints of the pod not folded one above other : ..
22. Trees; racemes fascicled on old wood .. *Ougenia*
22. Herbs or shrubs; racemes simple or panicled :
23. Pods flattened :
24. Pods 1-2 seeded; leaflets modified into tendrils .. *Vicia*
24. Pods many seeded; leaflets not modified into tendrils :
25. Sepals persistent, foliaceous, creamy white or pale yellow .. *Paracalyx*
25. Sepals not as above : ..
26. Pods continuous or scarcely septate, dehiscent .. *Tephrosia*
26. Pods jointed, separating into indehiscent joints .. *Desmodium*
18. Leaves 3-foliate or pinnate :
27. Trees .. *Butea*
27. Twining or climbing herbs :
28. Style beardless; pod 'S' shaped with stinging bristles .. *Mucuna*
28. Style bearded below the stigma; pods not as above .. *Clitoria*

ABRUS Adans.

Abrus precatorius L. Syst. (ed. 12) : 472. 1767; Baker in Hook. f. Fl. Brit. India 2 : 175. 1876; Cooke, Fl. Pres. Bombay 1 : 382. 1958 (Repr. ed.).
Mar. : 'Gunj'.

Perennial deciduous twiners. Leaves 5-10 cm long, pinnate; leaflets 0.5—1.8×0.4—0.8 cm, opposite, oblong or elliptic-oblong, glabrous above and appressed hairy beneath. Flowers pink or white, crowded in 3-7.8 cm long, axillary racemes. Pods oblong, 3—4.5×1—1.5 cm, pubescent, mucronate. Seeds 3-5, red with or without black spot.

Fls. & Frts. : August - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 71. 1966.

Distrib. : Common on bushes in open grasslands and in hill forests on slopes. Karanja, Karla, Narnala.

ASCHYNOMENE L.

Aschynomene indica L. Sp. Pl. 713. 1753; Hook. f. Fl. Brit. India 2 : 151. 1876; Cooke, Fl. Pres. Bombay 1 : 363. 1958 (Repr. ed.).

Much branched, erect or suberect, suffruticose, glabrous herbs. Leaves imparipinnate, 5-16 cm long; leaflets 15-45 pairs, $0.3-0.8 \times 0.1-0.4$ cm, linear-oblong, obtuse or subacute, mucronate at apex, rounded or inequilateral at base. Flowers yellow, few in axillary, 1-6 cm long racemes. Pods $2.5-4.5 \times 0.2-0.4$ cm slightly falcate, glabrous, minutely red-dotted.

Fls. & Frts. : August - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 65. 1966.

Distrib. : Throughout in moist places. Pinjer, Kinhiraja, Narnala Patur, Shelubudruk.

ALYSICARPUS Desvaux nom. cons.

1. Calyx shorter or slightly longer than the first joint of the pod :

2. Pods moniliform, veinless	..	<i>A. monilifer</i>
2. Pods not moniliform, veined	..	<i>A. vaginalis</i>

1. Calyx much longer than the first joint of pod :

3. Pods not ribbed transversely :		
4. Pods slightly monilifer, neither veined nor rugose	..	<i>A. bupleurifolius</i>
4. Pods monilifer, reticulately veined	..	<i>A. longifolius</i>
3. Pods transversely ribbed :		
5. Pods 4-gonous, exserted	..	<i>A. tetragonolobus</i>
5. Pods not 4-gonous, not exserted :		
6. Calyx with hairs on the back	..	<i>A. scariosus</i>
6. Calyx glabrous	..	<i>A. rugosus</i>

Alysicarpus bupleurifolius (L.) DC. Prodr. 2 : 352. 1825; Hook. f. Fl. Brit. India 2 : 158. 1876; Cooke, Fl. Pres. Bombay 1 : 370. 1958 (Repr. ed.).
Hedysarum bupleurifolium L. Sp. Pl. 745. 1753.

Prostrate or suberect, 15-40 cm tall, glabrous herbs. Leaves 1.2—7.5 × 0.2—0.6 cm, sessile or subsessile; upper leaves linear-oblong, acute; basal ones elliptic-suborbicular. Flowers reddish-purple, in 5-15 cm long, axillary or terminal, lax racemes. Pods 0.5-1.2 cm long, apiculate, 4-6 jointed, glabrous.

Fls. & Frts. : August - November.

Illus. : Mahesh., Illus. Fl. Delhi f. 70. 1966.

Distrib. : Occasional among grasses. Akot, Shahanur.

Alysicarpus longifolius (Rottl. ex Spreng.) Wight & Arn. Prodr. 233. 1834; Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 370. 1958 (Repr. ed.). *Hedysarum longifolium* Rottl. ex Spreng. Syst. 3 : 319. 1826.

Erect, slender herbs; 1-1.5 m high. Leaves 1-foliate, 1.3—7.1 × 0.6—2.9 cm elliptic-oblong, ovate-lanceolate or linear-lanceolate. Flowers reddish-purple, in 5-35 cm long, spicate racemes. Pods 3-6 jointed, upto 1.3 cm long, reticulately veined, glabrous. Seeds globose, brown.

Fls. & Frts. : September - February.

Illus. : Wight, Icon. t. 251. 1840.

Distrib. : Occasional. Karanja, Pinjer.

Alysicarpus monilifer (L.) DC. Prodr. 2 : 353. 1825; Hook. f. Fl. Brit. India 2 : 157. 1876; Cooke. Fl. Pres. Bombay 2 : 368. 1958 (Repr. ed.). *Hedysarum moniliferum* L. Mant. I : 102. 1767.

Slender, much branched, prostrate annuals; young branches clothed with deciduous bristly hairs. Leaves 0.5—2.2 × 0.2—1.2 cm, elliptic-oblong or obovate, glabrous but hairy nerves beneath. Flowers pinkish-purple in 2.5-5.7 cm long, axillary or terminal racemes. Pods 1.0-1.5 cm long, joints hairy, reticulately veined.

Fls. & Frts. : August - November.

Illus. : Burm., Fl. Ind. t. 52. fig. 3.

Distrib. : Common. Karanja, Mahan, Patur.

Alysicarpus rugosus (Willd.) DC., Prodr. 2 : 353. 1825; Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 371. 1958 (Repr. ed.). *Hedysarum rugosum* Willd. Sp. Pl. 3 : 1172. 1802.

Prostrate or suberect, glabrous herbs. Leaves 1.5—4.6 × 0.4—0.6 cm, oblong, rarely orbicular or linear-lanceolate. Flowers pinkish-purple in

compact, spicate racemes. Pods 0.7-1.1 cm long; joints glabrous, transversely ribbed.

Fls. & Frts. : August-October.

Distrib. : Occasional among grasses. Kalamata, Patur.

Alysicarpus scariosus (Rottl. ex Spreng.) Grah. ex Thw. Enum. Pl. Zeyl. 88. 1858; Ali in Bail. 12 : 32. 1966. *Hedysarum scariosum* Rottl. ex Spreng. Syst. Veg. 3 : 319. 1826. *H. glaucum* auct. non 2., Roth. Nov. Pl. Sp. 355. 1821. *Alysicarpus styracifolius* auct. non DC. 1825. *A. rugosus*(Willd.) DC. var. *styracifolius* Baker in Oliver, Fl. Trop. Afr. 2 : 171. 1871; Baker in Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 371. 1958 (Repr. ed.).

Diffuse, finely pubescent, 25-45 cm tall herbs. Leaves petiolate, 0.8—6.8 × 6.4—3.3 cm, elliptic-oblong, hairy beneath. Flowers reddish-purple in axillary, compact racemes which are upto 2.5 cm long. Pods upto 5.0 cm long, glabrous.

Fls. & Frts. : September-February.

Distrib. : Occasional. Morna dam.

Alysicarpus tetragonolobus Edgew. in Journ. As. Soc. Bengal 21 : 169. 1853; Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 372. 1958 (Repr. ed.).

Procumbent, slender, glabrous or sparsely hairy herbs. Leaves 1-foliate, 1-4.3 × 0.5—1.4 cm, linear to linear-oblong or linear-lanceolate, glabrous above and hairy beneath. Flowers reddish-purple in 5-20 cm long racemes. Pods upto 1 cm long, subquadrangular, glabrous, apiculate.

Fls. & Frts. : August-February.

Distrib. : Common among grasses. Karla, Kinhiraja, Mahan, Patur, Pinjer.

Alysicarpus vaginalis (L.) DC. Prodr. 2 : 353. 1825; Hook. f. Fl. Brit. India 2 : 158. 1876; Cooke, Fl. Pres. Bombay 1 : 369. 1958 (Repr. ed.) *Hedysarum vaginale* L. Sp. Pl. 746. 1753. *Alysicarpus nummularifolius* DC., Prodr. 2 : 353. 1825. *A. vaginalis* (L.) DC., var. *nummularifolius* (DC.) Baker in Hook. f. Fl. Brit. India 2 : 158. 1876; Cooke, Fl. Pres. Bombay 1 : 369. 1958 (Repr. ed.). *A. vaginalis* (L.) DC., var. *stocksii* Baker in Hook. f. Fl. Brit. India 2 : 158. 1876; Cooke, Fl. Pres. Bombay 1 : 369. 1958 (Repr. ed.).

Prostrate or suberect, glabrous or sparsely hairy herbs. Leaves 1.0—4.6 × 1.0—3.5 cm, ovate-oblong, elliptic-oblong, glabrous above and hairy beneath.

Flowers purple in 4-7 cm long axillary and terminal racemes. Pods upto 2.4 cm long, reticulately veined.

Fls. & Frts. : August - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 69. 1966.

Distrib. : Occasional. Khadaki, Morna.

ATYLOSIA W. & A.

Atylosia scarabaeoides (L.) Benth. in Miq. Pl. Jurgh. 2 : 242. 1852; Hook f. Fl. Brit. India 2 : 215. 1876; Cooke, Fl. Pres. Bombay 1 : 409. 1958 (Repr. ed.). *Dolichos scarabaeoides* L. Sp. Pl. 726. 1753.

Slender, appressed pubescent, prostrate or twining herbs. Leaves trifoliate; leaflets 2.4—5.4×3.0—2.0 cm, elliptic or ovate-oblong, pubescent. Flowers yellow, solitary or few in axillary racemes. Pods upto 1.5 cm long, appressed hairy, brown. Seeds black, smooth, strophiolate.

Fls. & Frts. : August - December.

Distrib. : Occasional on hedges; Medshi, Wanoja.

BUTEA Roxb. ex Willd. *nom. cons.*

Butea monosperma (Lam.) Taub. in Engl. & Prantl, Pflanzenfam. 3 (3): 366. 1894. *Erythrina monosperma* Lamk. Encycl. 1 : 391. 1785. *Butea frondosa* Koenig ex Roxb. Journ. Asiat. Res. 3 : 469. 1792 ; Hook. f. Fl. Brit. India 2 : 194. 1876; Cooke, Fl. Pres. Bombay 1 : 395. 1958 (Repr. ed.).

Mar.: 'Palas.'

Deciduous, tomentose trees upto 8 m tall. Bark brownish or ash-coloured. Leaves trifoliate; leaflets rhomboid or broadly ovate, retuse, rounded at base; terminal largest upto 15×20 cm. Flowers 6 cm long, showy, flame-coloured, in 8-12 cm long raceme. Pod upto 6×18 cm, rounded at base.

Fls. & Frts. : December - May.

Illus. : Bedd., Fl. Sylv. t. 176. 1872.

Distrib. : Common. Karla, Medshi, Narnala.

Notes : *Butea superba* was also common in Chikhaval region. Flowering could not be collected.

CLITORIA L.

Clitoria ternatea L. Sp. Pl. 753. 1753; Hook. f. Fl. Brit. India 2 : 208. 1876; Cooke, Fl. Pres. Bombay 1 : 405. 1958 (Repr. ed.).

Mar. : 'Gokarn'.

Glabrescent, slender twiners. Leaves 3-6 cm long, pinnate, alternate; leaflets 5-7, elliptic, obtuse or retuse, rounded at base, upto 3.5—2.5 cm. Flowers blue or white, solitary, axillary. Pods about 1 x 8 cm, oblong, flattened, pubescent.

Fls. & Frts. : Throughout the year.

Distrib. : Occasional in hedges; often cultivated. Karanja, Patur.

CROTALARIA L.

1. Leaves trifoliate :			
2. Pods 2-seeded, hairy	..		<i>C. medicaginea</i>
2. Pods more than 8-seeded, glabrous	..		<i>C. orixensis</i>
1. Leaves simple :			
3. Pods hairy :			
4. Plants diffuse, less than 15 cm tall; stipules absent	..		<i>C. pusilla</i>
4. Plants diffuse or erect; more than 20 cm tall; stipules present	..		<i>C. hirsuta</i>
3. Pods glabrous :			
5. Corolla exserted or longer than calyx :			
6. Diffuse annuals; racemes few flowered	..		<i>C. filipes</i>
6. Erect herbs, undershrubs or shrubs; racemes many flowered :			
7. Stipules absent	..		<i>C. linifolia</i>
7. Stipules present :			
8. Stipules and bracts foliaceous	..		<i>C. spectabilis</i>
8. Stipules and bracts not as above	..		<i>C. retusa</i>
5. Corolla not exserted :			
9. Erect herbs; racemes terminal or with few lateral flowers	..		<i>C. mysorensis</i>
9. Prostrate herbs; racemes few flowered :			
10. Racemes lax; fruits upto 1.7 x 0.3 cm	..		<i>C. prostrata</i>
10. Racemes compact; fruits upto 1.5 x 0.9 cm	..		<i>C. kirkii</i>

Crotalaria filipes Benth. in Hook. Lond. Journ. Bot. 2 : 475. 1843; Hook. f. Fl. Brit. India 2 : 66. 1876; Cooke, Fl. Pres. Bombay 1 : 312. 1958 (Repr. ed.).

Prostrate herbs. Stems upto 35 cm long, many from woody root. Leaves 1.3—2.6 × 0.7—0.8 cm, ovate oblong, pubescent. Flowers yellow in lateral racemes. Pods glabrous, oblong.

Fls. & Frts. : August - October.

Distrib. : Occasional; Mahan.

Crotalaria hirsuta Willd. Sp. Pl. 3 : 978. 1802; Hook. f. Fl. Brit. India 2 : 68 1876.

Silky hairy herbs. Leaves 1.2—5.5 × 1.0—3.5 cm, shortly petiolate, ovate, appressed hairy. Flowers yellow, in 1.5-2 cm long, lateral racemes. Pods oblong, finely downy, upto 1.5 cm long. Seeds blackish-brown, smooth, shining.

Fls. & Frts. : August - November.

Distrib. : Occasional; Kalamata, Kasmar.

Crotalaria hirta Willd. in Ges. Naturf. Freude Berlin Neue Schriften 4 : 217. 1803.

Decumbent, villous herbs. Leaves oblong, obtuse 2—3 × 0.4—0.5 cm, glabrous above. Leaves elliptic to oblanceolate, acute, alternate. Flowers yellow solitary or 2-few flowered terminal racemes. Pods upto 1.5 cm long.

Fls. & Frts. : October - February.

Distrib. : Occasional. Karanja, Medshi.

Crotalaria linifolia L. f. Suppl. 322. 1781; Hook. f. Fl. Brit. India 2 : 72. 1876; Cooke, Fl. Pres. Bombay 1 : 317. 1958 (Repr. ed.).

Suffruticose, erect 30-50 cm tall, usually much branched herbs. Leaves 5.5—14.0 × 1.3—4.2 cm, oblong-lanceolate, appressed-pubescent, subsessile. Flowers yellow in terminal or axillary racemes. Pods upto 2 cm long. Seeds compressed, glabrous.

Fls. & Frts. : August - November.

Distrib. : Common among grasses. Kasmar, Patur, Palodi, Shelubudruk.

Crotalaria medicaginea Lam. Encycl. Meth. Bot. 2 : 201. 1786; Hook. f. Fl. Brit. India 2 : 81. 1876; Cooke, Fl. Pres. Bombay 1 : 322. 1958 (Repr. ed.).

Erect, appressed hairy herbs upto 75 cm tall. Leaflets three, 1—3.6 × 0.4—1.5 cm, subsessile, oblanceolate or obovate-oblong. Flowers yellow in terminal or leaf opposed racemes. Pods. 0.3-0.5 cm, subglobose, beaked. Seeds compressed, subreniform, dark-brown, smooth.

Fls. & Frts. : August - February.

Illus. : Mahesh., Illus. Fl. Delhi f. 49. 1966.

Distrib. : Common. Mahan, Manglurpir, Palodi, Patur.

Crotalaria mysorensis Roth, Nov. Pl. Sp. 338. 1821; Hook. f. Fl. Brit. India 2 : 70. 1876; Cooke, Fl. Pres. Bombay 1 : 314. 1958 (Repr. ed.).

Erect, silky-brown, 25-80 cm tall, hairy herbs. Leaves 4.5-12 × 0.4—1.6 cm, sessile, pilose, linear-oblong. Flowers yellow, in terminal lax racemes. Pods oblong, shortly beaked, upto 3 cm long. Seeds yellowish-brown, glabrous.

Fls. & Frts. : August-January.

Distrib. : Occasional in open grass lands and cultivated fields. Mahan, Medshi.

Crotalaria orixensis Willd. in Ges. Naturf. Fr. Neue, Schr. 4 : 217. 1803; Hook. f. Fl. Brit. India 2 : 83. 1876; Cooke, Fl. Pres. Bombay 1 : 323. 1958 (Repr. ed.).

Prostrate herbs, somewhat woody at base. Leaves trifoliate; leaflets 1—3.5 × 0.4—2.5 cm, obovate to oblong. Flowers yellow in terminal and axillary racemes which are upto 7 cm long. Pods glabrous, cylindric, glabrous upto 1.3 cm long. Seeds elliptic or subreniform, glabrous.

Fls. & Frts. : August - January.

Distrib. : Common in open grasslands. Adan dam, Karanja, Medshi, Pinjer.

Crotalaria prostrata Rottl. in Willd. Enum. Hort. Berol. 747. 1809; Hook. f. Fl. Brit. India 2 : 67. 1876; Cooke, Fl. Pres. Bombay 1 : 312. 1958 (Repr. ed.).

Prostrate or diffuse, slender herbs. Leaves 1.3—9.2 × 0.4—1 cm, subsessile, silky pubescent, oblong or oblong-ovate. Flowers yellow, 2-3 in lateral lax racemes. Pods upto 1.7 cm long. Seeds 12-16, subreniform, brown, smooth.

Fls. & Frts. : September - December.

Distrib. : Occasional. Kalamata, Palodi.

Crotalaria pusilla Heyne ex Roth, Nov. Pl. Sp. 335. 1821; Hook. f. Fl. Brit. India 2 : 70. 1876; Cooke, Fl. Pres. Bombay 1 : 315. 1958 (Repr. ed.).

Diffuse, pubescent herbs. Leaves linear-lanceolate, subsessile, $1-1.5 \times 0.2-0.4$, cm, membranous. Flowers yellow in terminal, few-many flowered racemes. Pods $0.5-0.9$ cm long. Seeds brown, glabrous subreniform.

Fls. & Frts. : August - October.

Distrib. : Rare; Mahan (Kamble 149453, BSI).

Crotalaria retusa L. Sp. Pl. 715. 1753; Hook. f. Fl. Brit. India 2 : 75. 1876; Cooke, Fl. Pres. Bombay 1 : 378. 1958 (Repr. ed.)

Erect, robust undershrubs; branches furrowed, white-pubescent. Leaves obovate, cuneate $2.3-10 \times 1.29$ cm, pubescent beneath, subsessile. Racemes terminal, many flowered. Flowers bright-yellow; corolla glabrous. Pods upto 4×1.2 cm, many-seeded, oblong. Seeds subreniform, dark-brown.

Fls. & Frts. : August - March.

Distrib. : Occasional; Karla, Mahan.

Crotalaria spectabilis Roth, Nov. Pl. Sp. 341. 1821; Ali in Biol. 12 (2) : 26. 1966. *Crotalaria sericea* Retz. Obs. Bot. 5 : 26. 1789; Hook. f. Fl. Brit. India 2 : 75. 1876; Cooke, Fl. Pres. Bombay 1 : 319. 1958. (Repr. ed.).

Glabrous undershrubs upto 1.5 m tall; branches stout, striate. Leaves $5-15 \times 2-7$ cm, oblong-lanceolate, acute or subacute, mucronate, glabrous above, finely silky beneath. Flowers yellow, in elongate, terminal, 20-30 cm long racemes. Pods glabrous, linear-oblong stalked, 4-5 cm long.

Fls. & Frts. : September - January.

Distrib. : Common; Akot, Narnala fort.

DALBERGIA L. nom. cons.

I. Stamens 10, diabaphous ($5+5$) :

2. Standard longer than broad; leaflets with reticulate venation .. *D. paniculata*

2. Standard as long as broad; leaflets with prominent parallel nerves .. *D. lanceolaria*

1. Stamens 9, monadelphous :

3. Leaflets 5-7, obtuse or emarginate; inflorescence of fascicled corymbose panicles .. *D. latifolia*

3. Leaflets 3-5, acute or acuminate; inflorescence of solitary elongate panicles .. *D. sissoo*

Dalbergia lanceolaria L. f. Suppl. 316. 1781; Hook. f. Fl. Brit. India 2: 235. 1876; Cooke, Fl. Pres. Bombay 1 : 425. 1958 (Repr. ed.).

Mar. : ' *Harri*'

Deciduous trees upto 15 m tall, with young parts pubescent. Leaves 15-22 cm long, alternate; leaflets 13-15 obovate, elliptic-oblong, emarginate, $1.5-5 \times 1.3-2.2$ cm, membranous. Flowers white in axillary and terminal panicles. Pods 3-5.5 cm long, narrowed at both ends.

Fls. & Frts. : November - June.

Illus. : Wight, Icon- t. 266. 1840.

Distrib. : Occasional; Chikhaliwal, Shahanur.

Dalbergia latifolia Roxb. Pl. Cor. t. 113. 1799; Hook. f. Fl. Brit. India 2 : 231 1876; Cooke, Fl. Pres. Bombay 1 : 422. 1958 (Repr. ed.).

Mar.: ' *Biti, Sissu*'.

Deciduous trees upto 8 m tall with ash-coloured bark. Leaves 10-12 cm long, alternate. Leaflets 5-7, sometimes, 9, rounded or emarginate, elliptic-orbicular, cuneate at base, 5×4 cm, glabrous. Flowers creamy white in axillary or extra axillary panicles. Pods 1-2 seeded, slightly thickened, $2.5-5.0 \times 0.9-2.0$ cm.

Fls. & Frts. : September - November.

Illus. : Prain, Ann. Roy. Bot. Gard (Calcutta) 10 (1) : 80. t. 62. 1905.

Distrib. : Occasional, not common; Kasmar.

Dalbergia paniculata Roxb. Pl. Cor. t. 114. 1799; Hook. f. Fl. Brit. India 2 : 236 1876; Cooke, Fl. Pres. Bombay 1 : 426. 1958 (Repr. ed.).

Mar. : ' *Shisavi*'.

Deciduous trees, 10-15 m tall. Leaves upto 15 cm long; leaflets 13-15, oblong, obovate, rounded or emarginate. Flowers brownish-white or yellow, in terminal, paniculate cymes. Pods glabrous, $3.5-8.5 \times 1.0-1.3$ cm, acute at ends.

Fls. & Frts. : April - September.

Illus. : Prain, Ann. Roy. Bot. Gard. (Calcutta) 10 (1) : 87. t. 68. 1905.

Distrib. : Frequent; Chikhalwal, Narnala.

Dalbergia sissoo Roxb. Hort. Beng. 53. 1814 (nomen); Hook. f. Fl. Brit. India 2 : 231. 1876; Cooke, Fl. Pres. Bombay 1 : 421. 1958 (Repr. ed.).

Mar. : 'Sisvi'.

Deciduous trees upto 10 m tall. Leaves upto 20 cm long; leaflets 5-7, elliptic-ovate, obovate, acute, $1.0-6.5 \times 0.6-4.5$ cm, nearly orbicular, puberulous. Flowers white or cream coloured in axillary panicles. Pods $3-6 \times 1$ cm, flat, 1-2 seeded.

Fls. & Frts. : April - November.

Illus. : Bedd., Fl. Sylv. t. 25. 1869.

Distrib. : Occasional; avenue tree, also grown for timber. Palodi

DERRIS Lour. *nom. cons.*

Derris indica (Lam.) Bennet: in Journ. Bombay nat. Hist. Soc. 68 : 303. 1971. *Galedupa indica* Lam.; Encycl. 2 : 594. 1788-89. *Cystipus pinnatus* L. Sp. Pl. 1 : 741. 1753. (non *Derris pinnata* Lour.). *Pongamia glabra* Vent. Jard. Malm. 28. 1803; Hook. f. Fl. Brit. India 2 : 240. 1876; Cooke, Fl. Pres. Bombay 1 : 429. 1958. (Repr. ed.). *Pongamia pinnata* (L.) Pierre, Fl. For. Cochinch. sub. t. 385. 1899.

Small, middle-sized, evergreen trees. Leaves imparipinnate; leaflets 3-7, ovate-oblong or elliptic, acuminate. Racemes axillary or drooping, upto 20 cm long. Flowers pinkish white, upto 1.3 cm long. Pods $3-5 \times 2.3$ cm, compressed, rather woody, obliquely oblong. Seed only one.

Fls. & Frts. : March - August.

Illus. : Wight, Icon. t. 59. 1838.

Distrib. : Common along river banks; Medshi Morna, Palodi.

DESMODIUM Desvaux *nom. cons.*

1. Shrubs or under shrubs; leaflets longer than broad :

2. Branches angled; joints of pod longer than broad; leaflets not fulvous-hairy

D. gangeticum

2. Branches terete; joints of pod as long as broad; leaflets fulvous hairy .. *D. velutinum*
 1. Herbs; leaflets as long as broad .. *D. rotundifolium*

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, Reinwardtia 6 (3) : 249. 1962. *Hedysarum gangeticum* L. Sp. Pl. 746. 1753.

Mar. ; 'Salvan'.

Undershrubs, about 1 m tall, hairy. Leaves 1-foliate, oblong 7—13 × 4—7 cm. Flowers pink, in axillary or terminal racemes. Pods subfalcate, 5-7 jointed, hairy.

Fls. & Frts. : September - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 68. 1966.

Distrib. : Frequent as undergrowth in hilly forests; Karla, Karanja, Medshi, Patur.

Desmodium rotundifolium Baker in Hook. f. Fl. Brit. India 2 : 172. 1876; Cooke, Fl. Pres. Bombay 1 : 381. 1958 (Repr. ed.).

Prostrate or suberect annual herbs; stems upto 40 cm long, branched from base, covered with hairs. Leaves broadly elliptic, obovate, membranous, appressed hairy beneath, 1-2 cm wide. Flowers pink or pale purple, in axillary racemes. Pods compressed, upto 1.5 cm long, 3-5 jointed.

Fls. & Frts. : August - October.

Distrib. : Occasional among grasses. Medshi, Patur.

Desmodium velutinum (Willd.) DC. Prodr. 2 : 228. 1825. van Meeuwen, Reinwardtia 6 (3) : 264. 1962. *Hedysarum velutinum* Willd. Sp. Pl. 3 (2) : 117. 1802 *H. latifolium* Roxb. Hort. Beng. 57. 1814 (nomen) ex Ker. Bot. Reg. 5. Pl. 355 & Deser. 1819. *Desmodium latifolium* (Roxb. ex Ker.) DC. Prodr. 2 : 328. 1825; Hook. f. Fl. Brit. India 2 : 168. 1876 (excl. *D. virgatum* Zoll.); Cooke, Fl. Pres. Bombay 1 : 380. 1958 (Repr. ed.).

Erect or scandent undershrubs, upto 120 cm tall, all parts clothed with fulvous hairs. Leaves 1-foliate, broadly ovate or suborbicular, 4.5—10 × 3—7 cm. Flowers pink, in distantly fascicled, axillary or terminal racemes. Pods 4-6 jointed, densely clothed with hooked hairs.

Fls. & Frts. : August - December.

Distrib. : Common in hill forests along gullies; Shahanur, Chikhawal.

DOLICHOS Lam. emend DC. *non* L.

Dolichos uniflorus Lam. Encycl. 2 : 299. 1786; Brenan in Nyasaland. P. Men. N. York. Bot. Gard. 8 : 411. 1952. *Dolichos biflorus* auct. *non* Linn.; Baker in Hook. f. Fl. Brit. India 2 : 210. 1876.

Mar. : *Hulga, Kulithi*.

Suberect or twining herbs, 50-70 cm tall; branches terete, clothed with spreading gray or pale-brown hairs. Leaves 3-foliate; leaflets broadly ovate, acute, apiculate, about 2.5×2 cm. Flowers pale yellow, often 2 in leaf axils. Pods much recurved, 4-6 seeded, oblong $2-5 \times 0.4-0.6$ cm, flat appressed-pubescent with pointed, curved beak.

Fls. & Frts. : September - November.

Distrib. : Cultivated, also an escape; Karla.

ELEOTIS DC.

Eleotis monophylla (Burm. f.) DC. Mem. Legum. 2 : 350. 1825. *Glycine monophylla* Burm. f. Fl. Ind. 161. t. 50 f. 2. 1768. *Eleiotis sororia* (L.) DC. Mem. Legum. 2 : 350. 1825; Hook. f. Fl. Brit. India 2 : 153. 1876; Cooke, Fl. Pres. Bombay 1 : 364. 1958 (Repr. ed.).

Prostrate or procumbent, glabrous herbs. Leaves 1-foliate, petiolate; leaflets often mottled with yellowish brown spots, retuse or rounded at apex, ovate-orbicular or subreniform, membranous. Flowers pale yellow in axillary racemes. Pods subsessile, 0.2-0.6 cm, long polished.

Fls. & Frts. : August - November.

Illus. : Burm. f. (*loc. cit.*).

Distrib. : Occasional; Narnala fort.

ERYTHRINA L.

Erythrina suberosa Roxb. Hort. Beng. 53. 1814 (*nomen*) and Fl. Ind. 3 : 253 1832; Hook. f. Fl. Brit. India 2 : 189. 1876; Cooke, Fl. Pres. Bombay 1 : 392. 1958 (Repr. ed.).

Mar. : '*Pangira*'.

Deciduous trees upto 10 m tall with corky bark; branches armed with yellowish-white prickles. Leaves usually unarmed; leaflets upto 15 cm

long, pubescent beneath, terminal leaflet rhomboid-ovate, lateral ones obliquely, broadly ovate-cordate. Flowers scarlet, in racemes. Pods upto 10.5 cm long, torulose, beaked.

Fls. & Frts. : April - November.

Distrib. Occasional; Chikhalwal, Medshi.

GONIOGYNNA DC.

Goniogyna hirta (Willd.) Ali in Taxon 16 : 463. 1967. *Hallia hirta* Willd. Sp. Pl. 3 (2) : 1169. 1802. *Heylandia latebroasa* DC. Mem. Leg. 201. 1825; Hook. f. Fl. Brit. India 2 : 65. 1876; Cooke, Fl. Pres. Bombay 2 : 310. 1958 (Repr. ed.)

Mar. : 'Godhadi'.

Prostrate herbs, with 15-50 cm long, slender, with hairy branches. Leaves numerous, simple 0.5—1.5 × 0.3—0.7 cm, alternate, subsessile, ovate, sparsely hairy. Flowers yellow, upto 0.4 cm long, axillary, solitary. Pods 0.3-0.4 cm long, flat, brownish, sparsely hairy or glabrous.

Fls. & Frts. : July - March.

Distrib. : Common among grasses and in open areas also. Karla, Medshi, Palodi, Patur.

INDIGOFERA L.

1. Leaves 1-foliate :

- | | | |
|---|----|----------------------|
| 2. Leaves linear or lanceolate; pods 1-seeded | .. | <i>I. linifolia</i> |
| 2. Leaves ovate-cordate; pods 2-seeded | .. | <i>I. cordifolia</i> |

1. Leaves 3 to many-foliate :

- | | | |
|--|----|----------------------|
| 3. Racemes very short, sub-capitate; pods oblong, 1-2 seeded, erect or spreading | .. | <i>I. glandulosa</i> |
|--|----|----------------------|

3. Racemes more or less elongate, not capitate; pods linear, flattened or cylindric, 2-4 or more seeded, deflexed :

- | | | |
|---------------------|----|-----------------|
| 4. Leaves 3-foliate | .. | <i>I. trita</i> |
|---------------------|----|-----------------|

4. Leaves pinnate :

- | | | |
|--|----|----------------------|
| 5. Leaflets 13-21; flowers largest for the genus | .. | <i>I. cassioides</i> |
|--|----|----------------------|

5. Leaflets 7-13; flowers small :

- | | | |
|---|----|-----------------------|
| 6. Pods more or less tetragonous, densely hairy | .. | <i>I. astragalina</i> |
|---|----|-----------------------|

6. Pods cylindric; thinly hairy or glabrous

.. *I. tinctoria*

Indigofera astragallina DC. Prodr. 2 : 228. 1825. *I. hirsuta* sensu Baker, Hook. f. Fl. Brit. India 2 : 98. 1876; Cooke, Fl. Pres. Bombay 1 : 339. 1958 (Repr. ed.) (*non* L.).

Densely pubescent, suffrutiscent, 50-100 cm tall, undershrubs. Leaflets 2.5—6.5 × 1.5—2.8 cm, opposite, elliptic-oblong ovate-oblong. Flowers bright-scarlet to rosy-purple in axillary and terminal, compact racemes. Pods upto 2 cm long, deflexed, slightly mucronate.

Fls. & Frts. : August - December.

Illus. : Jacquin, Icon. Plant Rar. t. 569.

Distrib. : Common; Medshi, Shahanur.

Indigofera cassioides Rottl. ex DC. Prodr. 2 : 225. 1825. *I. pulchella* Roxb., Hort, Beng. 57. 1814 (nomen) and Fl. Ind. 3 : 382. 1832; Hook. f. Fl. Brit. India 2 : 101. 1876; Cooke, Fl. Pres. Bombay 1 : 341. 1958 (Repr. ed.).

Erect, glabrous or sparsely hairy shrubs. Leaves 8-15 cm long; leaflets elliptic-oblong, thinly pubescent. Flowers rosy-purple, axillary; in dense, upto 20 cm long racemes. Pods cylindric, straight, glabrous. Seeds reddish-brown, elliptic, smooth.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 367. 1840.

Distrib. : Common; Alegaon, Chikhaval, Patur.

Indigofera cordifolia Heyne ex Roth. Nov. Pl. Sp. 357. 1821; Hook. f. Fl. Brit. India 2 : 93. 1876; Cooke, Fl. Pres. Bombay 1 : 331. 1958 (Repr. ed.)
Mar. : '*Bechka*'.

Prostrate or trailing, profusely branched herbs. Stems upto 30 cm long, hairy, tinged with red. Leaves simple, ovate, cordate, ca. 1 × 0.8 cm, sessile. Flowers deep-pink or bright red, in leaf axils, sessile or in short racemes. Pods cylindric 0.4-0.6 cm long, beaked densely hairy. Seeds 2, yellow.

Fls. & Frts. : July - November.

Distrib. : Common in open grass lands; Karla, Khadaki, Mahan.

Indigofera glandulosa Roxb. ex Willd. Sp. Pl. 3 : 1227. 1800; Hook. f. Fl. Brit India 2 : 94. 1876; Cooke, Fl. Pres. Bombay 1 : 332. 1958 (Repr. ed.).
Mar : '*Barbada*'.

Erect, much-branched, 30-50 cm tall, woody herbs; young parts fulvous hairy. Leaves trifoliate; leaflets $1.5-2.5 \times 0.6-1.2$ cm, obovate. Flowers red, in dense, capitate, axillary racemes. Pods dentately winged on either sutures.

Fls. & Frts. : July - December.

Distrib. : Common weed among grasses and in wet fields; Alegaon, Karla, Karanja, Patur, Shelubudruk.

Indigofera linifolia (L. f.) Retz. Obs. Bot. 4 : 29. 1876; Baker in Hook. f. Fl. Brit. India 2 : 92. 1876; Cooke, Fl. Pres. Bombay 1 : 330. 1958 (Repr. ed.). *Hedysarum linifolium* L. f. Suppl. 331. 1781.

Mar. : 'Pandherphalli'.

Silvery-canescence, diffuse herbs. Stems numerous, much branched, 15-40 cm long. Leaves simple, subsessile, lanceolate, *ca* 2.5×0.2 cm. Flowers red, in 2-3 cm long, 6-8 flowered racemes. Pods silvery, globose, mucronate, *ca* 0.2 cm across.

Fls. & Frts. : July - December.

Illus. : Wight, Icon. t. 313. 1840; Mahesh., Illus. Fl. Delhi f. 54. 1966.

Distrib. : Very common; Akola, Mahan, Morna, Narnala, Patur.

Indigofera tinctoria L. Sp. Pl. 751. 1753 Hook. f. Fl. Brit. India 2 : 99. 1876; Cooke, Fl. Pres. Bombay 1 : 339. 1958 (Repr. ed.).

Gray, pubescent, undershrubs, 1-1.5 m tall. Leaves pinnate, 3-10 cm long. Flowers red, in dense axillary and terminal, subsessile, spicate racemes. Pods 2-4 cm long, linear, beaked. Seeds 8-12, dark brown.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 365. 1840.

Distrib. : Common; Patur, Palodi, Medshi.

Indigofera trita L. f. Suppl. 335. 1781; Baker in Hook. f. Fl. Brit. India 2 : 96. 1876; Cooke, Fl. Pres. Bombay 1 : 335. 1958 (Repr. ed.).

Mar. : 'Karumili'.

Densely appressed hairy undershrubs, upto 80 cm tall. Stems with silvery-white hairs. Leaves 3-foliate; leaflets elliptic, $0.5-4.8 \times 0.4-2.1$ cm, terminal one largest. Flowers red or pale pink in axillary racemes. Pods 2-2.5 cm long, strongly deflexed, 6-10 seeded.

Fls. & Frts. : August - November.

Illus. : Wight, Icon. t. 315. 386. 1840; Mahesh., Illus. Fl. Delhi f. 58. 1966.

Distrib. : Common in waste land; Chikhawal, Karla, Pinjer, Narnala.

MELILOTUS Juss.

1. Corolla white and larger; pods 2-seeded	..	<i>M. alba</i>
1. Corolla yellow, minute; pods usually 1-seeded	..	<i>M. indica</i>

Melilotus alba Lam. Encycl. 4 : 63. 1789; Hook. f. Fl. Brit. India 2 : 89 1876.

Erect, glabrous herbs upto 50 cm tall. Leaves 3-foliate; leaflets glabrous, oblanceolate or ovate, shortly toothed, 1—2.5×0.5 cm. Flowers white, in terminal compact racemes. Pods 0.2—0.4 cm long, turgid, glabrous. Seeds globose, smooth.

Fls. & Frts. : December - June.

Illus. : Mahesh., Illus. Fl. Delhi f. 53. 1966.

Distrib. : A rare herb; Patur, (Kamble, 152793, BSI).

Melilotus indica All. Fl. Pedem. 1 : 308. 1785; Cooke, Fl. Pres. Bombay 1 : 325. 1958 (Repr. ed.). *Melilotus parviflora* Desf. Fl. Atlant. 2 : 192. 1800; Hook. f. Fl. Brit. India 2 : 89. 1876.

Mar. : 'Ran-methi'.

Erect herbs, 20-40 cm tall; branches many from the base, angled, sparsely hairy, striate. Leaves 3-foliate; leaflets oblanceolate, 1—1.5×0.3—0.7 cm. Flowers yellow, in axillary, peduncled, many flowered racemes longer than the leaves. Pods 0.2-0.4 cm long, one seeded.

Fls. & Frts. : December - February.

Distrib. : Weeds in fields. Occasional. Patur.

MUCUNA Adanson *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.). *Dolichos Pruriens* L. in Stickman, Diss. Herb. Amb. 23. 1754.

Mar. : 'KhajKuiri'.

Large, pubescent twiners. Leaves 3-foliate; leaflets ovate 6—9×3.5—6 cm, silky-hairy, ovate, triangular or ovate. Flowers dark-purple, upto 3 cm long in axillary, drooping, racemes. Pods 6×1.5 cm, 0.5 cm thick, slightly curved at both the ends.

Fls. & Frts. : October - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 73. 1966.

Distrib. : Frequent in hedges; Shahanur.

OUGEINIA Benth.

Ougeinia oojeinensis (Roxb.) Hochreut. in Bull. Soc. Bot. Geneve. 13-14 : 51. 1909. *Dalbergia oojeinensis* Roxb. Hort. Beng. 53. 1814. (nomen.) & Fl. Ind. 3 : 220. 1832. *Ougeinia dalbergioides* Bth. Pl. Jungh. 216. 1851-1855; Hook. f. Fl. Brit. India 2 : 161. 1876; Cooke, Fl. Pres. Bombay 1 : 373. 1958 (Repr. ed.).

Mar. : 'Ragat-Behda'.

Deciduous trees upto 10 m tall. Leaves trifoliate; leaflets 6.5—17 × 4.5—14 cm coriaceous, glabrous, broadly ovate or suborbicular. Flowers pale pink, in fascicled racemes. Pods 4-6 × 0.6—1.1 cm, flat, reticulately veined.

Fls. & Frts. : January - April.

Illus. : Bedd., Fl. Sylv. t. 36. 1869.

Distrib. : In deciduous forest; not common; Morna.

PARACALYX Ali

Paracalyx scariosa (Roxb.) Ali, Univ. Studies, Karachi 5 (3) : 95. 1968 *Cylista scariosa* Roxb. Pl. Cor. t. 92. 1795; Hook. f. Fl. Brit. India 2 : 219. 1876; Cooke, Fl. Pres. Bombay 1 : 412. 1958 (Repr. ed.).

Mar. : 'Ran-ghevda'.

Extensive, woody twiners; stems and branches finely downy. Leaves 3-foliate; leaflets 1—10 × 0.5—6cm, ovate, ovate-rhomboid or elliptic-ovate, coriaceous, pubescent beneath. Flowers yellow, in axillary and terminal racemes. Pods 0.8-1 cm long, pubescent, enclosed in persistent calyx.

Fls. & Frts. : November - March.

Illus. : Wight, Icon. t. 1597. 1850.

Distrib. : Occasional on hedges; Fetta.

PHASEOLUS Linn.

Phaseolus trilobus Ait. Hort. Kew ed. 1. 3 ; 30. 1789; Baker in Hook. f. Fl. Brit. India. 2 : 201. 1876.

Trailing herbaceous annuals; branches spreading, 0.3 to 1 m long. Leaves 3-foliate; leaflets 1—5 × 1—4 cm, 3-lobed, lobes broad. Flowers yellow in axillary, subcapitulate racemes. Pods cylindric, 3-5 cm long, glabrous.

Fls. & Frts. : August - November.

Illus. : Mahesh., Illus. Fl. Delhi f. 75. 1966.

Distrib. : Common in grasslands and along stream banks; Chikhalwal, Kinhiraja, Mahan, Pinjer.

PSORALA L.

Psoralea corylifolia L. Sp. Pl. 764. 1753; Baker in Hook. f. Fl. Brit. India 2 : 103. 1876; Cooke, Fl. Pres. Bombay 1 : 341. 1958 (Repr. ed.).

Mar. : 'Bawchi'.

Erect annuals, 30-100 cm tall; stems and branches grooved, with conspicuous glands and few appressed or spreading hairs. Leaves 3—8 × 3—6 cm, broadly ovate or orbicular, inciso-dentate. Flowers white, blue or pink, in axillary racemes. Pods 0.4-0.6 cm long, ovoid-oblong, compressed, black.

Fls. & Frts. : August - January.

Distrib. : Common weed in the field and waste places; Mahan, Medshi, Palodi.

RHYNCHOSIA Lour. nom cons.

1. Leaflets obtuse or subacute at apex	..	<i>R. minima</i> var. <i>minima</i>
1. Leaflets acute or acuminate at apex	..	<i>R. minima</i> var. <i>laxiflora</i>

Rhynchosia minima var. *minima* (L.) DC. Prodr. 2 : 385. 1825; Hook. f. Fl. Brit. India 2 : 223. 1876; Cooke, Fl. Pres. Bombay 1 : 414. 1958 (Repr. ed.) *Dolichos minimus* L., Sp. Pl. 1020. 1753.

Trailing herbs, 30-70 cm, gray hairy. Leaves 5-foliate; leaflets rhomboid or orbicular, 1-2 cm in diameter. Flowers yellow in axillary, racemes. Pods 0.5-1.5 cm long, flat, hairy 1-2 seeded.

Fls. & Frts. : August - January.

Illus. : Mahesh., Illus. Fl. Delhi f. 76. 1966.

Distrib. : Common weed in barren and cultivated fields; Chikhalwal, Palodi, Pinjer, Shekabudruk.

Rhynchosia minima (L.) DC. var. *laxiflora* (Camb.) Baker in Hook. f. Fl. Brit. India 2 : 223. 1876; Cooke, Fl. Pres. Bombay 1 : 414. 1958 (Repr. ed.). *Rhynchosia laxiflora* Camb. in Jacq. Voy. Bot. 44. t. 540. 1844.

This variety differs from the above variety by its leaflets lanceolate, rhomboid with its apex acute or acuminate.

Fls. & Frts. : August - January.

Illus. : Camb. (*loc. cit.*)

Distrib. : Common in hedges around field; Chikhawal, Karla.

SESBANIA Scop. *nom. cons.*

Sesbania sesban (L.) Merr. subsp. *sesban* var. *sesban* Gillet in Kew Bull. 17 : 112. 1963. *Sesbania aegyptica* Poir. var. *picta* Prain in Journ. As. Soc. Beng. 66 : 367. 1898; Cooke, Fl. Pres. Bombay 1 : 349. 1958 (Repr. ed.). *Sesbania sesban* (L.) Merr. var. *picta* Sant. Pl. Saurashtra 14. 1953.

Unarmed, shrubs, 2-3 m tall; branches drooping. Leaves pinnate, 5-10 cm long; leaflets 10-15 pairs, opposite. Flowers yellow, spotted with black outside, in axillary drooping racemes. Pods 15-25 cm long.

Fls. & Frts. : January - March.

Illus. : Wight, Icon. t. 32. 1838.

Distrib. : Cultivated for fodder; Karla, Mahan.

TAVERNIERA DC

Taverniera cuneifolia (Roth) Arn. in Nov. Act. Nat. Cur. 18 (1) : 332. 1836. *Hedysarum cuneifolium* Roth, Nov. Pl. Sp. 357. 1821. *Taverniera nummularia* Baker in Hook. f. Brit. India 2 : 140. 1876 non DC. 1825; Cooke, Fl. Pres. Bombay 1 : 353. 1958 (Repr. ed.)
Mar. : 'Jethmadh'.

Much branched undershrubs, velvety-canescens. Leaves 1-foliate; stipules scarious, triangular, free. Leaflets variable in size, orbicular or obovate, thick, glaucous, mucronulate. Flowers reddish or pinkish in axillary, lax racemes. Pods 0.5 - 0.7 cm long., compressed, with 1-2 one-seeded joints.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. t. 1055. 1846.

Distrib. : Occasional in waste places; Akot.

TEPHROSIA Persoon nom. cons.

1. Leaves simple	<i>T. strigosa</i>
1. Leaves compound :	
2. Pods tomentose	<i>T. villosa</i>
2. Pods glabrescent or pilose but villous :	
3. Flowers in elongated racemes; leaflets 13-19	<i>T. purpurea</i>
3. Flowers 1-2 in leaf axils; leaflets 3-5	<i>T. senticosa</i>

Tephrosia purpurea (L.) Pers., Syn. Pl. 2 : 329. 1807; Hook. f. Fl. Brit. India 2 : 112. 1876; Cooke, Fl. Pres. Bombay 1 : 346. 1958. (Repr. ed.). *Cracca purpurea* L. Sp. Pl. 752. 1753.

Mar. : 'Unhali'.

Much branched herbaceous perennials, 30-80 cm tall. Leaves 3-8 cm long; leaflets 13-19, 0.5—2.4 × 0.2—1.2 cm, obovate to oblanceolate, silky-hairy beneath. Flowers pink or violet in racemes. Pods slightly curved, glabrous, upto 4 cm long.

Fls. & Frts. : September - February.

Illus. : Mahesh., Illus. Fl. Delhi f. 63. 1966.

Distrib. : Common; Chikhaliwal, Manglurpir, Mahan, Medshi, Palodi.

Tephrosia senticosa (L.) Pers., Syn. Pl. 2 : 230. 1807; Hook. f. Fl. Brit. India 2 : 112. 1876; Cooke, Fl. Pres. Bombay 1 : 348. 1958 (Repr. ed.). *Galega senticosa* L. Amoen. Acad. 3 : 19. 1755 and Sp. Pl. 1063. 1962.

Much branched shrubs or undershrubs; branches divaricate, slender, terete. Leaves 3 - 5 cm long; leaflets 0.5 - 3.1 × 0.1 — 0.4 cm, oblanceolate. Pods upto 4.5 cm long, linear, flattened, densely silky-pubescent.

Fls. & Frts. : August - November.

Illus. : Wight, Icon. t. 370. 1840.

Distrib. : Occasional; Mana Village.

Tephrosia strigosa (Dalz.) Sant. & Mahesh. in Journ. Bombay nat. Hist. Soc. 54 : 804. 1957. *Macronyx strigosa* Dalz. in Hook. Journ. Bot. 2 : 35. 1850. *Tephrosia tenuis* Wall. ex Dalz. & Gibbs. Bombay Fl. 61. 1861; Hook. f. Fl. Brit. India 2 : 111. 1876; Cooke, Fl. Pres. Bombay 1 : 344. 1958 (Repr. ed.).

Slender, erect or suberect herbs. Leaves 1.2—4.7 × 0.2—0.7 cm, linear to linear-lanceolate, glabrous, green, hairy beneath. Flowers solitary or few in leaf-opposed racemes. Pods 1.2—2.3 × 0.2—0.3 cm, compressed, linear.

Fls. & Frts. : August - October.

Illus. : Mahesh., Illus. Fl. Delhi f. 61. 1966.

Distrib. : Occasional among the grasses; Kalamata, Mahan.

Tephrosia villosa (L.) Pers. Syn. Pl. 2 : 329. 1807; Hook. f. Fl. Brit. India 1 : 113. 1876; Cooke, Fl. Pres. Bombay 1 : 347. 1958 (Repr. ed.). *Cracca villosa* L. Sp. Pl. 752. 1753. *Galega villosa* L. Syst. (ed. 10) 1172. 1759. *Tephrosia hirta* Buch.-Ham. in Trans. Linn. Soc. 13 : 546. 1822.

Undershrubs, 25-85 cm tall; branches densely fulvous hairy. Leaves pinnate, 4-10 cm long; leaflets 9-19. Flowers purple or pink in axillary or terminal, many flowered racemes. Pods 2.3—2.5 × 0.5—0.6 cm, densely hairy, 6-8 seeded.

Fls. & Frts. : July - September.

Illus. : Mahesh., Illus. Fl. Delhi f. 62. 1966.

Distrib. : Common in waste land and along roadsides; Medshi, Patur.

TERAMNUS P. Browne

Teramnus labialis (L. f.) Spreng. Syst. 3 : 325. 1826; Hook. f. Fl. Brit. India 2 : 184. 1876; Cooke, Fl. Pres. Bombay 1 : 387. 1958 (Repr. ed.). *Glycine labialis* L. f., Suppl. 325. 1781.

Mar. : 'Ran-udid'.

Woody twiners, clothed with appressed, white hairs. Leaves 3-foliate; leaflets elliptic. Flowers in axillary lax racemes, white when fresh, turning reddish when withered. Pods linear, 4-5 cm long, flat, 3-12 seeded.

Fls. & Frts. : October - November.

Illus. : Wight, Icon. t. 168. 1839.

Distrib. : Common in the nalahs and on hedges; Fatra, Karla, Mahan.

URARIA Desv.

Uraria picta Desv. in Journ. Bot. 1 : 123. t. 5. f. 19. 1813; Hook. f. Fl. Brit. India 2 : 155. 1876; Cooke, Fl. Pres. Bombay 1 : 367. 1958 (Repr. ed.).
Doodia picta Roxb. Fl. Ind. 3 : 368. 1832.

Mar. ; 'Pithvan'.

Serrulose, sparingly branched, perennials, 1-2 m tall. Leaves 20-30 cm long; leaflets 4—22 × 1.2—2.5 cm, subcoriaceous, glabrous. Flowers pale purple or pink in racemes. Pods glabrous, folded one above the other, 3-6 jointed. Seeds reddish-brown, glabrous, reniform.

Fls. & Frts. : September - October.

Illus. : Jacquin, Collect. 2 : 262; Icon. t. 567. 1787.

Distrib. : Occasional; Karanja, Narnala.

VICIA L.

Vicia hirsuta (L.) S. F. Gray, Nat. Arr. Brit. Pl. 2 : 614. 1821; Hook. f. Fl. Brit. India 2 : 177. 1876. *Eryum hirsutum* L. Sp. Pl. 138. 1753.

Slender, straggling or climbing herbs. Leaves tendrilar, upto 4 cm long; leaflets 5-10 pairs, upto 2.3 cm long, appressed-pubescent. Flowers blue in 1-2 flowered capitate racemes. Pods 1-2 seeded, flat, upto 1 cm long.

Fls. & Frts. : January - February.

Distrib. : Rare as weed in cultivated fields; Patur (Kamble 152817 BSI).

ZORNIA J. F. Gmelin

Zornia gibbosa Sponoghe, Linnaea 15 : 192. 1841; Mohlenbrock, Webbia 16 : 112. 1961. *Z. diphylla* auct. non (L.) Persoon; Hook. f. Brit. India 2 : 147. 1876; Cooke, Fl. Pres. Bombay 1 : 355. 1958 (Repr. ed.).

' Mar. : Landgu'.

Much branched annuals, with procumbent branches. Leaves 2-foliate; leaflets 0.5—3 × 0.2—0.9 cm, lanceolate to ovate-lanceolate. Flowers yellow, in terminal racemes. Pods 1-2 cm long, upto 0.2 cm broad, 1-5 jointed, echinate.

Fls. & Frts. : August - February.

Illus. : Mahesh., Illus. Fl. Delhi f. 64. 1966.

Distrib. : Common in grasslands; Karla, Khadaki, Mahan.

CAESALPINIACEAE

1. Leaves simple, 2-lobed	..	<i>Bauhinia</i>
1. Leaves 1-2 pinnate :		
2. Sepals imbricate :		
3. Leaves 2-pinnate	..	<i>Caesalpinia</i>
3. Leaves simply pinnate :		
4. Petals 0; fertile stamens 10	..	<i>Hardwickia</i>
4. Petals more than 3; fertile stamens less than 10 :		
5. Calyx tube short; petals 5; stamens normally 10, all stamens fertile or 3-5 sterile, free	..	<i>Cassia</i>
5. Calyx tube elongate; petals 3, perfect stamens 3, monadelphous	..	<i>Tamarindus</i>
2. Sepals valvate :		
6. Unarmed trees; pods flattened ; flowers reddish-orange or creamy-white	..	<i>Delonix</i>
6. Armed trees; pods turgid, moniliform; flowers bright- yellow	..	<i>Parkinsonia</i>

BAUHINIA L.

Bauhinia racemosa Lamk., Encycl. Meth. 1 : 390. 1783; Hook. f. Fl. Brit. India 2 : 276. 1876; Cooke, Fl. Pres. Bombay 1 : 459. 1958 (Repr. ed.).
Mar. : 'Apta'.

Small trees with numerous spreading branches. Leaves broader than long, 2—4×2.5—5 cm, bilobed, suborbicular, cordate at base. Flowers white or pale-yellow, small in leaf-opposed or terminal racemes. Pods 15—25×1—1.8 cm, flat, black, glabrous..

Fls. & Frts. : March - July.

Illus. : Bedd., Fl. Sylv. t. 182. 1872.

Distrib. : Common throughout the district in deciduous forests; Chikhaliwal, Fatra, Mahan, Patur, Pinjer, Shahanur, Narnala, Wanoja etc.

CAESALPINIA L.

Caesalpinia crista L. Sp. Pl. 380. 1753. (Pro Maj. Parte excl. Fl. Zeyl. 157). *Caesalpinia bonducella* (L.) Flem. in As. Res. 11 : 159. 1810; Hook. f. Fl. Brit. India 2 : 254. 1876; Cooke, Fl. Pres. Bombay 1 : 437. 1958 (Repr. ed.).

Mar. : 'Sagargota'.

Scandent shrubs; branches pubescent, armed with straight & hooked prickles. Leaves 30-50 cm long; pinnae 6-8 pairs, leaflets 5-9 pairs. Flowers greenish-yellow in supra-axillary or terminal racemes. Pods oblong-elliptic, armed with prickles 1-2 seeded.

Fls. & Frts. : August - January.

Distrib. : Common in hedges around field; Shahanur.

CASSIA L.

1. Trees :
2. Racemes pendulous; pods 30-60 cm long, terete .. *C. fistula*
2. Racemes erect or so, not pendulous; pods 15-30 cm long, flat .. *C. siamea*
1. Shrubs, undershrubs or herbs :
3. Plants prostrate; leaflets 10-20 pairs, 5-6 mm long; fertile stamens 5; staminodes nil .. *C. pumila*
3. Plants erect; leaflets 2-12 pairs, more than 1 cm long; fertile stamens 5-7; staminodes 0 or 3 :
4. Leaflets 2 pairs; fertile stamens 5; staminodes 0 .. *C. absus*
4. Leaflets 3-12 pairs; fertile stamens 7, the others reduced to staminode :
5. Gland 1, placed near the base of petiole :
6. Leaflets 3-5 pairs .. *C. occidentalis*
6. Leaflets 6-10 pairs .. *C. sophera*
5. Glands between one or more pairs of leaflets :
7. Leaflets 8-12 pairs; stipules large, auriculate .. *C. auriculata*
7. Leaflets 3 pairs; stipules small, not auriculate :
8. Gland between each of the two lowest pairs of leaflets .. *C. tora*
- 8'. Gland between each of the lowest pair of leaflets only .. *C. obtusifolia*

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.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 91. 1976.

Mar. : 'Chinar'.

Erect woody herbs, 20-40 cm tall, hairy all over. Leaves with two opposite pairs of obovate or elliptic-oblong, leaflets. Flowers yellow or orange-yellow in short axillary and terminal racemes. Pods 2—4 × 0.6—0.7 cm, flat, hairy, 4-6 seeded; seeds smooth, glabrous, compressed.

Fls. & Frts. : August - October.

Distrib. : Frequent on hill slopes; Khadaki, Mahan, Wanoja.

Cassia auriculata L. Sp. Pl. 379. 1753; Hook. f. Fl. Brit. India 2 : 263. 1878; Cooke, Fl. Pres. Bombay 1 : 448. 1958 (Repr. ed.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 92. 1976.

Mar. : 'Tarwad'.

Much branched bushy-shrubs, 1-2 m tall. Leaves 8-12 cm long; stipules foliaceous, auricled; leaflets 5-12 pairs, 0.8—2.0 × 0.5—1.2 cm, oblong-obovate, glabrous above, pubescent beneath. Flowers yellow in axillary corymbose racemes. Pods flat, papery, 10—15 × 2 cm, brown, many seeded.

Fls. & Frts. : July - April.

Distrib. : Common along roadsides; Akot, Chikhaldar.

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.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 97. 1976.

Mar. : 'Amaltas', 'Bahava'.

Trees upto 8 m tall. Leaves 20-40 cm long; leaflets 4-8 pairs, ovate or ovate-oblong, 2—12 × 3—7 cm, glabrous above. Flowers golden yellow, in large drooping racemes. Pods cylindric, 30-50 cm long, dark blackish-brown, many seeded. Seeds ovate or ellipsoid, smooth.

Fls. & Frts. : March - July.

Illus. : Wight, Icon. t. 269. 1840.

Distrib. : Occasional in deciduous forests, also cultivated along roads; Khadaki, Kinhiraja, Medshi, Patur, Shahanur.

Cassia obtusifolia L. Sp. Pl. 377. 1753; Cooke, Fl. Pres. Bombay 1 : 447. 1958 (Repr. ed.). *Cassia tora* sensu Baker in Fl. Brit. India 2 : 263. 1878 (in part), not of L.; Singh, V. Bull. Bot. Surv. India 18 (1-4) : 94. 1976.

Mar. : 'Takla', 'Tarwad'.

Undershrubs, 0.5-1.5 m tall, suffruticose. Leaves 3-8 cm long; leaflets 3 pairs, 1—4×0.8—2 cm, obovate-oblong, glabrous. Flowers yellow and usually in axillary subsessile pairs. Pods 8-20 cm long, 4-gonous, beaked, many seeded.

Fls. & Frts. : August - December.

Distrib. : Occasional on waste land and along roadsides; Mahan, Patur.

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.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 89. 1976.

Mar. : *Rantakla*'.

Undershrubs, ca. 1 m tall. Leaves 10-20 cm long; leaflets often 3-5 pairs, 2—8×1—3 cm, oblong-lanceolate, subsessile, glabrous above, hairy beneath. Flowers yellow in axillary, short, corymbose racemes. Pods flat, 10—12×0.6—0.7 cm, laterally compressed, linear-oblong, 20-30 seeded.

Fls. & Frts. : Nearly throughout the year.

Distrib. : Frequent on waste land near village; Alegaon, Karanja.

Cassia pumila Lam. Encycl. Meth. Bot. 1 : 65. 1783; Baker in Hook. f. Fl. Brit. India 2 : 266. 1878; Cooke Fl. Pres. Bombay 1 : 452. 1958 (Repr. ed.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 87. 1976.

Mar. : *Sarmal*'.

Prostrate or suberect woody annuals; stems 15-35 cm long. Leaves 1-3 cm long; leaflets 9-15 pairs, 5—6×0.2 cm. Flowers yellow, solitary or geminate, extra-axillary. Pods 2—4×0.6—0.7 cm, flat, hairy, linear-lanceolate or linear-oblong, 4-6 seeded. Seeds subquadrate, brown, slightly acute at ends.

Fls. & Frts. : August - October.

Distrib. : Frequent in grasslands; Karla, Mahan, Shahanur etc.

Cassia siamea Lam. Encycl. Meth. Bot. 1 : 648. 1885; Baker in Hook. f. Fl. Brit. India 2 : 264. 1878; Cooke, Fl. Pres. Bombay 1 : 454. 1958. (Repr. ed.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 98. 1976.

Moderate sized trees with fulvous-gray, tomentose branches and rough, longitudinally fissured bark. Leaves 11-25 cm long; leaflets 6-14 pairs, elliptic-oblong, 1—7×0.8—2.5 cm. Flowers yellow in dense, axillary racemes

and terminal panicles. Pods flat, 20—30×1.5 cm, finely fulvous-downy, 20-30 seeded.

Fls. & Frts. : October - February.

Illus. : Beed., Fl. Sylv. t. 179. 1872.

Distrib. : Planted along roadsides and in gardens; Patur, Washim,

Cassia sophera L. Sp. Pl. 379. 1753; Baker in Hook. f. Fl. Brit. India 2 : 262. 1878; Cooke, Fl. Pres. Bombay 1 : 446. 1958 (Repr. ed.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 89. 1976.

Mar. : 'Junglitakla'.

Undershrubs ca. 1-2 m tall. Leaves 12-20 cm long; leaflets 6-10 pairs, 3—7×1.5—2.2 cm. Flowers yellow in axillary or terminal, corymbose racemes. Pods 7—10×0.4—0.6 cm, flat linear-oblong, apiculate, 30-40 seeded. Seeds dark brown, flat, ovoid.

Fls. & Frts. : July - December.

Distrib. : Occasional on waste lands; Palodi.

Cassia tora L. Sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. India 2 : 263. 1878; Cooke, Fl. Pres. Bombay 1 : 447. 1958 (Repr. ed.); Singh, V. Bull. Bot. Surv. India 18 (1-4) : 94. 1976.

Mar. : 'Takla', 'Tarwad'.

Suffruticose undershrubs, 30-50 cm tall. Leaves 4-12 cm long; leaflets 3 pairs, 1.5—5.5×1-3.5 cm, sessile, orbicular to obovate. Flowers yellow, subsessile in axillary pairs. Pods 10-20×0.3 cm, subtetragonal, narrowly linear, 20-30 seeded, reticulate, beaked.

Fls. & Frts. : August-December.

Distrib. : Common along roadsides and on waste lands; Morna.

DEOLONIX Raf.

Delonix elata (L.) Gamble, Fl. Madras Pres. 396. 1919 & 1 : 280. 1957 (Repr. ed.). *Poinciana elata* L. Cent. Pl. 2 : 16. 1756; Hook. f. Brit. India 2 : 260. 1878; Cooke, Fl. Pres. Bombay 1 : 441. 1958 (Repr. ed.).

Deciduous trees, with ash-coloured or deep reddish-brown, smooth bark, upto 8 m tall. Leaves 5-16 cm long; pinnae 4-6 pairs; leaflets 10-120 pairs,

0.6—1 × 0.3—0.4 cm, subsessile, oblong. Flowers yellow, in terminal, few flowered corymbose racemes. Pods 15—20 × 1.5—3.0 cm, reticulately veined, glabrous, 4-8 seeded.

Fls. & Frts. : April - September.

Illus. : Bedd., Fl. Sylv. t. 178. 1872.

Distrib. : Occasional; wild or cultivated; Narnala.

HARDWICKIA Roxb.

Hardwickia binata Roxb. Pl. Cor. 3 : 6. t. 209. 1819; Hook. f. Fl. Brit India 2 : 270. 1878; Cooke, Fl. Pres. Bombay 1 : 456. 1958 (Repr. ed.).

Mar. : *Anjan*¹.

Trees upto 15 m tall with rough, dark-gray bark. Leaflets one pair., 2.5—6 × 1.0—2.0 cm, sessile, obtuse, 3-6 nerved from base, glabrous. Flowers yellowish-green, in axillary and terminal panicles. Pods 5—7.5 × 1—1.5 cm, strap-shaped, veined, glabrous, narrowed at both ends.

Fls. & Frts. : October - January.

Illus. : Beed. Fl. Sylv. t. 26. 1869.

Distrib. : Frequent at some places; Chikhaliwal, scarcely distributed.

PARKINSONIA L.

Parkinsonia aculeata L. Sp. Pl. 375. 1753; Hook. f. Fl. Brit. India. 2 : 260. 1878; Cooke, Fl. Pres. Bombay 1 : 442. 1958 (Repr. ed.).

Mar. : *Vedibabhul*² or *Vilayatikikar*³.

Large glabrous shrubs or small trees, armed with sharp woody spines which represent the rachis of 2-pinnate leaves. Pinnae 1-3 pair, 15-30 cm long; leaflets numerous, minute, ovate or oblanceolate. Flowers yellow in 7-9 cm long, lax, axillary racemes. Pods 7-10 × 0.6—0.9 cm, turgid, moniliform, 4-6 seeded.

Fls. & Frts. : November - May.

Illus. : Bedd., For. Man. in Fl. Sylv. t. 91. 1871.

Distrib. : Planted on roadsides and also naturalised; Akot, Medshi, Palodi.

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.).

Mar. (‘Chinch’).

Large evergreen trees. Leaves 5-12 cm long; leaflets 10-20 pairs, 0.8-2.0×0.5-0.8 cm, oblong-lanceolate, glabrous, petiolate. Flowers yellow with reddish stripes, in few-flowered lax racemes at the end of branchlets. Pods 7-15×2-2.5 cm, somewhat falcate, with rough, fibrous, epicarp. Seeds 3-12, dark chocolate-brown, rhomboidal.

Fls. & Frts. : March - July.

Illus. : Bedd., Fl. Sylv. t. 184. 1872.

Distrib. : Common around villages and fields; Narnala, Patur Shahanur etc.

MIMOSACEAE

1. Stamens indefinite :

2. Stamens free .. *Acacia*

2. Stamens monadelphous filaments united at least at the base :

3. Tree usually armed with prickles; pods curled, manifestly dehiscent .. *Pithecellobium*

3. Trees usually unarmed; pods not curled; indehiscent .. *Albizia*

1. Stamens definite, 8-10 :

4. Flowers in spikes :

5. Spike of two colours, lower half of rosy-pink or purple, sterile flowers, upper half of yellow, fertile flowers; pods twisted when mature .. *Discrostachys*

5. Spikes usually of the same colour; flowers all bisexual; pods not as above .. *Prosopis*

4. Flowers in globose heads :

6. Flowers pink; pods armed with weak prickles; stamens 4 .. *Mimosa*

6. Flowers creamy-white; pods unarmed; stamens 10 .. *Leucaena*

ACACIA Mill.

1. Straggling or climbing shrubs with prickles on stem and rachis; no stipular spines :

2. Pods thick, fleshy; leaflet pairs 12-25 .. *A. sinuata*

2. Pods thin, strap shaped; leaflet pairs 5-15	..	<i>A. tortia</i>
1. Erect trees or shrubs with stipular spines :		
3. Flowers in globose heads :		
4. Flower heads on axillary peduncles; corolla yellow	..	<i>A. nilotica</i>
sub. sp. <i>indica</i>		
4. Flower heads in panicles; corolla creamy white	..	<i>A. leucophloea</i>
3. Flowers in elongate spikes :		
5. Plants pubescent; pinnae 10-20 pairs; bark white or ash coloured	..	<i>A. polycantha</i>
5. Plants glabrous; pinnae 20-40 pairs; bark dark brown	..	<i>A. chundra</i>

Acacia chundra (Rottler) Willd. Sp. Pl. 4 : 1078. 1806. *Mimosa chundra* Roxb. ex Rottler in Ges. Naturf. Fr. Neue. Schr. 4 : 207. 1803. *M. sundra* Roxb. Pl. Cor. 3 : t. 225. 1811. *Acacia sundra* (Roxb.) DC. Prodr. 2 : 458. 1825; Hook.f. Fl. Brit. India 2 : 295. 1878. *Acacia catechu* Willd. var. *sundra* (DC.) Prain in Journ. As. Soc. Bengal 66 : 508. 1898; Cooke, Fl. Pres. Bombay 1 : 476. 1958 (Repr. ed.).

Mar.: 'khair'.

Shrubs or small trees. Leaves 10-15 cm long; pinnae 10-20 pairs; leaflets 20-40 pairs, 0.3—0.6 × 0.1 cm, linear-oblong. Stipular spines short, hooked. Rachis with small gland at the base of first pair of pinnae. Flowers white or cream coloured in axillary spikes. Pods 5—8 × 1 cm, thin, brown.

Fls. & Frts. : August - November.

Illus. : Mahesh., Illus. Fl. Delhi f. 83. 1966.

Distrib. : Common in hill forests; Chikhatal, Mahan, Patur, Pinjer, Shahapur.

Acacia leucophloea (Roxb) Willd. Sp. Pl. 4 : 1079. 1806. Hook. f. Fl. Brit. India 2 : 294. 1878; Cooke, Fl. Pres. Bombay 1 : 475. 1958 (Repr. ed.).

Mar.: 'Hivar'.

Small trees with whitish bark; branchlets pubescent. Leaves 2-4 cm long; pinnae 4-15 pairs; leaflets 8-20 pairs, 0.3-0.6 cm long. Stipular spines upto 1.5 cm long, straight. Flowers cream coloured in globose heads arranged in large terminal panicles. Pods. 10—20 × 0.8—0.8 cm, flat, brown, tomentose, 10-20 seeded.

Fls. & Frts. : September - February.

Illus. : Mahesh., Illus. Fl. Delhi f. 80. 1966.

Distrib. : Throughout the plains; Patur, Medshi.

Acacia nilotica (L.) Del. subsp. *indica* (Benth.) Brenan in Kew Bull. 12 : 83. 1957. *A. arabica* (Lam.) Willd. var. *indica* Benth. in Hook. Lord. Journ. Bot. 1 : 500. 1842. *A. arabica* auct. non (Lam.) Willd.; Hook. f. Fl. Brit. India 2 : 293. 1878; Cooke, Fl. Pres. Bombay 1 : 472. 1958 (Repr. ed.).

Mar. : 'Babhal'

Small trees with dark blackish-brown, irregularly, longitudinally fissured bark. Leaves 5-10 cm long; pinnae 4-8 pairs; leaflets, 10-20 pairs, 0.3—0.6 × 0.1—0.2 cm, minute, linear-oblong. Stipular spines 0.4-6.0 cm long. Flowers yellow, in axillary, globose heads. Pods 3-8 × 1 cm, jointed, moniliform, turned.

Fls. & Frts. : March - July and September - January.

Illus. : Bedd., Fl. Sylv. t. 47. 1870.

Distrib. : Very common; Medshi, Fetra, Palodi.

Acacia polycantha Willd. Sp. Pl. 4 : 1079. 1806. *Acacia suma* (Roxb.) Ham. ex Voigt. Hort. Sub. Calc. 260. 1845; Hook. f. Fl. Brit. India 2 : 294. 1878; Cooke, Fl. Pres. Bombay 1 : 476. 1958 (Repr. ed.).

Mar. : 'Sonkhairi'.

White pubescent trees. Leaves 12-16 cm long, 2-pinnate. Stipular spine straight; pinnae 15-25 pairs, 6 cm long, with glands between them; leaflets 40-50 pairs, linear-oblong, sub-coriaceous, glabrous. Flowers whitish, in 6-10 cm long, axillary spikes. Pods 11-15 × 1.5—2 cm, slightly thick, apiculate, indehiscent, many seeded.

Fls. & Frts. : April-July and August - January.

Illus. : Bedd., Fl. Sylv. t. 49. 1870.

Distrib. : Occasional in moist places; Karla.

Acacia sinuata (Lour.) Merr. in Trans. Amer. Philos. Soc. 24(2) : 186. 1935. *Mimosa sinuata* Lour. Fl. Cochinch. 653. 1790. *M. concinna* Willd. Sp. Pl. 4: 1039. 1805. *Acacia concinna* (Willd.) DC. Prodr. 2 : 464. 1825; Hook. f. Fl. Brit. India 2 : 296. 1878; Cooke, Fl. Pres. Bombay 1 : 479. 1958 (Repr. ed.).

Mar. : 'Sikekai'.

Prickly climbing shrubs or small trees with brown pubescence. Leaves 2-pinnate, ca 10 cm long; pinnate 6-9 pairs, 3-5 cm long, uppermost pair with a gland in between; leaflets 20-25 pairs, linear, glabrous, ca 1 cm long. Flowers white, 1 cm across, in globose heads. Pods 10—14 × 1—2.5 cm, thick, fleshy, depressed between; seeds 8-12 seeded.

Fls. & Frts. : April - December.

Distrib. : Occasional in dry deciduous forests; Medshi.

Acacia torta (Roxb.) Craib. in Kew Bull. 410. 1915. *Mimosa torta* Roxb. Fl. Ind. 2 : 566. 1832. *Acacia caesia* Wt. & Arn. Prod. 278. 1834, non Willd. 1806; Cooke, Fl. Pres. Bombay 1 : 480. 1958 (Repr. ed.) *A. intisia* var. *caesia* Baker in Hook. f. Fl. Brit. India 2 : 297. 1878.

Large climbing shrubs armed with prickles; young parts densely tomentose. Leaves bipinnate, 10-20 cm long; pinnae 8-20 pairs; leaflets 15-40 pairs, oblong 0.6—0.9 × 0.2—0.5 cm. Flowers yellowish-white in globose heads, red or purple in bud. Heads paniculate. Pods 10—14 × 1.5—2.0 cm, glabrous, thin, flat, linear, 5-10 seeded.

Fls. & Frts. : October - April.

Distrib. : Occasional on hedges; Karla, Khadaki, Medshi, Morna.

ALBIZIA Durazzini

- | | |
|--|------------------------|
| 1. Flowers pedicelled; pods white and 15-35 x 4-6 cm .. | <i>A. lebbeck</i> |
| 1. Flowers sessile; pods blackish or brown; 10-20 x 1.4 - 3.0 cm : | |
| 2. Calyx and rachis pubescent; pods 2.5-3.5 cm broad .. | <i>A. odoratissima</i> |
| 2. Calyx and rachis glabrous; pods 1.4-2.5 cm broad .. | <i>A. procera</i> |

Albizia lebbeck (L.) Willd. Sp. Pl. 4 : 1066. 1806; Baker in Hook. f. Fl. Brit. India 2 : 298. 1878. Cooke, Fl. Pres. Bombay 1 : 481. 1958 (Repr. ed.). *Mimosa lebbeck* L., Sp. Pl. 516. 1753.

Mar.: 'Shirish'.

Medium sized or tall trees; young shoots pubescent. Leaves 10-20 cm long; pinnae usually 4 pairs; leaflets 1—5 × 1.4—2 cm, elliptic-oblong or obovate. Flowers white in globose, umbellate heads, fragrant. Pods 15—35 × 4—6 cm, linear, oblong, flat, thin, 4-12 seeded.

Fls. & Frts. : April - August.

Distrib. : Planted along roadsides and in gardens; Patur.

Albizia odoratissima (L. f.) Benth. in Hook. Lond. Journ. Bot. : 88. 1844; Hook. f. Fl. Brit. India. 2 : 299. 1878; Cooke, Fl. Pres. Bombay 1 : 482. 1958 (Repr. ed.). *Mimosa odoratissima* L. f. Suppl. 437. 1781.

Mar. : 'kalasras'.

Tall trees upto 20 m tall. Leaves *ca* 15 cm long, pubescent; pinnae 4 pairs, 10 cm long; leaflets 10-15 pairs, obliquely oblong, obtuse at apex, $1.5-2.5 \times 0.5-1.2$ cm, glabrous, subcoriaceous. Flowers white in globose heads. Pods flat, straight, smooth, upto 12×2.5 cm. Seeds spherical or nearly so, compressed, glabrous.

Fls. & Frts. : April - April November.

Illus. : Bedd., Fl. Sylv. t. 54. 1870.

Distrib. : Occasional in deciduous forests; Chikhawal, Umerwadi.

Albizia procera (Roxb.) Benth. in Hook. Lond. Journ. Bot. 3 : 89. 1844; Hook. f. Fl. Brit. India 2 : 299. 1878; Cooke, Fl. Pres. Bombay 1 : 482. 1958 (Repr. ed.). *Mimosa procera* Roxb. Pl. Cor. 2 : 12, t. 121. 1798.

Tall trees with leaves upto 10 cm long; leaflets 6-10 pairs, $0.7-3.5 \times 0.5-2.0$ cm, coriaceous, ovate-oblong or elliptic-oblong. Flowers in 1.5-2 cm across heads. Pods brown, smooth, flat. Seeds yellowish-brown, smooth, glabrous.

Fls. & Frts. : September - November.

Illus. : Roxb. (*loc. cit.*).

Distrib. : Occasional in forests; Chikhawal, Khadaki, Patur and Shelubudruk.

DICHOROSTACHYS (DC.) Wight & Arn. *nom. cons.*

Dichrostachys cinerea (L.) W. & A. Prodr. 271. 1834; Hook. f. Fl. Brit. India 2 : 288. 1878; Cooke, Fl. Pres. Bombay 1 : 468. 1958 (Repr. ed.). *Mimosa cinerea* L. Sp. Pl. 520. 1753.

Mar. : *Sigam kati*.

Thorny shrubs with grey or greyish-white bark. Leaves 2-pinnate, 1.5-4.5 cm long; leaflets 10-16 pairs, sessile, opposite, linear-oblong. Flowers in dense, axillary, pendulous, 2-coloured spikes, bisexual ones yellow, neuters pink or reddish. Pods densely hairy or glabrous 2-10 seeded.

Fls. & Frts. : October - January.

Illus. : Wight, Icon. t. 357. 1840.

Distrib. : Occasional on slopes; Fatra, Morna, Palodi etc.

LEUCAENA Benth.

Leucaena leucocephala (Lam.) de Wit in Taxon 10 : 53. 1961. *Leucaena glauca* (L.) Benth. in Hook. Journ. Bot. 4: 416. 1802.; Baker in Hook. f. Fl. Brit. India 2 : 290. 1878; Cooke, Fl. Pres. Bombay 1 : 469. 1958 (Repr. ed.). Willbur in Taxon 14(7) : 246. 1965. *Mimosa glauca* L. Sp. Pl. 520. 1753. *Mimosa leucocephala* Lamk., Encycl. 1 : 12. 1783.

Mar.: *kubabkul*'.

Large, erect, unarmed shrubs or small trees, 4-7 cm tall. Leaves 2-pinnate. 8—16 cm long; pinnate 3-6 pairs, 4-8 cm long; leaflets 10-15 pairs, 0.8—1.2 × 0.1—0.3 cm, linear-oblong. Flowers white in dense globose heads. Pods 10—15 × 1—1.5 cm, linear-oblong, flat, pale to dark brown. Seeds 15-20, compressed.

Fls. & Frts. : August - January.

Distrib. : Planted at some places or an escape; Medshi.

MIMOSA L.

Mimosa hamata Willd. Sp. Pl. 4 : 1033. 1806; Baker in Hook. f. Fl. Brit. India 2 : 291. 1878; Cooke, Fl. Pres. Bombay 1 : 471. 1958 (Repr. ed.).

Shrubs, ca 1-2 m tall with cinnamon-brown bark. Prickles hooked, ca 0.4 cm long. Leaves bipinnate; leaflets 4-9 pairs, opposite, ovate-oblong. Flowers pink in globose, pedunculate, heads. Pods 5—7 × 1—1.5 cm, flat falcate. Sutures provided with straight or hooked spines.

Fls. & Frts. : June - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 79. 1966.

Distrib. : Common in open areas; Khadaki, Medshi, Morna, Shahanur.

PITHECELLOBIUM C. F. P. Mart. *nom. cons.*

Pithecellobium dulce (Roxb.) Benth. in Hook. Lord. Journ. Bot. 3 : 199. 1844; Baker in Hook. f. Fl. Brit. India 2 : 302. 1878. Cooke, Fl. Pres. Bombay 1 : 485. 1958 (Repr. ed.). *Mimosa dulcis* Roxb. Pl. Cor. 1 : 67. t. 99. 1795.

Mar. : *Vilayati chinch.*'.

Large trees upto 15 m tall. Stems armed with prickle. Leaves bipinnate, 3-5 cm long; pinnae 1 pair, each with 2 obovate or oblong leaflets.

Flowers white in globose heads. Pods spirally twisted. $10-15 \times 0.8-1.3$ cm. reddish, few-seeded. Seeds black, enclosed in a fleshy edible aril.

Fls. & Frts. : January - June.

Illus. : Wight, Icon. t. 198. 1839.

Distrib. : Planted along roadsides and near houses; Narnala.

PROSOPIS L.

Prosopis juliflora (SW.) DC. Prodr. 2 : 447. 1825. *Mimosa juliflora* SW., Prodr. 85. 1788.

Scandent shrubs or small trees with zig-zag branches. Leaves bipinnate; main rachis ending in a soft spine; stipular spine straight. Pinnae 1-3 pairs, 4-6 cm long; leaflets about 20 pairs, $0.4-1.3 \times 0.2-0.3$ cm, oblong, glabrous. Flowers light green or pale-yellow in dense, axillary, pendulous spikes. Pods $12-25 \times 1-1.5$ cm, slightly curved.

Fls. & Frts. : October - May.

Illus. : Mahesh., Illus. Fl. Delhi f. 78. 1966.

Distrib. : Common; planted in hedges; Akot.

COMBRETACEAE

1. Straggling shrubs; petals 4-5	..	<i>Combretum</i>
1. Trees; Petals 0 :		
2. Flowers in branched spikes or racemes	..	<i>Terminalia</i>
2. Flowers in globose heads	..	<i>Anogeissus</i>

ANOGEISSUS Wall.

Anogeissus latifolia (DC.) Wall. ex Bedd. Fl. Sylv. t. 15. 1869; Clarke in Hook. f. Fl. Brit. India 2 : 450. 1878; Cooke, Fl. Pres. Bombay 1 : 512. 1958 (Repr. ed.). *Conocarpus latifolia* Roxb. ex DC., Prodr. 3 : 17. 1828; Fl. Ind. 2 : 442. 1832.

Mar. : 'Dhavda'.

Trees upto 15 m tall; branches glabrous or puberulent. Leaves alternate or subopposite, $5-10 \times 2-4$ cm, elliptic-oblong, glabrous, coriaceous.

Flowers yellow in dense, pedunculate heads. Fruits compressed, 0.4–0.6 cm in diameter, 2-winged; wings entire. Several fruits clustered giving an appearance of a single aggregate fruit.

Fls. & Frts. : September - December.

Illus. : Wight, Icon. t. 994. 1845.

Distrib. : Common in deciduous forests and hill forests; Karla, Kasmar, Khadaki, Palodi.

COMBRETUM Loefling *nom. cons.*

Combretum ovalifolium Roxb. Hort. Beng. 28. 1814. (nomen) & Fl. Ind. 2 : 226. 1824; Clarke in Hook. f. Fl. Brit. India 2 : 458. 1878; Cooke, Fl. Pres. Bombay 1 : 515. 1958 (Repr. ed.).

Mar. : 'Madbel' or 'Pival-reli'.

Large straggling shrubs; branches terete, glabrous. Leaves 5–10 × 3–5 cm, opposite, elliptic or elliptic-lanceolate. Flowers yellowish-white in axillary panicles spikes occasionally forming a large pyramidal panicle. Fruits pale-brown, 2–2.5 cm long, obovate 4-winged; wings paperly finely transversely striate.

Fls. & Frts. : January - April.

Illus. : Watt. Dict. Econ. Prod. 2 : 514.

Distrib. : Occasional on trees; Chikhawal, Karla.

TERMINALIA L. *nom. cons.*

1. Fruits not winged	..	<i>T. bellerica</i>
1. Fruits equally 5-winged :		
2. Veins of the wings curved upwards	..	<i>T. arjuna</i>
2. Veins of the wings straight, horizontal :		
3. Glands on lower leaf-midrib stalked; calyx glabrous	..	<i>T. crenulata</i>
3. Glands on lower leaf-midrib sessile; calyx hairy	..	<i>T. alata</i>

Terminalia alata Heyne ex Roth, Nov. Pl. Sp. 379. 1821, Rau, Bull. Bot. Surv. India 10 (Suppl. 2) : 33. 1969. **Pentaptera tomentosa** Roxb. ex DC. Prodr. 3 : 14. 1828. **Terminalia tomentosa** (DC.) Wight & Arn. Prodr. 314. 1834; Hook. f. Fl. Brit. India 2 : 447. 1878.

Mar. : 'Ain.'

Tall trees with ash white bark; branches silky pubescent. Leaves subopposite, elliptic-lanceolate, acute, truncate-cordate, $5-17 \times 2.5-8$ cm. Flowers in dense terminal panicles which are longer than the leaves, densely yellowish-brown pubescent. Samara $2.5-3.5$ cm in diam. (incl. wings), woody, dark brown.

Fls. & Frts. : May - November.

Illus. : Bedd. Fl. Sylv. t. 17. 1869.

Distrib. : Frequent along the banks of river and nadas; Fetra, Morna, Shahanur.

Terminalia arjuna (Roxb.) W. & A. Prodr. 314. 1834; Hook. f. Fl. Brit. India. 2 : 447. 1878; Cooke, Fl. Pres. Bombay 1 : 509. 1959 (Repr. ed.) *Pentaptera arjuna* Roxb. Hort. Beng. 34. 1814 (nomen) & Fl. Ind. 2 : 438. 1832.
Mar. : *Arjun-sadada*.

Large trees reaching 10 m in height, glabrous. Leaves alternate or subopposite, oblong, elliptic or obovate, $4-25 \times 3-7$ cm. Flowers creamy-white, in short axillary spikes and terminal panicles. Samara $3-4 \times 2.2-5$ cm, ovoid, with 5 hard projecting wings.

Fls. & Frts. : April - August.

Illus. : Bedd., Fl. Sylv. t. 28. 1869.

Distrib. : Frequent in hill forests along gullies; Chikhalwal, Medshi, Shahanur.

Terminalia bellirica (Gaerth.) R9xb. Pl. Cor. 2 : 54. t. 198. 1805; Hook. f. Fl. Brit. India 2 : 445. 1878; Exell A. W. in Fl. Malesiana ser. 14 (5) : 569. 1949; Cooke, Fl. Pres. Bombay 1 : 508. 1958 (Repr. ed.). *Myrobalanus bellirica* Gaertn. Fruit. 2 : 90. t. 97. 1790.

Mar. : *Behada*.

Large trees, 12-20 m tall. Leaves collected at the ends of branches, $9.5-20 \times 5.5-15$ cm, broadly elliptic or elliptic-obovate, alternate. Flowers pale yellow or creamy-white in axillary, slender spikes. Drupes 1.2-2.5 cm, obscurely angled.

Fls. & Frts. : May - September.

Illus. : Wight, Illus. tr. t. 91. Bedd., Fl. Sylv. t. 19.

Distrib. : Occasional in deciduous forest; Chikhalwal, Karla, Morntara, Patur.

Terminalia crenulata Roth, Nov. Pl. Sp. 380. 1821. *Pentaptera crenulata* Roxb., Hort. Beng. 34. 1814 (nomen) & Fl. Ind. 2 : 438. 1832. *Terminalia tomentosa* W. & A. var. *crenulata* Clarke in Hook. f. Fl. Brit. India 2 : 447. 1878. *Terminalia tomentosa* Cooke, Fl. Pres. Bombay 1 : 510 (Repr. ed.) (non W. & A. 1834).

Mar. : *Sadada'*.

Tall trees upto 20 m tall with bark exfoliating in rectangular flakes. Leaves 5—20 × 4—7 cm, subopposite or alternate, crenulate or entire along the margin, elliptic-obovate or elliptic-oblong, coriaceous. Flowers pale yellow in terminal and axillary paniculate cymes. Fruits 5-winged, 3—5 × 3—4 cm, oblong, reddish, glabrous.

Fls. & Frts. : March - December.

Distrib. : Frequent in deciduous forests; Khadaki, Kasmari, Kinhiraja, Palodi.

MYRTACEAE

SYZYGIUM Gaertn. *nom. cons.*

- | | | |
|------------------------------|----|---------------------|
| 1. Leaves 3.5 - 9.0 cm broad | .. | <i>S. cumini</i> |
| 1. Leaves 1 - 4 cm broad | .. | <i>S. heyneanum</i> |

Syzygium cumini (L.) Skeels in U. S. Dept. Agri. Bur. Pl. Ind. Bull. 248 2. 1912. *Myrtus cumini* L. Sp. Pl. 471. 1753. *Eugenia jambolana* L2m. Encycl. 3 : 198. 1789; Duthie in Hook. f. Fl. Brit. India 2 : 499. 1878; Cooke, Fl. Pres. Bombay 1 : 523. 1958 (Repr. ed.).

Mar. : 'Jambal'.

Trees reaching 20 m in height; bark ash-white; branches terete, glabrous. Leaves 10—16 × 3.59 cm, opposite, oblong-lanceolate or elliptic-oblong. Flowers white or whitish green in cymes. Fruits subglobose, 1-2 cm across, bright to dark-purple, glabrous. Seed one, glabrous, ellipsoidal-oblong, white or pinkish.

Fls. & Frts. : February - July.

Illus. : Bedd. Fl. Syvl. t. 197. 1872.

Distrib. : Occasional in forest; Medshi.

Syzygium heyneanum Wall. ex w. ght & Arn. Prodr. 1 : 329. 1834. *Eugenia heyneana* Duthie in Hook. f. Fl. Brit. Indi x 2 : 500. 1878; Cooke, Fl. Pres. Bombay 1 : 524. 1958 (Repr. ed.).

Mar. : *Pan-jambhal'*.

Shrubs, scarcely small trees, 2-4.5 m tall, growing in beds or on the banks of streams and rivers. Leaves 8-15 cm long, opposite oblong-lanceolate or elliptic-lanceolate. Flowers white. Berries 1—2.5 cm across, oblong or ellipsoidal, pale-purple.

Fls. & Frts. : November - May.

Illus. : Wight, Ill. 2 : 16. 1850.

Distrib. : Occasional in river beds or on the banks of stream; Narnala.

Eucalyptus tereticornis Sm. is generally planted in forests, nurseries and in gardens.

LECYTHIDACEAE

CARYEA Roxb. *nom. Cons.*

Careya arborea Roxb. Pl. Cor. 3 : 4, t. 218. 1811; Hook. f. Fl. Brit. India 2 : 511. 1878; Cooke, Fl. Pres. Bombay 1 : 528. 1958 (Repr. ed.).

Deciduous trees. Leaves crenate-denticulate, obovate, shortly acuminate, cuneate, glabrous, 10—32 × 5—15 cm. Flowers yellowish-white in a short, few flowered, terminal spikes. Fruits 5—8 cm long, green, globose, fibrous. Flowers & fruits are foetid.

Fls. & Frts. : March - August.

Illus. : Bedd., Sylv. t. 205. 1872.

Distrib. : Deciduous trees in dry plain; not common; Manglurpur.

LYTHRACEAE

1. Herbs :

- | | | |
|---|----|----------------|
| 2. Capsule circumscissile or bursting irregularly | .. | <i>Ammaniu</i> |
| 2. Capsule septical, thinly cross-striate | .. | <i>Rotala</i> |

1. Shrubs or trees :

- | | | |
|---|----|----------------------|
| 3. Stamens indefinite | .. | <i>Lagerstroemia</i> |
| 3. Stamens less than 12 : | | |
| 4. Flowers hexamericous with 12 stamens | .. | <i>Woodfordia</i> |
| 4. Flowers tetramericous with 8 stamens | .. | <i>Lawsonia</i> |

AMMANNIA L.

- I. Pedicels usually very short; calyx not striate with vertical lines ... *A. baccifera*
 I. Pedicels slender, 2-10m or more long; calyx striate with 8 vertical lines ... *A. multiflora*

Ammannia baccifera L. Sp. Pl. 120. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 569. 1879; Cooke, Fl. Pres. Bombay 1 : 541. 1958 (Repr. ed.)

Glabrous, erect, annual herbs, 15-60 cm tall. Stem 4-gonous with numerous horizontal or ascending branches. Leaves opposite, sessile, linear-oblong or oblong-lanceolate, $1.5-4 \times 0.3-1$ cm. Flowers red, in dense axillary clusters. Capsules red, globose, depressed, irregularly circumscis above the middle. Seeds hemispheric.

Fls. & Frts. : October - December.

Distrib. : Common on wet soil along stream banks; Akot, Karla, Kasmar, Morna.

var. *aegyptiaca* (Willd.) Koehne in Engl. Bot. Journ. 1 : 253. 1881.
Ammannia salicifolia Hiern in Oliv. Fl. Trop. Africa 2 : 478. 1871 excl. syn. non Monti; Clarke in Hook. f. Fl. Brit. India 2 : 569. 1879; Cooke, Fl. Pres. Bombay 1 : 542. 1958 (Repr. ed.).

Stems erect sometimes reaching 90 cm in height. Leaves often cordate at base; those on the stem $3-6 \times 0.3-1.2$ cm, those on the branches $0.6-2.5 \times 0.2-0.4$ cm. Other characters as in *A. baccifera* var. *baccifera*.

Fls. & Frts. : October - December.

Illus. : Under *A. verticillata* Lam. in Encyc. Method. 1 : 131. 1783.

Distrib. : Common at marsh places; Mahan, Medshi.

Ammannia multiflora Roxb. Hort. Beng. 11. 1814 (nomen) & Fl. Ind. 1 : 447. 1820; Clarke in Hook. f. Fl. Brit. India 2 : 570. 1859; Cooke, Fl. Pres. Bombay 1 : 541. 1958 (Repr. ed.).

Erect, glabrous herbs, 10-25 cm tall. Stem & branches 4-gonous. Leaves $1-2.5 \times 0.3-0.5$ cm, sessile linear-oblong. Flower red, axillary, solitary or 3-many-flowered peduncled cymes. Capsules, red, globose, glabrous, deep red. Seeds numerous, hemispherical, excavated on plain surface.

Fls. & Frts. : August - January.

Distrib. : Common in moist ground; Karanja, Kasmar, Kinhraja, Umerwadi.

LAGERSTROEMIA L.

Lagerstroemia parviflora Roxb. Pl. Cor. 1 : 47. t. 66. 1795; Clarke in Hook. f. Fl. Brit. India 2 : 575. 1879; Cooke, Fl. Pres. Bombay 1 : 545. 1958 (Repr. ed.).

Mar. : 'Lendya'.

Trees 8-10 m tall with smooth, white bark. Leaves $4-8 \times 2-5$ cm, elliptic oblong or ovate-lanceolate. Flowers white, fragrant in axillary and terminal, many or few-flowered panicles. Capsules usually $2-3.5 \times 1-2$ cm, ellipsoid. Seeds 1-1.5 cm long (including wings); the wing much longer than the seed.

Fls. & Frts. : June - September.

Illus. : Bedd. Fl. Sylv. t. 32 (not of Wall.) 1869.

Distrib. : Frequent in hill forests; Karla, Kasmar, Palodi, Mahan, Narnala & Wanoja.

LAWSONIA L.

Lawsonia inermis L. Sp. Pl. 349. 1753; Cooke, Fl. Pres. Bombay 1 : 544 1958 (Repr. ed.) *Lawsonia alba* Lamk., Encycl. 3 : 106. 1789; Clarke in Hook. f. Fl. Brit. India 2 : 573. 1879.

Mar. : 'Mendi'.

Bushy shrubs ca 3-5 m tall with white or grayish-white bark and thorny, branchlets. Leaves $1-4 \times 0.3-2$ cm, opposite, entire, broadly lanceolate. Flowers greenish-yellow, in axillary panicles. Capsules globose, glabrous, smooth; seeds minute, brown, many.

Fls. & Frts. : April - October.

Illus. : Engl. & Prantl. Pflanzenf. 3(7) : fig. 6. 1892.

Distrib. : Planted in hedges; Chikhaliwal, Patur.

ROTALA L.

Rotala occultiflora Koehne in Bot. Jahrb. 1 : 152. 1880 & Pfreich. 17. 40. t. 2B. 1903; Gamble, Fl. Madras 1 : 358. 1919.

Erect herbs, ca 5-10 cm tall. Leaves 0.6-1.3 cm long, narrowly linear, upper or floral leaves rounded and dilated at base. Flowers minute, red. Capsule 2-3 valved, ellipsoidal-oblong.

Fls. & Frts. : October December.

Illus. : Pfreich. loc. cit.

Distrib. : Rare in wet places and ponds; Narnala (*Kamble*, 150492, BSI).

WOODFORDIA Salisb.

Woodfordia fruticosa (L.) Kurz in Journ. Asiat. Soc. Bengal. 40 : 56. 1871. *Lathrum fruticosum*. L. Sp. Pl. ed. 2 : 641. 1762. *Woodfordia floribunda* Salisb. Parad Lond. t. 42. 1806. Hook. f. Fl. Brit. India 2 : 572. 1879 (excl. Syn. *Grislea uniflora* Rich. & *G. micropetala* Hochst. ex Stued.); Cooke, Fl. Pres. Bombay 1 : 543. 1958 (Repr. ed.).

Mar. : 'Dhayati'.

Straggling shrubs upto 4 m tall with spreading branches. Leaves 4—7 × 1—3 cm, opposite or subopposite, sessile, broadly lanceolate. Flowers red, axillary or extra-axillary, in fascicled cymes. Capsules 1-1.5 cm long, ellipsoid or oblong. Seeds obovoid brown, numerous.

Fls. & Frts. : January - June.

Illus. : Bedd. For. Man. in Fl. Sylv. 117 t. 14. fig. 4. 1872.

Distrib. : Common on slopes; Karla, Narnala.

ONAGRACEAE

LUDWIGIA L.

Ludwigia perennis L. Sp. Pl. 119. 1753. *Ludwigia parviflora* Roxb. Hort. Beng. 11. 1814 (nomen) & Fl. Ind. 1 : 419. 1820; Hook. f. Fl. Brit. India 2 : 588. 1879; Cooke, Fl. Pres. Bombay 1 : 550. Bombay 1 : 550. 1958 (Repr. ed.) *Jusiaeae perennis* (L.) Brenan in Kew Bull. 163. 1953.

Erect annuals, 10-50 cm tall. Leaves 2—7 × 0.5—1.5 cm, lanceolate or elliptic-lanceolate, glabrous. Flowers yellow, axillary, solitary. Fruits pale-brown capsule, with numerous, minute, brown, smooth seeds.

Fls. & Frts. : April November.

Illus. : Wight, Ill. t. 101. 1840 and Mahesh., Illus. Fl. Delhi f. 85 1966.

Distrib. : Common in moist places; Kasmar, Pinjer.

CUCURBITACEAE

1. Flowers white :
- 2. Corolla rotate, fimbriate; male flowers in racemes .. *Trichosanthes*
 - 2. Corolla campanulate or funnel-shaped, not fimbriate; male flowers mostly solitary .. *Coccinia*
1. Flowers yellow, reddish-yellow, greenish-white or creamy white but never pure white :
- 3. Petals free or connate at base :
 - 4. Monoecious or dioecious; male flowers solitary on long peduncle; bract of male flower reniform, in middle of peduncle or beneath flower; anthers sinuate, conduplicate or horse-shoe shaped; berries papilose, tuberculate or softly echinate .. *Mimordica*
 - 4. Monoecious; male flowers in racemes, cbracterate; anthers sigmoid or wavy; berries smooth, acutely ribbed or bristly .. *Luffa*
 - 3. Corolla campanulate :
 - 5. Tendrils 2-5 branched .. *Diplocyclos*
 - 5. Tendrils unbranched :
 - 6. Connective crested, prolonged beyond anther cells .. *Cucumis*
 - 6. Connective not as above :
 - 7. Flowers monoecious; hispid herbs; leaves 5-angled or shallowly lobed .. *Mukia*
 - 7. Flowers dioecious; glabrous herbs; leaves entire .. *Solena*

COCCINIA Wight & Arn.

Coccinia grandis (L.) Voight, Hort. Sub. Calc. 59. 1845. *Bryonia cordifolia* L. Sp. Pl. 1012. 1753 (pp.) *Bryonia grandis* L. Mont. 1 : 126. 1767. *Coccinia indica* Wight & Arn. Prodr. 347. 1834; Cooke, Fl. Pres. Bombay 1 : 572. 1958. (Repr. ed.). *Cephalandra indica* Naud. in Ann. Sci. Nat. 5 : 16. 1866 (excl. syn.); Hook. f. Fl. Brit. India 2 : 621. 1879.

Mar. : *Tondli*'.

Slender, glabrous, much branched climbers. Tendrils slender, simple. Leaves 5-10 cm broad and long, bright green above, paler beneath, palmately 5-nerved from cordate base, 3-5 angled or lowers axillary, solitary. Female flowers with staminodes. Fruits fusiform-ellipsoid, slightly beaked.

Fls. & Frts. : August - March.

Distrib. : Cultivated or also as an escape.

CUCUMIS L.

Cucumis callosus (Rottl.) Cogn. in Engl. Pflanzenr. 88 : 129. 1924; Chakravarty, Monogr. Indian Cucur. 100. 1959. *Bryonia callosa* Rottl. in Ges. Naturf. Freunde Berlin Neue Schriften 4 : 210. 1803. (*Sphalm callosa*). *Cucumis trigonus* Roxb. Hort. Beng. 70 : 1814 (nomen) & Fl. Ind. 3 : 722. 1832; Hook. f. Fl. Brit. India 2 : 619. 1879 (excl. syn.); Cooke, Fl. Pres. Bombay 1 : 569. 1958 (Repr. ed.).

Mar. : 'Karit'.

Perennial, prostrate or climbing, scabrid herds. Leaves suborbicular, 3-6 cm long and as much broad, deeply palmately 5-7 lobed. Flowers monoecious, small yellow; male flowers often solitary. Fruits ovoid, round or obscurely trigonous, smooth, glabrescent, 3—5 × 2.5 cm, yellow with green stripes.

Fls. & Frts. : June - October.

Illus. : Wight, Icon. t. 497. 1841.

Distrib. : Common weed in cultivated and barren fields.

DIPLOCYCLOS (Endlicher) Von Post & Kuntze

Diplocyclos palmatus (L.) Jeffrey in Kew Bull. 15 : 352. 1962. *Bryonia palmata* L. Sp. Pl. 1012. 1753, excl. syn. *Bryonia laciniosa* sensu Sp. Pl. 1013. 1753 (p. p.); Hook. f. Fl. Brit. India 2 : 622. 1879. *Bryonopsis laciniosa* sensu Naudin in Ann. Sci. Nat. (ser. 6) 12 : 141. 1859 (Pro. Maj. parte, excl. type et sensu auct mult. non (L.) Naud. loc. cit., (sensu stricto); Cooke, Fl. Pres. Bombay 1 : 534. 1958 (Repr. ed.).

Tuberous, slender, extensive, monoecious herbs. Leaves 3.5—11 × 4—12 cm; lobes sometimes pinnatifid, remotely toothed, membranous, glabrous. Flowers greenish-yellow in axillary fascicles. Berries ovoid, 2-3 cm across, brick red, with white lines.

Fls. & Frts. : August - January.

Illus. : *Bryonia laciniosa* sensu Wight, Icon. t. 500. 1841.

Distrib. : Common in hedges; Futra, Shahanur etc.

LUFFA Cav.

Luffa tuberosa Roxb. Hort. Beng. 104. 1814 (nomen) & Fl. Ind. 3 : 717. 1832; Chakravarty in Rec. Bot. Surv. Ind. 17 : 81. 1959. *Mimordica cymbalaria*

Fenzl ex Naud. in Ann. Sci. nat. (ser. 4) 12 : 134. 1859; Hook. f. Fl. Brit. India 5 : 618. 1879; Cooke, Fl. Pres. Bombay 1 : 564. 1958 (Repr. ed.).

Mar. : *Kadvanchi*.

Perennial, slender, tendril climbers. Leaves 1—1.5 × 1—2 cm, shallowly 5-7 lobed, orbiculo-reniform. Flowers yellow, in 1-3 cm long raceme. Fruits 1.2-2.5 cm long, pyriform or broadly fusiform, narrowed into the curved peduncle, fleshy, dark green. Seeds broadly-ovoid, slightly compressed, smooth.

Fls. & Frts. : November - December.

Distrib. : Occasional on hedges; Patur, Medshi.

MOMORDICA L.

- | | | |
|---|----|---------------------|
| 1. Flowers monoecious; berries papillate or tuberculate | .. | <i>M. charantia</i> |
| 1. Flowers dioecious; berries softly echinate | .. | <i>M. dioica</i> |

***Momordica charantia* L.** Sp. Pl. 1009. 1753; Hook. f. Fl. Brit. India 2 : 616. 1879; Cooke, Fl. Pres. Bombay 1 : 562. 1958 (Repr. ed.) *Cucumis africanus* Lindl. in Bot. Rog. 12. t. 980. 1826 (non L.).

Mar.: *Karale*.

Slender, climbing or trailing, annual herbs with much branched, angled or grooved stem. Leaves upto 10 cm long and as much broad, deeply 5-7 lobed, glabrous, membranous. Flowers monoecious; male flowers lemon-yellow solitary, axillary. Berries obtusely fusiform, pendulous, papillate or tuberculate. Seeds pale-yellow, flat, sculptured on both faces.

Fls. & Frts. : May - January.

Illus. : Lindl. loc. cit.

Distrib. : Widely cultivated and also an escape.

***Momordica dioica* Roxb. ex Willd.** Sp. Pl. 4 : 605. 1805; Hook. f. Fl. Brit. India 2 : 617. 1879; Cooke, Fl. Pres. Bombay - : 563. 1958 (Repr. ed.). Chakravarty in Rec. bot. Surv. India 17 : 91. 1959.

Mar. : *Kartoli*.

Dioecious, perennial, trailing or climbing, glabrous herbs with tuberous roots. Leaves 3—11 × 3—10 cm, broadly ovate or very shallowly 3-5 lobed. Flowers solitary, axillary, pedunculate. Fruits upto 6 cm long, ellipsoid, shortly beaked, echinate, with soft spines. Seeds many, flat.

Fls. & Frts. : July - October.

Illus. : Wight, Icon. t. 505. 506. 1841.

Distrib. : Frequent on the hedges; Medshi, Morna, Shahapur etc.

MUKIA Arnott

Mukia maderaspatana (L.) M. Roemer, Syn. Pep. 47. 1846. *Cucumis maderaspatana* L. Sp. Pl. 1012. 1753. *Mukia scabrella* (L. f.) Arn. J. Bot. (Hooke) 3 : 276. 1841; Hook. f. Fl. Brit. India 2 : 623. 1879. *Melothria maderaspatana* (L.) Cogn. in A. & C. DC., Mongr. Phan. 3 : 623. 1881; Cooke, Fl. Pres. Bombay 1 : 573. 1958 (Repr. ed.).

Mar. : 'Chirati.'

Prostrate or climbing, much branched, slender, scabridly hairy monoecious annuals. Leaves 1.5—10 × 1—9 cm, shallowly 3-5 angled, deltoid-ovate, with dentate margin. Flowers male and female in same axil; male pedicillate, female sessile. Fruits spherical, smooth or slightly echinate. Seeds ellipsoid, compressed.

Fls. & Frts. : July - October.

Illus. : Wight, Icon. t. 501. 1841.

Distrib. : Very common in hedges; Akot, Futra, Patur etc.

SOLENA Loureiro

Solenia amplexicaulis (Lam.) Gandhi in Sald. & Nicolson Fl. Hassan 179. 1976. *Bryonia amplexicaulis* Lam. Encycl. 1 : 496. 1785. *Melothria heterophylla* (Lour.) Cogn. in DC. Mon. Phan. 3 : 610. 1881; Cooke, Fl. Pres. Bombay 1 : 575. 1958 (Repr. ed.).

Mar.: 'Gometi'.

Perennial, dioecious, slender, glabrous herbs with branched & furrowed stem. Tendrils simple. Leaves 6—16 × 3—11 cm polymorphous, ovate or 3-5 angled or lobed. Flowers yellow; male flowers subumbellate, 15-20 on a 0.6-2.0 cm peduncle; female flowers on 0.5-1.5 cm long, solitary peduncles. Fruits oblong-ovoid, cylindric.

Fls. & Frts. : June - January.

Distrib. : Occasional; Futra, Palodi etc.

TRICHOSANTHES L.

Trichosanthes tricuspidata Lour. Fl. Cochinch. 589. 1790. *Trichosanthes bracteata* (Lam.) Voight, Cat. Hort. Cal. 58. 1845; Chakravarty, Monogr. Indian Cucur. 44. 1959. *Modecca bracteata* Lam. Encycl. Meth. Bot. 4 : 210. 1797. *Trichosanthes palmata* Roxb. Fl. Ind. 3 : 704. 1832; Hook. f. Fl. Brit. India 2 : 6.60 1879; Cooke, Fl. Pres. Bombay 1 : 560. 1958 (Repr. ed.).

Mar.: *Kanindal*.

Woody climbers, with robust, branched, grooved stem. Tendrils 2-3 branched. Leaves upto 13 cm long and as much broad, usually palmately 3-5 lobed. Flowers white, in 5-10 flowered racemes but rarely solitary. Fruits 3-5 cm in diameter, globose.

Fls. & Frts. : April - August.

Illus. : Wight, Ill. tI. 104, 105. 1840.

Distrib. : Occasional in deciduous forest; Fetta, Pinger etc.

MOLLUGINACEAE

1. Flowers in axillary fascicles; seeds appendaged, ..	<i>Glinus</i>
1. Flowers in terminal cymes; seeds with or without a very short appendage ..	<i>Mollugo</i>

GLINUS L.

1. Densely stellately hairy ..	<i>G. lotoides</i>
1. More or less glabrous ..	<i>G. oppositifolia</i>

Glinus lotoides L. Sp. Pl. 463. 1753. *Mollugo lotoides* (L.) O. Ktze, Rev. Gen. Pl. 214. 1891. *Mollugo hirta* Thunb., Fl. Cap. 24. 1794; Clark e in Hook. f. Fl. Brit. India 2 : 662. 1879.

Prostrate, spreading, rosette forming, gray-green, densely stellate pubescent herbs. Leaves opposite or whorled, obovate or orbicular, 8—20 × 8—15 mm. Flowers greenish-white or greenish-yellow, in axillary fascicles, 1-6 together. Capsules little shorter than the sepals, ovoid. Seeds many.

Fls. & Frts. : October - March.

Distrib. : Common in drying ponds and ditches; Morna, Palodi, Shahapur etc.

Glinus oppositifolia (L.) A. DC. Bull. Herb. Boissier Ser. 2, 1 : 559; 1901.
Mollugo oppositifolia L. Sp. Pl. 89. 1753; Cooke, Fl. Pres. Bombay 1 : 593.
 1958 (Repr. ed.). *M. sperrula* L. Syst. 881. 1759; Clarke in Hook. f. Fl. Brit.
 India 2 : 662. 1879.

Slender, decumbent, much-branched, glabrous herbs. Leaves usually fascicled at nodes, spatulate, obovate or elliptic, $1-2.5 \times 0.5-1$ cm. Flowers white, in axillary fascicles. Capsules 3-celled. Seeds numerous.

Fls. & Frts. : September - March.

Distrib. : Common at wet places; Akot, Patur, Narnala etc.

MOLLUGO L.

Mollugo pentaphylla L. Sp. Pl. 89. 1753; Cooke, Fl. Pres. Bombay 1 : 594.
 1958 (Repr. ed.). *M. stricta* L. Sp. Pl. ed. 2 : 131. 1762; Hook. f. Fl. Brit.
 India 2 : 663. 1879.

Mar. : 'Jharasi'.

Diffuse, 10-30 cm tall, glabrous annuals. Stems numerous, 4 angled, with dichotomous branching. Leaves fascicled, obovate, mucronate, narrowed at base, $1.5-3.5 \times 0.3-0.6$ cm. Flowers white, numerous, in lax, corymbose, terminal cymes. Capsules subglobose.

Fls. & Frts. : July - December.

Distrib. : Common in cultivated fields; Patur, Medshi etc.

AIZOACEAE

TRIANTHEMA L.

Trianthemum portulacastrum L. Sp. Pl. 223. 1753. *T. monogyna* L., Mont.
 1 : 69. 1767; Hook. f. Fl. Brit. India 2 : 660. 1879; Cooke, Fl. Pres. 1 : 589
 1958 (Repr. ed.).

Mar. : 'Punernava'.

Somewhat succulent, subglabrous, prostrate, annual herbs. Leaves $3-4.5 \times 2-3$ cm, obliquely opposite in equal pairs, obovate or orbicular, obtuse or retuse at apex. Flowers pink, solitary, axillary. Capsules brown or greenish-red.

Fls. & Frts. : July - September.

Illus. : Wight, Icon. t. 228. 1840.

Distrib. : Common weed at waste places; Akot, Kinhiraja, Medshi, Patur etc.

APIACEAE (Umbelliferae)

1. Flowers yellow or greenish yellow	..	<i>Foeniculum</i>
1. Flowers white or pinkish :		
2. Fruit laterally compressed	..	<i>Pimpinella</i>
2. Fruit not laterally compressed		<i>Sesili</i>

FOENICULUM Adans.

Foeniculum vulgare Gaertn. Fruct. 1 : 105. f. 5. 1768; Hook. f. Fl. Brit. India 2 : 695. 1879; Cooke, Fl. Pres. Bombay 1 : 609. 1958 (Repr. ed.)

Mar. : ' *Badishep*' .

Erect, annual herbs, upto 90 cm. tall. Stem terete, striate, glabrous. Leaves much dissected, 5-15 cm long; segments narrowly linear or filiform. Flowers yellow in large, terminal, compound umbels. Fruits ovate elliptic, shortly beaked and compressed, with 2 wings.

Fls. & Frts. : October - December.

Illus. : Wight, Icon. t. 515. 1842.

Distrib. : Commonly cultivated on a small scale; Akot, Medshi, Patur etc.

PIMPINELLA L.

Pimpinella candolleana W. & A. Prodr. 369. 1834; Hook. f. Fl. Brit. India 2 : 687. 1879; Cooke Fl. Pres. Bombay 1 : 601. 1958 (Repr. ed.)

Annuals, 40-80 cm tall. Lower leaves cauline; middle cauline, 3-partite; uppermost 1-2 pinnatifid. Flowers white, in compound umbels. Fruits 0.25 cm long, ovoid, acutely pointed, covered with glandular tubercles.

Fls. & Frts. : September - December.

Illus. : Wight, Icon. 1. 341. 1840.

Distrib. : Occasional; Narnala Fort.

SESILI L.

Sesili diffusum (Roxb. ex Sm.) Sant. & Wagh in Bull. Bot. Surv. India 5 : 108. 1963. *Ligisticum diffusum* Roxb. ex Sm. in Rees. Cyc. 21 : 11 1812. *Sesili indicum* W. & A. Prodr. 31. 1834; Hook. f. Fl. Brit. India 2 : 693. 1879.

Annuals erect or diffuse, 10-30 cm, much branched, slender herbs. Leaves 2-3 pinnate, radical and caudine, hispid, oblong or oblong-lanceolate. Flowers pinkish or white. Fruits oblong, ovate or sub-orbicular, often pale-yellow with thick ridges.

Fls. & Frts. : March - May.

Illus. : Wight, Icon. . t. 569. 1842.

Distrib. : Rare in moist places on Narnala fort; Narnala (*Kamble* 152972, *BSI*).

RUBIACEAE

1. Plants armed :

2. Ovule 1 per locule : .. *Canthium*

2. Ovule 2 or more per locule :

3. Leaves sessile; ovary 1-locular; stipules amplexicaul .. *Gardenia*

3. Leaves petiolate; ovary 2-locular; stipules not amplexicaul *Xeromphis*

1. Plants unarmed :

4. Inflorescence a globose head :

5. Flowers yellow; ovules more than 2 in each locule .. *Mitragyna*

5. Flowers white; ovule one in each locule; fruit a syncarp .. *Morinda*

4. Inflorescence not a globose head :

6. Ovules more than 2 in each locule :

7. Creeping herbs; corolla lobes with tooth on each side .. *Dentella*

7. Erect or diffuse herbs; corolla lobes without teeth :

8. Seeds few, planoconvex or globose with a large ventral cavity .. *Neanotis*

8. Seeds numerous, angular or subglobose, .. *Oldenlandia*

6. Ovules solitary in each locule :

9. Herbs .. *Borreria*

9. Trees or shrubs :

10. Corolla twisted; ovary 2-celled; fruit berry .. *Ixora*
 10. Corolla lobes valvate; ovary 3-5 celled; fruit a capsule .. *Spernadicton*

BORRERIA G. G. W. Meyer nom. cons.

1. Plants procumbent; corolla tube with a ring of hairs within at base; corolla bluish .. *B. articulatis*
 1. Plants erect; corolla tube without ring of hairs; corolla white .. *B. pusilla*

Borreria articulatis (L. f.) F. N. Williams, Bull. Herb. Boissier Ser. 2. 5 : 956. 1905. *Spermacoce hispida* L. Sp. Pl. 102. 1753; Hook. f. Fl. Brit. India 3 : 200. 1881; Cooke, Fl. Pres. Bombay 2 : 53. 1958 (Repr. ed.) *Spermacoce articulatis* L. f. Suppl. 119. 1781 (excl. Syn. Rumph.) *Borreria hispida* (L.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 (4) : 144. 1891 (non Spruce ex K. Schum. 1888).

Initially erect, then procumbent or suberect, branched or unbranched, hispid herbs. Leaves 1.5—4 × 0.6—1.5 cm, elliptic or elliptic-lanceolate. Flowers bluish-white. Fruits 0.3-0.4 cm long, oblong, apiculate.

Fls. & Frts. : August - November.

Distrib. : Common in plains; Chikhalwal, Fetra and Palodi.

Borreria pusilla (Wall.) DC Prodr. 4. 543. 1830. *Sperrmocce pusilla* Wall. in Roxb. Fl. Ind. 1 : 379. 1820. *Spermacoce stricta* L. f. Suppl. 120. 1781; Hook. f. Fl. Brit. India 3 : 200. 1881; Cooke, Fl. Pres. Bombay 2 : 52. 1958 (Repr. ed.). *Borreria stricta* (L. f.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4(4) : 143. 1891, non-Meyer, 1818.

Erect scabrid herbs, 10-35 cm tall. Stems branching from the base, 4-gonous. Leaves lanceolate or linear-lanceolate, 2-5 × 0.5—1 cm, sessile. Flowers white, in globose, dense, axillary and terminal clusters; surrounded by a whorl of 2-6 linear, acute, spreading or at length reflexed leaves. Capsules upto 0.3 cm long, membranous.

Fls. & Frts. : August - November.

Distrib. : Common in grassland; Kalamata, Khadaki, Mahan and Pinjer.

CANTHIMUM Lam.

Canthium parviflorum Lam. Encycl. 1 : 602. 1785; Hook. f. Fl. Brit. India 3 : 1880. *Plectronia parviflora* (Lam.) Bedd. For Man. 124. 1874; Cooke, Fl. Pres. Bombay 2 : 35. 1958 (Repr. ed.).

Armed shrubs; spines very conspicuous, upto 4 cm long. Leaves ovate or orbicular or elliptic, 1.5-3.5 cm \times 1-2.5 cm. Flowers small, white in axillary, peduncled cymes. Fruits globose or oblong-ellipsoid 1—1.2 \times 0.8—1 cm, yellow when ripe.

Fls. & Frts. : May - October.

Distrib. : Very common in scrub forests; Feta, Mahan, Narnala, Pinjer, Shahanur.

DENTELLA J. & G. Forster

Dentella repens (L.) Forst. Charact. Gen. 26. t. 13. 1776; Hook. f. Fl. Brit. India 3 : 42. 1880. Cooke, Fl. Pres. Bombay 2 : 12. 1958 (Repr. ed.).
Oldenlandia repens L. Mant. 1 : 40. 1767.

Much branched, prostrate herbs, often rooting at nodes. Leaves subsessile, pale green, 0.3-1 cm long, lanceolate or spatulate. Flowers minute, white axillary, solitary; calyx with many hyaline hairs. Fruits upto 0.3 cm long, globose.

Fls. & Frts. : April - July.

Distrib. : Common on moist ground; Mahan, Morna

GARDENIA J. Ellis *nom. cons.*

- | | |
|--|---------------------|
| 1. Corolla tube 1.5-2 cm long; plants sometime armed, not resiniferous | <i>G. turgida</i> |
| 1. Corolla tube 4-8 cm long; plants unarmed, resiniferous .. | <i>G. latifolia</i> |

Gardenia latifolia Aiton, Hort. Kew 1 : 294. 1789; Hook. f. Fl. Brit. India 3 : 116. 1880. Cooke, Fl. Pres. Bombay 2 : 30. 1958 (Repr. ed.).

Small, deciduous trees, with conspicuous resin. Leaves elliptic-obovate, sub-acute 10—16 \times 5—6 cm; nerves 11-17 pairs; nervules parallel. Flowers solitary, with 5-9 lobed, yellowish white corolla and lanceolate, acuminate, 5-9 calyx lobes. Berry globose 3 cm across.

Fls. & Frts. : February - May.

Illus. : Wight, Icon. t. 759. 1844.

Distrib. : Occasional on slopes; Patur and Shahanur.

Gardenia turgida Roxb. (Hort. Beng. 15. 1814, *nom.*) Ind. 2 : 557. 1824; Hook. f. Fl. Brit. India 3 : 118. 1880; Cooke, Fl. Pres. Bombay 2 : 29. 1958 (Repr. ed.)

Deciduous shrubs-trees, mostly spinous. Leaves ovate, obtuse-acute, cuneate, 4—7 × 1.5—4 cm. sessile, pubescent. Flowers creamy-white or yellow, fascicled at ends of leafless branches. Berry orbicular, yellowish-brown, 4.5-6 cm broad, with rough rind.

Fls. & Frts. : March - June.

Illus. : Wight Icon. t. 579, 1842; Bedd. Fl. Sylv. Aral. Gen. t. 15. f. 6. 1869.

Distrib. : Frequent in scrub jungle; Alegaon, Fetra, Kasmar, Pinjer, Shahanur.

IXORA L.

Ixora brachiata Roxb. Hort. Beng. 10. 1814 (*nomen*) & Fl. Ind. 1 : 391 1820; Hook. f. Fl. Brit. India 3 : 142. 1880; Cooke, Fl. Pres. Bombay 2 : 39. 1958 (Repr. ed.).

Mar : 'Gorbale'.

Straight or crooked trees upto 5 m tall. Leaves 5-15 × 2-5.5 cm, opposite, rarely whorled, obovate-oblong, elliptic-oblong or lanceolate. Flowers creamy-white, in terminal panicles. Fruits 0.5-0.9 cm across, globose and dark purple.

Fls. & Frts. : February-June

Illus. : Wight, Icon. t. 710. 1843.

Distrib. : Occasional in scrub forest; Chikhawal, Morna, Shahanur.

MITRAGYNA Korthals *nom. cons.*

Mitragyna parvifolia (Roxb.) Kunth, Obs. Naucl. Ind. 19. 1839; Cooke, Fl. Pres. Bombay 2 : 8. 1958 (Repr. ed.). *Naulea parviflora* Roxb. Pl. Cor. 1 : 40. t. 12. 1795. *Stephegyne parvifolium* Korth. Verh. Nat. Ges. Bot. 161. 1840; Hook. f. Fl. Brit. India 3 : 125. 1880.

Mar. : 'Kalamb'.

Deciduous trees upto 15 m tall. Leaves 4—17 × 2—16 cm, ovate, elliptic-oblong or suborbicular-ovate, obtuse-acute. Flowers creamy-white in 1-2 cm across, globose, terminal or axillary heads. Capsules in globose heads, glabrous, cuneate, distinctly ribbed. Seeds minute, brown.

Fls. & Frts. : April - December.

Illus. : Bedd. Fl. Sylv. t. 34. 1839.

Distrib. : Throughout in deciduous forest; Chikhawal, Kala-kamta, Khaperdari, Patur and Wanoja.

MORINDA L.

- | | |
|--|----------------------|
| 1. Leaves glabrous, shining, 12-20 cm long .. | <i>M. citrifolia</i> |
| 1. Leaves tomentose, not shining, dull, 10-15 cm long .. | <i>M. tomentosa</i> |

Morinda citrifolia L. Sp. Pl. 176. 1753; Hook. f. Fl. Brit. India 3 : 155. 1880; Cooke, Pres. Bombay 2 : 42. 1958 (Repr. ed.).

Mar. : *Aal*.

Small, glabrous trees with yellowish-white, smooth, bark and straight trunk. Leaves 12—20 × 7.5—10 cm, broadly elliptic, acute, acuminate or obtuse, glabrous, shining. Flowers white in dense ovoid heads. Fruits about the size of small egg; pyrens ovoid, compressed.

Fls. & Frts. : April - September.

Distrib. : Frequent in deciduous forest; Chikhawal, Kasmar Khaperdari.

Morinda tomentosa Heyne ex Roth. Nov. Pl. Sp. 147. 1821. *M. tinctoria* Roxb. (Hort. Beng. 15. 1814, *nomen*) Fl. Ind. 2 : 1824, non Noronha 1790. *Morinda tinctoria* var. *tomentosa* (Roth) J. Hooke, Fl. Brit. India 3 : 156. 1880; Cooke, Fl. Pres. Bombay 2 : 43. 1958 (Repr. ed.).

Shrubby trees with rough, irregularly fissured bark. Leaves elliptic-lanceolate, acuminate, upto 15 × 6 cm, tomentose. Flowers white in globose heads. Fruits 2 cm across, globose or ellipsoid, fleshy.

Fls. & Frts. : April - August.

Distrib. : Frequent in plains; Khaperdari, Mahan, Manora and Shahanur.

NEANOTIS W. H. Lewis *nom. cons.*

- | | |
|--|-----------------------|
| 1. Cymes corymbose; calyx teeth a little below the top of the capsule .. | <i>N. lanceifolia</i> |
| 1. Cymes clustered; capsules in clusters or heads; calyx teeth nearer the pedicel than the top of the capsule .. | <i>N. monthlon</i> |

Neanotis lancifolia (Hook. f.) W. H. Lewis in Ann. Missouri Bot. Gard. 53 (1-3) : 39. 1966. *Hedyotis lancifolia* Dalz. Hook. Jour. Bot. 2 : 135. 1850 non Schum. in Schum. & Thon. (Beskr. Gain. Pl. I : 92. 1827). *Anotis lancifolia* Hook. f. Fl. Brit. India 3 : 73. 1880; Cooke Fl. Pres. Bombay 2 : 20. 1958 (Repr. ed.).

Diffusely branched, erect, 80-90 cm high herbs. Leaves membranous, 8—15 × 1—2.5 cm, ovate or ovate-lanceolate, acuminate, bright green and pubescent above with base acute or obtuse. Flowers purple in terminal and subterminal, many flowered, corymbose cymes. Capsules compressed, 0.4—0.6 cm broad, much broader than long.

Fls. & Frts. : September - December.

Distrib. : Occasional in the field; Shelubudruk.

Neanotis monthloni (Hook. f.) W. H. Lewis in Ann. Missouri Bot. Gard. 53 (1-3) : 39. 1966. *Anotis monthloni* Hook. f. Fl. Brit. India 3 : 73. 1880; Cooke, Fl. Pres. Bombay 2 : 22. 1958 (Repr. ed.).

Erect, sparingly branched, more or less hispid annuals. Leaves 3.5—5 × 1.5—2 cm, ovate or ovate-lanceolate, acute, hairy on both sides. Flowers purple in terminal and axillary, peduncled, many-flowered (not capitate) cymes. Capsules clustered, subsessile, didymous, broader than long with double convex crown. Seeds globose.

Fls. & Frts. : August - October.

Distrib. : Occasional near the banks of nala; Khadaki.

OLDENLANDIA L.

1. Leaves whorled	..	<i>O. aspera</i>
1. Leaves opposite :		
2. Upper inflorescence many-flowered and paniced	..	<i>O. affinis</i>
2. All inflorescence 1-4 flowered	..	<i>O. corymbosa</i>

Oldenlandia affinis DC. Prodr. 4 : 428. 1830. *O. dichotoma* Hook. f. in Hook. f. Fl. Brit. India 3 : 67. 1880; Cooke, Fl. Pres. Bombay 2 : 17. 1958. (Repr. ed.).

Mar. : *Kajuri*.

20-40 cm tall, glabrous or sparsely hairy herbs. Leaves linear-lanceolate, acute; flat; lower leaves larger than the upper, 2—7 × 0.3—0.7 cm; stipules small, truncate. Flowers white, in terminal and axillary, slender panicles. Capsules 0.3—0.4 cm in diameter, globose.

Fls. & Frts. : August - October.

Distrib. : Occasional; Palodi.

Oldenlandia aspera DC. Prodr. 4 : 428. 1830; Hook. f. Fl. Brit. India 3 : 68. 1880; Cooke, Fl. Pres. Bombay 2 : 18. 1958 (Repr. ed.). *Hedyotis aspera* Heyne in Roth Nov. Pl. Sp. 94. 1821.

Stout, annual herbs, 15-35 cm high with stem and branches scabrid. Leaves whorled, $2.5-5 \times 0.6-0.9$ cm linear, acute, subsessile; stipules membranous. Flowers pale pink in terminal, branched cymes. Capsules 0.4-0.5 cm across, globose, scabrid.

Fls. & Frts. : August - October.

Distrib. : Common in cultivated fields; Karla, Kinhiraja, Patur.

Oldenlandia corymbosa L. Sp. Pl. 119. 1753; Hook. f. Fl. Brit. India 3 : 64. 1880; Cooke, Fl. Pres. Bombay 2 : 15. 1958 (Repr. ed.). *Hedyotis corymbosa* Lam. Encycl. Meth. Bot. 1 : 272. 1782.

Mar. : 'Pitpapda'.

Annual, erect or diffuse, 10-30 cm tall, glabrous herbs. Leaves 1-2 cm long, narrowly linear, glabrous. Cymes axillary. Capsule 0.2-0.5 cm long, globose, smooth, glabrous. Seeds minute, angular, dark-brown.

Fls. & Frts. : September - February.

Illus. : K. Schum, in Engl. & Prantl, Pflanzenf. 4(4) : 22. fig. 8.

Distrib. : Occasional; Karla.

SPERMADICTYON Roxb.

Spermadictyon suaveolens Roxb. Pl. Cor. 3 : 32. t. 236. 1819. *Hamiltonia suaveolens* Roxb. Hort. Beng. 15. 1814 (nomen) & Fl. Ind. 1 : 554. 1832; Hook. f. Fl. Brit. India 3 : 197. 1880; Cooke, Fl. Pres. Bombay 2 : 51. 1958 (Repr. ed.).

Trees upto 3 m tall with greyish or pale-brown, faintly longitudinally fissured bark. Leaves $5-19 \times 2.5-7.5$ cm, ovate, elliptic or lanceolate, glabrous or sparsely hairy. Flowers pale blue or white, numerous in axillary and terminal, paniculate cymes. Fruits ellipsoid, black, glabrous. Seeds triangular, glabrous.

Fls. & Frts. : August - March.

Illus. : Roxb. Pl. Cor. 3 : 32. t. 236. 1819 & Bedd., For. Man. in Flor. Sylvat. P. 134-12. t. 17. f. 3.

Distrib. : Occasional on Narnala fort. Collected from Narnala fort only.

XEROMPHIS Raf.

Xeromphis spinosa (Thunb.) Keay in Bull. Jard. Bot. Brux. 28 : 37. 1958. *Gardenia spinosa* Thunb. Diss. Gard. no. 7. t. 2. f. 4. 1780. *Randia dimerorum* Lam T Talb. Encycl. 2 : 227. 1792; Hook. f. Fl. Brit. India 3 : 110. 1880. Cooke, Fl. Pres. Bombay 2 : 27. 1958 (Repr. ed.).

Mar.: 'Gila'.

Armed, deciduous shrubs, 1-3.5 m tall. Leaves 1.5—10×0.5—4.5 cm, fascicled at ends of branches, elliptic or obovate, subcoriaceous, glabrous. Flowers yellowish or creamy-white. Fruits 2-3 cm across, ovoid or nearly globose, woody, smooth. Seeds numerous, compressed, glabrous.

Fls. & Frts. : July - December.

Illus. : Wight, Icon. t. 580. 1842.

Distrib. : Throught in forest; Karanja, Narnala.

ASTERACEAE

1. Achenes enclosed either by involucral bracts or by paleae of the receptacle :

2. Involucral bracts enclosing achenes of the ray florets :

3. Outer involucral bracts spathulate, with large viscous peltate glands; achenes enclosed in glabrous bracts .. *Sigesbeckia*

3. Outer involucral bracts not spathulate and devoid of such glands; achenes enclosed in spiny uricle of the bracts :

4. Leaves alternate; uricle oblong ovid, 20 mm long .. *Xanthium*

4. Leaves opposite; uricle obovoid, 5 mm long .. *Acanthospermum*

2. Involucral bracts not enclosing achenes of the ray florets .. *Sclerocarpus*

1. Achenes not enclosed by any sort of the covering :

5. Involucral bracts spinous :

6. A diffusely branched herb with cottony pubescence; flowers white in globular heads .. *Echinops*

6. A glabrous or scaberulous, dichotomously branched herbs; flowers purple in ovoid-oblong heads .. *Amberboa*
5. Involucral bracts not spinous :
7. Achenes in capitula homomorphous :
8. Involucre cylindric :
9. Flowers all tubular :
10. Pappus paleaceous with unequal, obovate scale .. *Goniocaulon*
10. Pappus not paleaceous, but white copious .. *Emilia*
9. Flowers all ligulate :
11. Florets yellow, all ligulate; leaves alternate .. *Lactuca*
11. Florets in shades of rose, purple (tube florets rare); leaves opposite .. *Zinnia*
8. Involucre ovoid, hemispheric, globose, campanulate or conical :
12. Capitula with atleast ray florets ligulate :
13. Capitula large, showy, 5-10 cm across; leaves opposite *Zinnia*
13. Capitula not as large & showy as above, less than 2.5 cm across :
14. Leaves alternate or radicle :
15. White wooly herbs .. *Gnaphalium*
15. Glabrous or variously pubescent herbs :
16. Capitula with all florets yellow :
17. Heads with all ligulate corollas *Sonchus*
17. Heads with corollas of both the types :
18. Heads solitary axillary, terminal or leaf opposed :
19. Leaves bipinnatisect; achenes awned .. *Glossocardia*
19. Leaves not dissected but serrate or toothed; achenes awnless ..
20. Peduncle slender, smooth; pappus absent or scanty and uniseriate .. *Vicoa*
20. Peduncle leafy, thick upwards; pappus 2-seriate, outer forming a cup *Pulicaria*
18. Heads few to many in corymbs : *Senecio*

16. Capitula with atleast ray florets coloured other than yellow :
21. Heads few on long peduncles; bracts bristle tipped .. *Erigeron*
21. Heads in corymbs; bracts not bristle tipped :
22. Florets white; pappus scaly .. *Parthenium*
22. Florets rose purple; pappus absent .. *Cynthocline*
12. Capitula with tube florets only :
23. Heads heterogamous; pappus slender, one seriate, caducous .. *Blumea*
23. Heads homogamous; pappus scaly or hairy, stiff, persistant :
24. Involucral bracts 2, orbicular or broadly ovate; achenes winged .. *Caesulia*
24. Involucral bracts many, linear to linear lanceolate; achenes not winged :
25. Involucral bracts awned, densely silky hairy on the back; achenes hairy .. *Vernonia*
25. Involucral bracts not awned, glabrous on the backs; achenes glabrous .. *Centratherum*
14. Leaves all opposite :
26. Heads homogamous :
27. Heads white or pale blue, without floral leaves; pappus 5, scaly, aristate with dilated base .. *Ageratum*
27. Heads white flowered surrounded by floral leaves; pappus a short fimbriate cup .. *Lagascea*
26. Heads heterogamous :
28. Leaves dissected :
29. Achenes turbinate or oblong, sericeo-villous; pappus paleaceous with plumoso-ciliate bristles .. *Tridax*
29. Achenes long, quadrangular, glabrous with three retroflexely barbed bristles .. *Bidens*
28. Leaves not dissected :
30. Heads yellow flowered, sessile; achenes ribbed .. *Flaveria*
30. Heads white flowered, peduncled; achenes with warty excrescences .. *Eclipta*

7. Achenes in capitula heteromorphous :

31. Heads homogamous, involucre cylindric; leaves mostly radicle; pappus multi-seriate, copious .. *Launaea*
31. Heads heterogamous; involucre ovoid or campanulate; leaves alternate or opposite; pappus unequal, acute, scaber or bristles .. *Blainvillea*

ACANTHOSPERMUM Schrank.

Acanthospermum hispidum DC., Prodr. 5 : 522. 1836.

Annual erect herb; stem hairy. Leaves opposite, obovate irregularly toothed, palmately nerved., appressedly hairy; heads solitary, axillary, sessile, pale-yellow. Involucral bracts few; outer ciliate along margins and inner globose, tough, tubular, 2 horned, enclosing female florets within. Achenes glabrous, compressed; pappus 0. Paleae of the receptacle enclosing achene of tube florets.

Fls. & Frts. : February - September.

Distrib. : Common in waste lands.

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.).

Mar : 'Osadi'.

Annuals, 10-40 cm tall, more or less hairy. Leaves opposite, 1.5—8.0 cm × 0.6—5 cm, broadly ovate to ovate lanceolate, acute, crenate, more or less hairy, petiolate. Heads white in dense, terminal corymbs; involucral bracts linear, ciliolate. Florets tubular. Achenes black, sharply angled with tapering base. Pappus paleaceous in aristate scales with dilated bases.

Fls. & Frts. : Mostly throughout the year.

Illus. : Trim. Fl. Ceyl. 3. 13. 1931.

Distrib. : Very common in waste lands as forest undergrowth. Medshi, Patur etc.

AMBERBOA Less. *nom. cons.*

Amberboa ramosa (Roxb.) Jeffrey in Scientist 3 : 29. 1959. **Carduus ramosus** Roxb. Fl. Ind. 3 : 407. 1832. **Volutarella divaricata** Benth. & Hook.

f. Gen. Pl. 2 : 476. 1873; Hook. f. Fl. Brit. Ind. 3 : 383. 1881; Cooke, Fl. Pres. Bombay 2 : 115. 1958 (Repr. ed.). *Tricholepis procumbens* Wight, Icon. 1846.

Dichotomously branched, erect, 10-50 cm tall, nearly glabrous herbs. Leaves 0.5—9 × 0.2—3 cm, oblong, obovate-oblong, nearly sessile, spinous toothed or pinnatifid, glabrous or pubescent. Heads pale to bright purple, ovoid, oblong, solitary and terminal. Achenes obconical, angular, pale brown or black, ribbed, punctate between the ribs.

Fls. & Frts. : February - November.

Illus. : Wight, Icon. t. 1139. 1846.

Distrib. : Common throughout as a weed in waste lands. Medshi, Palodi.

BIDENS L.

Bidens biternata (Lour.) Merrill & Sheriff ex Scherff Bot. Gaz. 88 : 293. 1929. *Coreopsis biternata* Lour. Fl. Cochinch. 508. 1790. *Bidens pilosa* auct. non L. Hook. f. Fl. Brit. Ind. 3 : 309. 1881; Cooke, Fl. Pres. Bombay 2 : 101. 1958 (Repr. ed.).

Annual or perennial erect herbs, 30-60 cm high; stem grooved. Leaves variable, opposite, lobed, bipinnatisect, glabrous. Heads few, pedunculate, yellowish-brown in terminal corymbs. Achenes 1-1.2 cm long, light black, narrowly spindle shaped, tetragonal, nearly glabrous, with 3 retrorsely scabrid awns.

Fls. & Frts. : All seasons.

Illus. : Trim. Fl. Ceyl. 3 : 40. 1931.

Distrib. : Common throughout. Mahan, Patur.

BLAINVILLEA DC.

Blainvillea acmella (L.) Philipson, Blumea 6 : 350. 1950. *Verbesina acmella* L. Sp. Pl. 901. 1753. *Blainvillea latifolia* (L. f.) DC. in wt. Contrib. Bot. Ind. 17. 1834; Hk. f. Fl. Brit. Ind. 3 : 305. 1881. *Blainvillea rhomboidea* Cass. Nat. Dict. Sci. Nat. 29 : 494. 1823. Cooke, Fl. Pres. Bombay 2 : 97. 1958 (Repr. ed.)

Herbs to 0.3-1 m in height. Stem hispidly hairy, terete and grooved. Leaves 2.6—7 × 0.5—5 cm, ovate, ovate-lanceolate, alternate or opposite, crenate,

serrate, hispidly hairy. Heads 0.6-1 cm across, yellow or whitish. Achenes of two types, those of ray florets triquetrous, obconical and those of disc florets compressed and cuneiform.

Fls. & Frts. : August - December.

Illus. : Trim. Fl. Ceyl. 3 : 37. 1931.

Distrib. : Common, Mahan, Medshi, Kashmar, Shehubudrak.

BLUMEA DC.

1. Heads with purple floret	..	<i>B. mollis</i>
I Heads with yellow floret		
2. Receptacle pilose	..	<i>B. laciniata</i>
2. Receptacle glabrous :		
3. Corolla of female floret pubescent	..	<i>B. eriantha</i>
3. Corolla of female floret glabrous :		
4. Heads solitary, few; peduncle upto 5 cm long	..	<i>B. obliqua</i>
4. Heads many to numerous; peduncle upto 3 cm long :		
5. Plant glabrate; achenes sparsely hairy	..	<i>B. virens</i>
5. Plant pubescent or variously glandular; achenes pubescent	..	<i>B. membranacea</i>

Blumea eriartha 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.). Ramederia in Blumea 10 : 279. 1960.

Mar.: *Nimardi*.

Strongly aromatic herbs with pubescent young parts. Leaves 1.3—11 × 0.5—5 cm, obovate, oblong to elliptic-oblong, irregularly toothed, acute or obtuse, silky pubescent beneath. Heads 0.4-1 cm. across, pedunculate; peduncle 3.5 cm long. Involucral bracts linear, acute, pubescent on the back. Achenes brown, shining, faintly angular; pappus white, upto 3-5 mm long.

Fls. & Frts. : December - March.

Distrib. : Occasional, Chikhaliwal & Mahan.

Blumea laciniata (Roxb.) DC. Prodr. 5 : 436. 1836. Hook. f. Fl. Brit. India 3 : 264. 1881, Randeria in Blumea 10 : 258. 1960. *Conyza laciniata* Roxb. Fl. Ind. 3 : 427. 1832.

Glandular hairy annuals; 30-50 cm tall. Stems upto 1 cm thick. Leaves $2.5-10 \times 0.5-6.5$ cm, pinnatifid, appressedly hairy. Heads 0.6-1.3 cm across in terminal and axillary panicles. Receptacle 2.5-5 mm across. Achenes ribbed, brown, sparsely pubescent; pappus white.

Fls. & Frts. : February - April.

Distrib. : Common Chikhawal, Karla, Morna.

Blumea membranacea 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.

Erect herbs; 20-65 cm tall; stems hairy, grooved, becoming glabrous with age. Leaves ovate-lanceolate, irregularly dentate, occasionally lyrate lobed, glabrescent. Heads yellow, 4.1 cm across, in panicles.

Fls. & Frts. : July - December.

Illus. : Trim. Fl. Ceyl. 3 : 22. 1931.

Distrib. : Common as forest undergrowth and shaded moist places; Patur, Kalakamtha.

Blumea mollis (D. Don) Merr. in Philipp. J. Sci. (Bot.) 5 : 395. 1910; Randeria in Blumea 10 : 261. 1960. *Erigearon molle* D. Don, Prodr. Fl. Nepal 172. 1825. *Blumea wightiana* DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3 : 261. 1881; Cooke, Fl. Pres. Bombay 2 : 75. 1958 (Repr. ed.).

Erect herbs; 20-50 cm tall, glandular, pubescent. Leaves 1-8 \times 0.5-3.5 cm, elliptic-oblong-obovate, dentate-serrate; tips obtuse or acute, base tapering into a long petiole. Heads in spiciform panicles, 0.6-8 mm across. Achenes angled, glabrescent. Pappus shorter than involucral bracts.

Fls. & Frts. : November - February.

Illus. : Trim. Fl. Ceyl. 3 : 19. 1931.

Distrib. : Common throughout; Kalakamtha, Karla, Mahan, Palodi.

Blumea obliqua (L.) Druce in Rep. Bot. Exch. Club. Brit. Isles 4 : 609. 1917; Randeria in Blumea 10 : 286. 1960. *Erigeron obliquum* L. Mant. Alt. 573. 1771. *Blumea amplexens* DC. in Wight, Contrib. Bot. Ind. 13. 1834; Hook. f. Fl. Brit. India 3 : 261. 18810; Cooke, Fl. Pres. Bombay 2 : 75. 1958 (Repr. ed.).

Annual herbs; 2.5-40 cm tall. Erect or suberect, diffuse, pilose or glabrous. Leaves 0.6—3.3 × 0.3—1 cm, cordate, clasping the stem, sessile, glabrescent; receptacle areolate. Heads 1.0-1.5 cm across, individual bracts subulate. Achenes oblong; compact hairy.

Fls. & Frts. : December - March.

Illus. : Trim. Fl. Ceylon 3 : 19. 1931.

Distrib. : Common as forest undergrowth and at waste places. Akot, Karla, Patur.

Blumea virens DC. in Wight Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3 : 264. 1881; Cooke, Fl. Pres. Bombay 2 : 72. 1958 (Repr. ed.). *Randeria* in *Blumea* 10 : 272. 1960.

Tall, branched, glabrous, about 30-120 cm high herbs. Lower leaves oblanceolate, lyrate lobed, dentate with glandular hairs on undersurface, petiolate, 10-15 cm long; margins toothed. Heads 0.6 cm across and peduncled; bracts linear, subacute. Pappus shorter than the bracts.

Fls. & Frts. : June - January.

Distrib. : Rare on the fort (S. Y. Kamble, 153809 Narnala fort, Akot).

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.).

Mar. : 'Maka'.

Suberect or erect herbs, upto 40 cm tall; stem glabrous. Leaves sessile 1.5—11 × 0.3—1.3 cm, lanceolate, acute, distantly serrulate with narrow base. Heads 0.5-1.5 cm across, solitary, axillary; florets pale blue or white, sessile. Involucral bracts 2, orbicular, crenulate. Achenes winged, blackish brown, ovoid, natural at apex, flat with white, stout, hairs on either side of the notch.

Fls. & Frts. : August - May.

Illus. : Wight, Icon. t. 1102. 1846.

Distrib. : Throughout in moist places or drying pools. Karla, Mahan Wanoja.

CENTRATHERUM Cass.

Centratherum anthelminticum (L.) Kuntze, Rev. Gen. Pl. 1 : 320. 1891.
Conyzia anthelmintica L. Sp. Pl. ed. 2 : 1207. 1762.

Erect herbs upto 50 cm tall. Stems grooved, hairy. Leaves elliptic-lanceolate, serrate-dentate, acute tipped, with cuneate base, hairy. Heads solitary on peduncles, 1.5-2 cm across; florets purple. Achenes ribbed and hairy; pappus paleaceous.

Fls. & Frts. : November - December.

Distrib. : Rare in ghats Narnala fort, Akot, S. Y. Kamble,
 160801.

CYATHOCLINE Cass.

Cyathocline purpurea (D. Don) Kuntze, Rev. Gen. Pl. 333. 1891. *Tanacetum purpureum* Ham. ex D. Don Prodr. Fl. Nepal 181. 1825. *Cyathocline lyrata* Cass, in Ann. Sci. Nat. (ser. 1) 17 : 42. 1829; Hook. f. Fl. Brit. India 3 : 246. 1881; Cooke, Fl. Pres. Bombay 2: 71. 1958 (Repr. ed.).

Suberect herbs, 6-35 cm tall, viscid and glandular hairy, silky hairy as base leaves radicle and caulin, 3-20 cm long, pinnatisect, lobes dentate. Heads in terminal, corymbose panicles, 0.3-0.6 cm across, pale to bright purple. Involucral bracts linear, acute, hairy on margin. Achenes oblong, glabrous.

Fls. & Frts. : September - March.

Illus. : Wight, Icon, t. 1098. 1846.

Distrib. : Frequent in the forest as undergrowth. Mahan, Palod Patur.

ECHINOPS L.

Echinops echinatus Roxb. Fl. Ind. 3 : 447. 1832; Hook. f. Fl. Brit. India 3: 358; Cooke, Fl. Pres. Bombay 2 : 112. 1958 (Repr. ed.).

Woody annual herbs, much branched from the base, upto 1 m tall. Leaves 2.5—1.5 x 2.6 cm (including spines), oblong, pinnatisect, spiny and cottony pubescent beneath. Heads of spiny involucral bracts. Florets white. Achenes obconic, densely villous.

Fls. & Frts. : November - June.

Distrib. : Common in plains & open areas along roadsides and in waste places, Patur, Pinjar.

ECLIPTA L. nom. cons.

Eclipta prostrata (L.) L. Mant Pl. 286. 1771; Sant. in J. Bombay Nat. Hist. Soc. 54 : 475-476. 1957; Grierson in Dassan & Fosb. Rev. Handb. Fl. Ceylon 1 : 212. 1980. *Verbesina prostrata* L. Sp. Pl. 902. 1753. *Eelipta alba* (L.) Hassk. Pl. Jav. Rar. 528. 1848; C. B. Cl. Compos. India 134. 1876; Hook. f. Fl. Brit. India 3 : 304. 1881.

Mar. : 'Maka'.

Erect or prostrate, annual herbs, often rooting at nodes. Stems hairy. Leaves oblong-lanceolate with tapering base, tips acute, crenate or entire, appressedly hairy. Heads stalked, solitary or in pair in the axils, 6-0.9 cm across. Florets white. Achenes oboconical, narrowly winged, compressed, glabrous and black.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. 3. 127. t. 76. 1838; Trim. Fl. Ceyl. 3: 37. 1931.

Distrib. : Common in the damp places. Medshi, Morna, Pinjar.

EMILIA Cass.

Emilia sonchifolia (L.) DC. ex Wight, Contrib. Bot. Ind. 24. 1834; Hook. f. Fl. Brit. India 3 : 336. 1881; Cooke, Fl. Pres. Bombay 2 : 107. 1958 (Repr. ed.). *Cacalia sonchifolia* L. Sp. Pl. 835. 1753.

Erect glabrous herbs. Leaves 2.3—9×0.5—4 cm, variable, ovate to ovate-lanceolate or obovate or spatulate, entire or crenate. Heads upto 1.3—0.3—0.7 cm across. Florets bright purple; achenes narrow, oblong, ribbed, scabrid on the ribs.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 3 : 45. 1931.

Distrib. : Common in ghats, in open areas and in waste places, Karla, Kashmar, Palodi, Wanoja.

ERIGERON L.

Erigeron asteroides Roxb. Fl. Ind. 3 : 432. 1832; Hook. f. Fl. Brit. India 3 : 254. 1881; Cooke, Fl. Pres. Bombay 2 : 73. 1958 (Repr. ed.).

Mar. : 'Sonasali'.

Prostrate to ascending, 15-30 cm tall herbs. Stems pilose. Leaves obovate-oblong sessile or shortly petiolate, dentate or pinnatifid, hairy, $2-4.5 \times 0.5-1$ cm. Heads 0.8-1 cm; tube florets yellow. Achenes minute, obovate, flat glabrescent.

Fls. & Frts. : February - June.

Illus. : Trim. Fl. Ceyl. 3 : 16. 1931.

Distrib. : Occasional, in waste places and wet places; Morna, Kashmar.

FLAVERIA A. L. Juss

Flaveria australasia Hooker in T. Mitch., J. Trop. Austral. 118. 1838.
Flaveria contrayerba Pers. Syn. 2 : 489. 1807; Cooke, Fl. Pres. Bombay 2 : 958 (Repr. ed.).

Erect herbs; stems grooved, glabrous. Leaves opposite, $0.1-3 \times 0.3-1$ cm, oblong, spathulate, crenulate, 3-nerved. Heads axillary, sessile; florets yellow. Achenes black, ribbed, obovate-oblong.

Fls. & Frts. : January - February.

Distrib. : Rare; S. Y. Kamble, 152893. Akot.

GLOSSOCARDIA Cassini

Glossocardia bosvallea (L. f.) DC. in Wight, Contrib. Bot. Ind. 19. 1834.
Verbesina bosvallea L. f. Suppl. 379. 1781. *Glossocardia linearifolia* Cass. in Dict. Sci. Nat. 19 : 62. 1821; Hook. f. Fl. Brit. India 3 : 308. 1881; Cooke, Fl. Pres. 2 : 100. 1958 (Repr. ed.).

Mar. : 'Phattarsuva'.

Diffuse, much branched, creeping to ascending herbs. Leaves alternate, bipinnatisect; pinnules linear, 1-4 cm long. Heads ovoid with yellow florets. Achenes flat, 1 cm long, densely hairy with two awns.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 1110. 1846.

Distrib. : Common along wet places near dam & river beds; Mahan, Khadki.

GONIOCAULON Cass. nom. cons.

Goniocaulon indicum (Willd.) Cl. Comp. Ind. 236. 1876. *Serratula indica* Klein ex Willd. Sp. Pl. 3 : 1642. 1803. *Goniocaulon glabrum* Cass. in Bull. Soc. Philom. 34. 1817 & Dict. Sci. Nat. 19 : 201. 1821; Hook. f. Fl. Brit. India 3 : 377. 1881; Cooke, Fl. Pres. Bombay 2 : 113. 1958 (Repr. ed.).

Tall herbs, upto 2 m high. Stems glabrous, angular and grooved. Leaves alternate, 1—7×0.2—0.8 cm, linear-lanceolate to linear oblong, sessile, glabrous. Heads oblong, upto 1 cm long, pale to bright purple in axillary, terminal corymbs. Achenes glabrous, oblong, ribbed.

Fls. & Frts. : January - March.

Illus. : Wight, Icon. t. 479. 1841.

Distrib. : Occasional along the hedges of field and wet places; Patur, Karanja.

GNAPHALIUM L.

- | | |
|--|----------------------|
| 1. Erect or decumbent herbs. Heads in leafy spiciform clusters | <i>G. polycaulon</i> |
| 1. Prostrate herbs. Heads in subglobose leafy clusters | <i>G. pulvinatum</i> |

Gnaphalium polycaulon Pers. Syn. 2 : 421. 1807. *G. indicum* auct non L. 1753; Hook. f. Fl. Brit. India 3 : 289. 1881; Cooke, Fl. Pres. Bombay 2 : 87. 1958 (Repr. ed.).

Branched wooly herbs, 10-30 cm tall. Leaves 0.5—4×0.2—0.6 cm, sessile or subsessile, linear-obovate to spatulate, obtuse or apiculate, wooly beneath and on margins. Heads 0.3—0.4 cm across. Involucral bracts linear-oblong, sub-acute or inner glabrous. Achenes oblong, faintly papillose.

Fls. & Frts. : December - February.

Distrib. : Occasional in moist situations; Akot, Medshi.

Gnaphalium pulvinatum Del. Descript. del' Egypte 266, t. 44. 1812; Hook. f. Fl. Brit. India 3 : 289. 1881; Cooke, Fl. Pres. Bombay 2 : 87. 1958 (Repr. ed.).

Spreading, wooly herbs. Leaves 0.4—1×0.1—0.5 cm, spatulate or obovate, sessile; base attenuate into a short petiole. Heads 0.25-0.5 cm across, terminal or subterminal in position. Involucral bracts linear-oblong, sub-acute; the inner ones glabrous. Achenes oblong, minutely papillose.

Fls. & Frts. : January - March.

Distrib. : Occasional in moist areas, in ghats and on plains; Kashmar, Pinjar.

LACTUCA L.

Lactuca remotiflora DC. in Wt. Contrib. 26. 1834; Hook. f. Fl. Brit. India 3 : 403. 1881; Cooke, Fl. Pres. Bombay 2 : 118. 1958 (Repr. ed.).

Mar. : 'Pathari'.

Weak herbs about 30 cm tall; stems glabrous, branched from the base. Leaves mostly radicle, sessile, obovate or oblong, pinnatifid, $1.5-1.2 \times 0.3-2.0$ cm. Heads solitary or in clusters, yellow. Achenes compressed, linear, oblong with dilated, in to a cup like structure.

Fls. & Frts. : September - February.

Distrib. : Rare, near the nurssary; Karla, S. Y. Kamble, 150585.

LAGASCEA Cav. *nomin. cons.*

Lagascea mollis Cav. Annal. Lienc. Nat. 6 : 331, t. 44. 1803; Hook. f. Fl. Brit. India 3 : 302. 1881; Cooke, Fl. Pres. Bombay 2 : 93. 1958 (Repr. ed.).
Mar. : 'Jarvad'.

Tall, erect, glabrous herbs. Stems glabrous below. Leaves $1-7 \times 0.3-4$ cm, ovate, acute with greyish pubescent. Heads in clusters on long peduncles; florets white. Achenes cuneate; pappus a short fimbriate cup.

Fls. & Frts. : Throughout the year.

Illus. : Trim. Fl. Ceyl. 3 : 34. 1931.

Distrib. : Common as a weed in waste lands along road sides and as forest undergrowth. Alegaon, Karla, Narnala, Narnala, Palodi, Shelbuderuk.

LAUNAEA Cass.

Launaea procumbens (Roxb.) Ramayya & Rajgopal in Kew Bull. 23 : 465. 1969. *Prenanthes procumbens* Roxb. Fl. Ind. 3 : 404. 1832. *Launaea nudicaulis* sensu Hook. f. in Hook. f. Fl. Brit. India 3 : 416. 1881; Cooke, Fl. Pres. Bombay 2 : 122. 1958 (Repr. ed.).

Weak sub-erect herbs. Leaves obovate-oblong, pinnatifid with rounded segments, margins spinulose, $1.5-4.5 \times 0.5-3$ cm. Heads upto 1 cm long. Florets yellow, ligulate. Achenes : inner compressed of a thick ribs, outer curved and flattened with ribs; pappus white, copious.

Fls. & Frts. : November - March.

Distrib. : Rare on plains and in ghats. S. Y. Kamble, 15259, Palodi.

PARTHENIUM L.

Parthenium hysterophorus L. Sp. Pl. 988. 1753; Rao in Journ. Bombay Nat. Hist. Soc. 54 : 218. 1956; Wight, 17 : 68. 268.

Mar. : 'Gajargawat'.

Erect herbs upto 100 cm tall. Stems ribbed. Leaves radical and caudine, alternate, pinnatifid, pubescent. Heads 0.3-0.4 cm across; florets white. Achenes black, flat, broadly obovate.

Fls. & Frts. : Nearly throughout the year.

Distrib. : Rare, growing in isolated patches; Akot, 150422.

PULICARIA Gaertn.

Pulicaria wightiana (DC.) C. B. Clarke, Comp. Ind. 128. 1876; Hook. f. Fl. Brit. India 3 : 398. 1881; Cooke, Fl. Pres. Bombay 2 : 90. 1958 (Repr. ed.). *Poloa wightiana* DC., Arch. Bot. (Paris) 2 : 514. 1833.

Annual herbs upto 50 cm tall, hairy; stem wooly. Leaves oblong with rounded tips, sessile, amplexicaule at the base, distantly serrate-dentate, $0.8-3 \times 0.2-0.6$ cm. Heads peduncled, 0.8-1.5 cm across; peduncle thickened below the heads. Florets yellow. Achenes pale brown, glabrous, oblong.

Fls. & Frts. : February - September.

Illus. : Wight, Icon. t. 1089. 1846.

Distrib. : Occasional in plains and ghats; Kinhiraja, Narnala.

SCLEROCARPUS Jacq.

Sclerocarpus africanus Jacq. Icon. Pl. Rar. 1 : 17. t. 176. 1782; Hook. f. Fl. Brit. India 3 : 305. 1881; Cooke, Fl. Pres. Bombay 2 : 96. 1958 (Repr. ed.).

Tall herbs, 20-60 cm high; stems hispid. Leaves ovate-lanceolate to lanceolate, crenate, $0.8 - 9 \times 0.5 - 4.5$ cm. Heads 1-1.3 cm across, solitary, terminal, or leaf opposed. Florets yellow. Achenes 0.5-0.9 cm long, obovoid, glabrous.

Fls. & Frts. : July - August.

Distrib. : Common in ghats and on plains along roadsides.
Kashmar, Medshi, Umberwadi.

SENECIO L.

- | | |
|---|---------------------|
| 1. Leaves white tomentose beneath. Ligules 10-13 per head | <i>S. grahami</i> |
| 1. Leaves slightly scabrous hairy beneath. Ligules 3 per head | <i>S. hewrensis</i> |

Senecio bombayensis Balakr. in J. Bombay Nat. Hist. Soc. 67 : 61. 1970.
Senecio grahami Hook. f. in Hook. f. Fl. Brit. India 3 : 347. 1881; Cooke, Fl. Press. Bombay 2 : 110. 1958 (Repr. ed.).

Mar. : 'Sonki'.

Erect herbs upto 50 cm tall. Leaves prominently veined beneath, $3 - 5 \times 2 - 4$ cm, rhomboid-ovate, coarsely toothed, petiolate. Heads 2-2.5 cm across. Florets, bright yellow in terminal corymbose cymes. Achenes hairy.

Fls. & Frts. : August - December.

Illus. : Wight, Icon. t. 1551. 1850.

Distrib. : Rare, on the fort, Narnala, S. Y. Kamble, 150464.

Senecio hewrensis Hook. f. in Hook. f. Fl. Brit. India 3 : 346. 1881; Santapau in Fl. Purandhar 70. 1957; Cooke, Fl. Pres. Bombay 2 : 109. 1958 (Repr. ed.); Raizada et Sharma, Ind. For. 88 : 357 & 362. 1962. **Doronicum hewrense** Dalz. in Dals. & Gibbs. 130. 1861.

Branched erect herbs upto 40 cm high; stems scabrous. Leaves narrowly oblong, obovate, coarsely toothed, more or less hairy, sessile, auricled. Heads in lax corymbose cymes. Florets yellow. Achenes hairy, tapering, about 2-5 mm long; pappus copious plumose..

Fls. & Frts. : August - October.

Illus. : Raizada et Sharma l. c. figs. 1-3.

Distrib. : Rare on the Narnala, fort, S. Y. Kamble, 150464.

SIGESBECKIA L.

Sigesbeckia orientalis L. Sp. Pl. 900. 1753, Hook. f. Fl. Brit. India 3 : 304. 1881; Cooke, Fl. Pres. Bombay 2 : 94. 1958 (Repr. ed.).

Viscid herbs, 40-60 cm tall. Leaves ovate to deltoid, hairy, irregularly bluntly dentate, tapering into petiole. Heads 0.8-1.3 cm across. Florets dark yellow. Involucral bracts with peltate glands. Achenes oboconical, black & hairy.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. t. 1103. 1846; Trim. Fl. Ceyl. 3 : 36. 1931.

Distrib. : Rare at Narnala fort; S. Y. Kamble, 152864 & 160775.

SONCHUS L.

Sonchus oleraceus L. Sp. Pl. 794. 1753; Hook. f. Fl. Brit. India 3 : 414. 1881; Cooke, Fl. Pres. Bombay 2 : 119. 1958 (Repr. ed.).

Erect annual herbs upto 70 cm tall with milky juice. Stems grooved, glabrous. Leaves 5—20×2.5—7.5 cm, obovate-ob lanceolate, rounded or acute at tip, amplexicaule at the base or runcinate, spinously toothed. Heads 1-1.5 cm across and with dialated base. Florets yellow. Achenes narrowly ovoid, ribbed.

Fls. & Frts. : September - August.

Illus. : Wight, Icon. t. 1141. 1846.

Distrib. : Fairly common as a weed in fields or waste places.
Karla, Medshi, Patur.

TRIDAX L.

Tridax procumbens L. Sp. Pl. 700. 1750; Hook. f. Fl. Brit. India 3 : 311. 1881; Cooke, Fl. Pres. Bombay 2 : 102. 1958 (Repr. ed.).

Mar. : *Dagadi Pala* ' or ' *Ekdandi* '.

Erect or procumbent herbs upto 50 cm tall. Leaves 1—3×0.4—1 cm, ovate, acute, deeply inciso-dentate or 3-lobed, hairy. Heads upto 1-7 cm across, solitary on long peduncles. Florets yellowish white. Achenes cuneate, faintly ribbed, dark brown.

Fls. & Frts. : Throughout the year.

Illus. : Trim. Fl. Ceyl. 3 : 42. 1931.

Distrib. : Throughout, very common; Kalakamta, Mahan, Morna.

VERNONIA Schreber *nom. cons.*

Vernonia cinerea (L.) Less. *Linnaea* 4 : 291. 1829; Hook. f. *Fl. Brit. India* 3 : 233. 1881; Cooke, *Fl. Pres. Bombay* 2 : 65. 1958 (Repr. ed.). *Conyza cinerea* L. *Sp. Pl.* 862. 1753.

Mar. : *Sahadevi*'.

Erect herbs, 20-80 cm tall. Leaves 0.8—3. \times 0.3—2 cm, ovate, acute or obtuse, base cuneate. Heads 0.6-0.9 cm across, in paniculate cymes. Florets pink. Achenes 2-3 angled, densely hairy; pappus 2- seriate; the outer shorter.

Fls. & Frts. : Throughout the year.

Illus. : Trim. *Fl. Ceyl.* 3 : 7. 1931.

Distrib. : Very common weed along roadsides and in fields; Kashmar, Karla, Narnala, Patur, Wanaja.

VICOA Cass.

Vicoa indica (L.) DC. in Wight *Contrib. Bot. Ind.* 10. 1834. *Inula indica* L. *Sp. Pl.* ed. 2 : 1236. 1762. *Vicoa auriculata* Cass. in *Ann. Sci. Nat.* 17 : 418. 1829; Hook. f. *Fl. Brit. India* 3 : 297. 1881; Cooke, *Fl. Pres. Bombay* 2 : 88. 1958 (Repr. ed.).

Mar. : *Sonkadi*'.

Suffrutescent herbs upto 1 m tall. Stems brownish, glabrous. Leaves 1.5—6 \times 0.5—0.6 cm, sessile, linear or linear-lanceolate appressedly hairy, amplexicaule below, entire. Heads 1-1.2 cm across, solitary, peduncled. Florets bright yellow. Achenes brown, sparsely hairy.

Fls. & Frts. : November - February.

Illus. : Wight, *Icon.* t. 1148. 1846.

Distrib. : Rare in ghat. Karla, S. Y. Kamble, 150540.

XANTHIUM L.

Xanthium strumarium L. *Sp. Pl.* 987. 1753. Hook. f. *Fl. Brit. India* 3 : 303. 1881; Cooke, *Fl. Pres. Bombay* 2 : 94. 1958 (Repr. ed.).

Mar. : 'Landga'

Erect branched herbs, upto 70 cm tall. Leaves broadly ovate, triangular, 3-lobed, palmately nerved, hairy. Heads 0.3-0.7 cm across, greenish yellow,

in terminal and axillary spikes. Fruits about 1.5 cm long, ellipsoid or oblong, echinate, enclosing smooth, glabrous, oblong achenes.

Fls. & Frts. : November - June.

Illus. : Trim. Fl. Ceyl. 3 : 35. 1931.

Distrib. : Common in waste lands along road sides, dried ditches and Narnala fort.

ZINNIA L. nom. cons.

Zinnia elegans Jacq. Ic. Pl. Rar. 3 : t. 589. 1793. Torrs. I. C. 13. 1963.

Erect herbs upto 60 cm tall. Leaves sessile, opposite, cordate with clasping base, ovate lanceolate, acuminate and entire. Heads terminal, large, about 4 cm across. Involucral bracts semi-circular, obtuse. Florets pink to purple or red. Achenes oblong.

Fls. & Frts. : Throughout the year.

Illus. : Torrs. I. C. Joys. 18-20.

Distrib. : Well established as an escape; occasional along roadside; Alegaon, Medshi Road.

PRIMULACEAE

ANAGALLIS L.

Anagallis arvensis L. Sp. Pl. 211. 1753; Hook. f. Fl. Brit. India 3 : 506 1880; Cooke, Fl. Pres. Bombay 2 : 139. 1958 (Repr. ed.).

Slender, 5-15 cm tall, erect or procumbent herbs. Leaves opposite, 0.5—1.5 × 0.5—1 cm, ovate, glabrous, sessile. Flowers blue, solitary, axillary. Capsules upto 0.4 cm across, globose or ovoid, circumscissile. Seeds brown, triangular.

Fls. & Frts. : September - March.

Illus. : Wight, Icon. t. 1205. 1848.

Distrib. : Common weed; Kasmar, Karla, Medshi etc.

SAPOTACEAE

MADHUCA J. F. Gmel.

Madhuca longifolia (Koenig) Macbride, Contr. Gray Herb. Harv. Univ. N. S. 53 : 17. 1918; Royen. Blumea 10 : 53. 1960. *Bassia longifolia* Koenig

in L. Mant. 2. App. 563. 1751. *Bassia latifolia* Roxb. Cor. Pl. 1 : 20. t. 19. 1795; Hook. f. Fl. Brit. India 3 : 544. 1882; Cooke, Fl. Pres. Bombay 2 : 152. 1958 (Repr. ed.).

Mar. : 'Moha'.

Trees upto 45 m in height; branches slender, often thickened at the nodes. Leaves congested at apex of branchlets, sometimes seemingly in whorls, broadly elliptic, elliptic-obovate, oblong, lanceolate or oblanceolate 7—25 × 2—9 cm; petioles 1.4-5.0 cm long. Flowers creamy-white in dense axillary fascicles. Berries ovoid, fleshy, yellow when ripe.

Fls. & Frs. : January - June

Illus. : Wight, Illus. t. 147. 1850.

Distrib. : Occasional in deciduous forests; Medshi, Patur.

EBENACEAE

Diospyros L.

Diospyros melanoxylon Roxb. Pl. Cor. 1 : 36. t. 46. 1795; Hook. f. Fl. Brit. India 3 : 564. 1882; Cooke, Fl. Pres. Bombay 2 : 159. 1958. (Repr. ed.).

Mar. : 'Temru, Tendu or Temburni'.

Middle sized, 12-15 m tall, deciduous trees. Leaves 5-15 × 2.5—7 cm, alternate or sub-opposite, ovate-oblong, elliptic oblong or elliptic-lanceolate. Male flowers 3-12 in axillary, pendulous cymes; female flowers solitary. Drupes 2.5-3.5 cm across, ovoid or globose, glabrous, yellow when ripe.

Fls. & Frs. : February - August.

Illus. : Bedd. Flor. Sylvat. t. 67. 1870.

Distrib. : Common in deciduous forests; Kasmar, Narnala, Patur etc.

OLEACEAE

1. Trees with woody loculicidal capsules	..	<i>Schrebera</i>
1. Straggling shrubs with berries	..	<i>Jasminum</i>

Jasminum L.

Jasminum malabaricum Wight, Icon. t. 1250. 1850; Cooke, Fl. Pres. Bombay 2 : 172. 1958 (Repr. ed.).

Mar. : 'Jaswandi'.

Weakly branched shrubs with thick, 4-8 cm across stems. Leaves 4—9 × 5—7 cm, broadly ovate, acuminate, entire, membranous, petiolate; petiole articulated. Flowers white, pedicillate, fragrant, in lax, trichotomous terminal cymes; bracts linear, subulate. Calyx hairy; corolla glabrous. Fruits ellipsoid—oblong, 0.8-1.2 cm long.

Fls. & Frts. : July - May.

Distrib. : Morna; occasional, S. Y. Kamble, 154000.

SCHREBERA Roxb. *nom. cons.*

Schrebera swietenioides Roxb., Pl. Cor. 2 : 1. t. 101. 1798; Hook. f. Fl. Brit. India 3 : 604. 1882; Cooke, Fl. Pres. Bombay 2 : 177. 1958 (Repr. ed.)
Mar. : 'Mokha'

Moderate sized trees, 12-18 m in height. Leaves opposite or nearly so; leaflets 7-9, 9—18 × 4.5—10 cm, broadly ovate-oblong or elliptic oblong, glabrous. Flowers white, fragrant, in terminal and axillary, trichotomously paniculate cymes. Fruits upto 6.0 cm long, blackish-brown, pear-headed, pendulous, dotted with white.

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

Illus. : Bedd., Flor. Sulvat. t. 248. 1872.

Distrib. : Frequent in ghats and on slopes.

APOCYNACEAE

- | | |
|--|-------------------|
| 1. Corolla with coronary scales; anthers exerted; seeds comose at lower end .. | <i>Wrightia</i> |
| 1. Corolla with coronary scales; anthers included; seeds with deciduous tuft of hairs at apex .. | <i>Holarrhena</i> |

HOLARRHENA R. Br.

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don, Gen. Syst. 4 : 78. 1837. *Echites pubescens* Buch.-Ham. Trans. Linn. Soc. London 13:521. 1821. *Holarrhena antidysenterica* Wall. ex A. DC. in DC. Prodr. 8 : 413. 1844; Hook. f. Fl. Brit. India 3 : 644. 1882; Cooke, Fl. Pres. Bombay 2 : 1958. (Repr. ed.).

Mar. : 'Kuda'

Small trees upto 6 m tall with light-blackish-brown, irregularly fissured bark. Leaves 3—27 × 2—13 cm, broadly ovate or elliptic. Flowers white in

terminal cymes. Follicles dark-green with brown spikes, upto 30 cm long. Seeds compressed, brown, pubescent.

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

Illus. : Bedd., For. Man. in Flor. Sylvat. P. 109 t. 20. fig. 6. 1871.

Distrib. : Frequent in deciduous forests; Karla, Mahan etc.

WRIGHTIA R. Br.

- | | |
|--|---------------------|
| 1. Fruits stout, pale brownish-black with white tubercles, grooved at the junctions of carpels; leaves tomentose | <i>W. arborea</i> |
| 1. Fruits slender, smooth olivaceous green, not grooved at junctions of carpels; leaves almost glabrous | <i>W. tinctoria</i> |

***Wrightia arborea* (Dennst.) Mabbey in Taxon 26 (5-6): 533. 1977.
Periploca arborea (Dennst.) Schlussel : 13, 23, 25. 1818. *Wrightia tomentosa* R. & S. Syst. Veg. 4 : 414. 1819; Hook. f. Fl. Brit. India 3 : 653. 1882; Cooke, Fl. Pres. Bombay 2 : 199. 1958 (Repr. ed.).**

Mar. : *Tambda kuda*.

Small trees upto 10 m tall with yellowish milky juice. Leaves 6—15 × 2—6 cm, elliptic-oblong or ovate-oblong, acuminate, tomentose on both sides. Flowers creamy-white, 2.5 cm or more across in terminal corymbose cymes. Follicles stout, cylindrical, upto 30 cm long, rough with white tubercles.

Fls. & Frts. : April - December.

Illus. : Wight, Icon. t. 443. 1841.

Distrib. : Common in ghats; Chikhali wal, Medshi, Narnala, Shahapur etc.

***Wrightia tinctoria* R. Br. in Mem. Wern. Soc. 1 : 73. 1811. Hook. f. Fl. Brit. India 3 : 653. 1882; Cooke, Fl. Pres. Bombay 2 : 200. 1958 (Repr. ed.).
Mar. : *Kala-kuda*.**

Deciduous trees upto 10 m tall with milky latex and greyish bark. Leaves 4—16 × 2—8 cm, elliptic lanceolate or elliptic oblong. Flowers white, in terminal paniculate cymes. Follicles linear-cylindric, glabrous. Seeds short beaked, longitudinally striate.

Fls. & Frts. : Nearly throughout the year.

Illus. : Wight, Icon. t. 444. 1841.

Distrib. : Common in deciduous forests. Medshi, Patur, Narnala.

ASCLEPIADACEAE

1. Corolla tubular, corolla tube inflated near base, straight or ventricose, funnel shaped at mouth; plants often tuberous .. *Ceropegia*
1. Corolla not as above; plants without root stock :
 2. Corona biseriate :
 3. Flowers greenish-yellow; follicles solitary, smooth, glabrous — *Leptadenia*
 3. Flowers rosy-purple or reddish-purple within; follicles solitary or paired, echinate .. *Pergularia*
 2. Corona uniserial :
 4. Plants twining or trailing :
 5. Corolla salver-shaped, tube about 1 cm long .. *Telosma*
 5. Corolla rotate, tube very short .. *Dregea*
 4. Plants erect or sub-erect :
 6. Pollinia erect; follicles solitary .. *Tylophora*
 6. Pollinia pedulous; follicles paired .. *Calotropis*

CALOTROPIIS R. Br.

Calotropis procera (Ait.) R. Br. in Ait. Hort. Kew. (ed. 2) 2 : 78. 1811; Hook. f. Fl. Brit. India 4 : 18. 1883; Cooke, Fl. Pres. Bombay 2 : 215. 1958 (Repr. ed.). *Asclepias procera* Ait. Hort. Kew (ed. 1) 1 : 305. 1789.

Mar. : 'Rui'.

Herbs or 3-4 m tall shrubs with abundant milky latex. Leaves $4-11 \times 2-6$ cm, sessile or subsessile, thick, glaucous-green. Flowers pale-pink in terminal and lateral, umbellate cymes. Follicles paired, $7-10 \times 3-4$ cm, glaucous-green, cottony-pubescent. Seeds flat with 2-3 cm long coma.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 1278. 1848.

Distrib. : Common. Patur, Morna, Shahapur etc.

CEROPEGIA L.

1. Plants densely pilose especially on stems and peduncles; inner corona lobes hooked ..	<i>C. hirsuta</i>
1. Plants sparsely pubescent or glabrous; inner corona lobes not hooked ..	<i>C. bulbosa</i>
2. Leaves petioled, upto 6 cm long, orbicular or elliptic-oblong or obovate ..	<i>C. bulbosa</i> var. <i>bulbosa</i>
2. Leaves subsessile, upto 15 cm long, narrowly linear ..	<i>C. bulbosa</i> var. <i>lush</i>

***Ceropegia bulbosa* Roxb.** Pl. Cor. I : 11. t. 7. 1795 & Fl. Ind. 2 : 28. 1824; Hook. f. Fl. Brit. India 4 : 67. 1883; Cooke, Fl. Pres. Bombay 2 : 240. 1958 (Repr. ed.) var *bulbosa* Hook. f. Fl. Brit. India 4 : 68. 1883; Ansari, Fasc. Fl. India 16 : 10 1984.

Twining, slender, perennial herbs with undergound tuberous stem. Leaves 2.5—5.5 × 1.5—2.5 cm, orbicular, elliptic-oblong or obovate, glabrous. Flowers in umbellate cymes; corolla 1.5-2 cm. long, purplish inside, lobes five, dark purple.

Fls. & Frts. : July - December

Illus. : Wight, Icon. t. 845. 1844-45

Distrib. : Occasional in the hedges and on the slopes; Patur and Medshi.

var. *lushii* Hook. f. Fl. Brit. India 4 : 68. 1883; Cooke, Fl. Pres. Bombay 2 : 241. 1958 (Repr. ed.). Ansari, Fasc. Fl. & Sia. 16:11 1984.

Leaves of this variety are subsessile and very narrowly linear, 10-15 cm long.

Fls. & Frts. : July - December.

Distrib. : Occasional on slopes in forest; Patur, Medshi.

***Ceropegia hirsuta* Wright & Arn.** in Wight, Contrib. Bot. Ind. 30. 1834; Huber, Mem. Soc. Brot. 12 : 63. 1957; Hook. f. Fl. Brit. India 4 : 71. 1883; Cooke, Fl. Pres. Bomba 2 : 242 1958 (Repr. ed.). Ansari, Fasc. Fl. India 10 : 16 1984.

Mar. : 'Hamana'.

Suffruticose, twining, hirsute or pubescent; rhizomes tuberous. Leaves membranous, 5-10 cm long, variable, mostly ovate-elliptic with a rounded base. Flowers few, in cymes with light green, variously blotched and

stripped corolla. Outer corona lobes deltoid; inner lobes linear and hooked. Follicles glabrous upto 10 cm long.

Fls. & Frts. : July - October.

Distrib. : Not common, found on the slopes in forest; Fetra, Kalakamta.

DREGEA E. Meyer *nom. cons.*

Dregea volubilis (L. f.) Benth. ex Hook. f. Fl. Brit. India 4 : 46, 1882. *Asclepias volubilis* L. f. Suppl. 170. 1781. *Marsdenia volubilis* (L. f.) Cooke, Fl. Pres. Bombay 2 : 231. 1958 (Repr. ed.).

Mar. : 'Hirandodi'.

Extensive, perennial, woody twiners with watery sap. Leaves 5—15 × 3—12 cm, broadly ovate, glabrous. Flowers yellowish-green in pendulous umbels. Follicles paired, ovate, valvately hairy, reddish-brown. Seeds pale yellow or straw coloured.

Fls. & Frts. : April - January.

Illus. : Wight, Icon. t. 586. 1842.

Distrib. : Occasional in the forests.

Note — New name of this species is *Wattakaka volubilis* (L. f.) Stapf. in Curtis, Bot Mag. sub. t. 8976. 1923.

LEPTADENIA R. Br.

Leptadenia reticulata (Retz.) W. & A. in Wt. Contrib. 47. 1834; Hook. f. Fl. Brit. India 4 : 63. 1883; Cooke, Fl. Pres. Bombay 2 : 237. 1958 (Repr. ed.). *Cynanchum reticulatum* Retz. Obs. Bot. 2 : 15. 1781.

Mar. : 'Shinguti'.

Twiners with watery sap and deeply fissured bark. Leaves ovate to ovate-lanceolate, 2-10 × 0.8—8 cm, glabrous. Flowers greenish, in axillary fascicles. Follicles oblong or broadly lanceolate, dark-green upto 10 cm long. Seeds about 1 cm long, glabrous with 3-4 cm long coma.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 350. 1840.

Distrib. : Throughout, on hedges or trailing on ground

PERGULARIA L.

Pergularia daemia (Forsk.) Chiov. Res. Sci. Miss. Stephanpanoli Somali. Ital. 1 : 115. 1916. *Ascleplas daemia* Forsk. Fl. Aegypt. Arab. 51. 1775. *Daemia extensa* R. Br. in Mem. Wern. Soc. 1 : 50. 1809; Hook. f. Fl. Brit. India 4 : 20. 1883; Cooke, Fl. Pres. Bombay 2 : 219. 1958 (Repr. ed.).

Mar. : 'Utarni'.

Herbaceous twiners with milky latex. Leaves 2—9 × 1.5—9.5 cm, broadly ovate, hirsute beneath. Flowers creamy-yellow, in umbellate cymes. Follicles lanceolate, hairy, echinate. Seeds broadly ovate hairy with 3-5 cm long coma.

Fls. & Frts. : September - March.

Illus. : Wight, Icon. t. 596. 1842.

Distrib. : Common on hedges and on shrubs.

TELOSMA Cav.

Telosma pallida (Roxb.) Craib in Kew Bull. 1911 : 418. 1911. *Asclepias pallida* Roxb. Hort. Beng. 20. 1814 (nomen) & Fl. Ind. 2 : 83. 1824. *Pergularia pallida* Wight & Arn. in Wt. Contrib. 42. 1834; Hook. f. Fl. Brit. India 4 : 38. 1883; Cooke, Fl. Pres. Bombay 2 : 229. 1958 (Repr. ed.).

Extensive shrubby twiners. Leaves 4—10 × 2.5—7 cm, ovate- elliptic or broadly ovate, glabrous and membranous. Flowers in umbellate cymes. Follicles 8—10 × 1.5—2 cm, beaked. Seeds pale brown, ovate-oblong with coma upto 2.5 cm long.

Fls. & Frts. : July - October.

Illus. : Wight, Icon. t. 585. 1842.

Distrib. : Occasional on hedges; Chikhaliwal, Patur.

TYLOPHORA R. Br.

Tylophora fasciculata Ham. in Wt. Contrib. 50-1834; Hook. f. Fl. Brit. India 4 : 40. 1883; Cooke, Fl. Pres. Bombay 2 : 226. 1958 (Repr. ed.); Sant. H. & N. A. Irani Univ. Bombay Bot. Mem. 4 : 85. 1962.

Mar. : 'Bhindodi'.

Tuberous herbs, upto 40 cm tall with watery sap. Leaves 1.5—6 × 1—3 cm, ovate to ovate-lanceolate, hirsute on nerves beneath. Flowers choco-

late-brown in axillary paniculate umbels or racemose cymes. Follicles spindle shaped, striate, glabrous. Seeds flat, ovate or oblong with 1.5 cm long coma.

Fls. & Frts. : August - September.

Illus. : Wight, Icon. t. 848. 1844 - 45.

Distrib. : Occasional in forest; Chikhawal.

PERIPLOCACEAE

1. Flowers white or violet - purple, 5-7 cm across; corolla tube as long as or longer than corolla lobes *Cryptostegia*
1. Flowers yellowish or creamy-white or greenish outside, purplish within, upto 2 cm across; corolla tube shorter than corolla lobes :

 2. Corolla 4-5 cm long, lobes valvate .. *Hemidesmus*
 2. Corolla 10-14 mm long, lobes imbricate and twisted to the right *Cryptolepis*

CRYPTOLEPIS R. Br.

Cryptolepis buchanani R. & S. Syst. Veg. 4 : 409. 1819; Hook. f. Fl. Brit. India 4 : 5. 1883; Cooke, Fl. Pres. Bombay 2 : 210. 1958 (Repr. ed.); Sant. & N. A. Irani, Univ. Bombay Bot. Mem. 4 : 91. 1962.

Mar. : *Karamta*.

Woody twiners with latex and smooth bark. Leaves 5—19 x 2—11 cm, elliptic—oblong or elliptic. Flowers yellowish-white in terminal and axillary cymes. Follicles glabrous, about 10 cm long. Seeds compressed with silky-hairy coma.

Fls. & Frts. : April - December.

Illus. : Wight, Icon. t. 494. 1840.

Distrib. : Occasional; Patur, Medshi etc.

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. H. & N. A. Irani Univ. Bombay Bot. Mem. 4 : 93. 1962.

Mar. : *'Vilayati yakundi'*.

Woody climbers with latex. Leaves $6-10 \times 4-6$ cm. elliptic-oblong, glabrous, coriaceous. Flowers in dichotomous or trichotomous cymes. Follicles $10-12 \times 3-4$ cm, trigonous. Seeds compressed with 3-4 cm long coma.

Fls. & Frts. : Throughout the year.

Illus. : Wight. Icon. t. 832. 1844-45.

Distrib. : Occasional, Akola, Akot.

HEMIDESMUS R. Br.

Hemidesmus indicus (L.) R. Br. in *Dit. Hort. Kew* (ed. 2) 2 : 75. 1811; Hook. f. *Fl. Brit. India* 4 : 5. 1883; Cooke, *Fl. Pres. Bombay* 2 : 210. 1958 (Repr. ed.). Sant H. & N. A. Irani in *Univ. Bombay Bot. Mem.* 4 : 96. 1962. *Periploca indica* L. Sp. Pl. 211. 1753. Mar. : *Anantvel*

Twining or trailing perennials. Leaves $3-13 \times 0.8-5$ cm, linear or linear-lanceolate, elliptic-oblong or ovate-oblong, glabrous. Flowers in axillary fascicles. Follicles slender, striate about 16 cm long. Seeds elliptic-oblong, compressed, glabrous, upto 1 cm long.

Fls. & Frts. : September - June.

Illus. : Wight, Icon. t. 594. 1842.

Distrib. : Frequent on hedges and in forest.

GENTIANACEAE

1. Terrestrial herbs; leaves opposite; corolla lobes contorted :

2. Ovary 2- celled .. *Exacum*

2. Ovary 1-celled :

3. Corolla irregular :

4. Flowers yellow; stigma scarcely lobed .. *Hoppea*

4. Flowers pink or rose coloured; stigma deeply 2- lobed .. *Canscora*

3. Corolla regular :

5. Flowers white, in sessile, axillary clusters .. *Enicostema*

5. Flowers rose-coloured, rarely white, in terminal, dichotomous cymes .. *Centaurium*

1. Aquatic herbs; leaves alternate; corolla lobes induplicate-valvate

Nymphoides

CANSORA Lam.

- | | |
|--|---------------------|
| 1. Stems strongly 4-winged | <i>C. decurrens</i> |
| 1. Stems obtusey quadrangular, no or absolutely winged | <i>C. diffusa</i> |

Cansora decurrens Dalz. in Hooker's Kew Journ. Bot. 2 : 136. 1850; Hook. f. Fl. Brit. India 4 : 103. 1883; Cooke, Fl. Pres. Bombay 2 : 257. 1958 (Repr. ed.).

Slender herbs, 30-45 cm tall; stems 4-winged; branches opposite or alternate. Leaves sessile, membranous, 3-nerved, ovate to ovate-lanceolate, lower leaves more than 2.5 cm long. Flowers pale rose coloured, in subtrichotomous cymes.

Fls. & Frts. : October - March.

Distrib. : Occasional on fort walls; Narnala fort, Akot.

Cansora diffusa (Vahl) R. Br. Prod. 451. 1810 (in Obs.) ; 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.

Much branched erect slender herbs, 10-40 cm tall. Stems obtusely quadrangular, obscurely winged. Leaves 1—3.5 × 0.5—1.5 cm, broadly ovate or ovate-elliptic, rounded at the base, sessile. Flower rosy, in lax diffuse, paniculate cymes. Capsules membranous.

Fls. & Frts. : October - March.

Illus. : Wight Icon, t. 1327 (not of C. B. Clarke) 1848.

Distrib. : Common in nallahs; Karla, Mahan, Pinjar etc.

CENTAURIUM St. Hill

Centaurium roxburghii (G. Don) Druce, Bot. Exch. Club. Soc. Brit. Isles 4 : 614. 1916. *Centaurium centauroides* (Roxb.) Rolla Rao & Hemadri in Journ. Bombay Nat. Hist. Soc. 67 (2) : 357. 1970. *Chironia centauroides* Roxb. Hort. Beng. 16. 1814 (nomen) & Fl. Ind. 1 : 548. 1832. *Erythrea roxburghii* G. Don, Gen. Syst. 4 : 206. 1837; Hook. f. Fl. Brit. India 4 : 102. 1883; Cooke, Fl. Pres. Bombay 2 : 255. 1958 (Repr. ed.).

Mar. : 'Luntak'.

Erect, 5-20 cm tall, annual herbs. Leaves 1-2.5 × 0.3—0.6 cm, obovate or oblong, sessile or nearly so, obtuse. Flowers pink, in dichotomous cymes with a flower in each fork on a pedicel. Capsules 0.5-0.8 cm long, narrowly oblong, glabrous.

Fls. & Frts. : December - April.

Illus. : Wight, Icon. t. 1325. 1848.

Distrib. : Common in and near fields; Alegaon, Medshi, Patur.

ENICOSTEMA Bl. nom. cons.

Enicostema axillare (Lam.) A. Raynal, ssp. **axillare** Adansonia 9 : 75. 1969; L. Carter in Dassan & Fosb. Rev. Handb. Fl. Ceylon 3 : 65. 1981. **Gentiana axillaris** Lam. Tabl. Encycl. 1 (2) : 487. 1793. non. Raf. 1828 nec. Reichb. 1828. **Enicostema littorale** auct. non. Blume, Bijdr. 848. 1826; Hook. f. Fl. Brit. India 4 : 101. 1883; Cooke, Fl. Pres. Bombay 2 : 255. 1958 (Repr. ed.).

Erect, 5-20 cm tall, simple or branched herbs. Leaves sessile, 2-8 × 0.2-1.2 cm, linear lanceolate or oblong-lanceolate. Flowers white, in axillary clusters. Capsules ellipsoid, glabrous smooth upto 0.5 cm long.

Fls. & Frts. : August - February.

Illus. : Wight, Icon. t. 600. 1841.

Distrib. : Common in open grass lands and in cultivated fields; Akot, Karanja, Medshi, Patur, Shahanur etc.

EXACUM L.

Exacum pedunculatum L. Sp. Pl. 112. 1753; Hook. f. Fl. Brit. India 4 : 97. 1883; Cooke, Fl. Pres. Bombay 2 : 253. 1958 (Repr. ed.).

Erect, glabrous herbs with quadrangular stems. Leaves linear to broadly lanceolate, 1.5-5 × 0.5-1.3 cm, glabrous, base usually tapering. Flowers blue or rarely white, in terminal cymes. Capsules globose, smooth, with winged calyx.

Fls. & Frts. : October - January.

Illus. : Wight, Icon. t. 336. 1840.

Distrib. : Common in open drying fields and along the banks of nullas; Akot, Karanja, Medshi, Patur etc.

HOPPEA Willd.

Hoppea dichotoma Willd. Ges. Naturf. Freunde Berlin Neue Schriften 3 : 435. 1801; Hook. f. Fl. Brit. India 4 : 100. 1883; Cooke, Fl. Pres. Bombay 2 : 256. 1958 (Repr. ed.).

Small, erect, dichotomously branched herbs, upto 3-12 cm tall. Leaves ovate, $0.3-0.6 \times 0.2-0.4$ cm, sessile, glabrous. Flowers pale yellow in terminal, dichasial cymes. Capsules globose, glabrous, enclosed in persistent calyx, upto 0.4 cm long.

Fls. & Frts. : September - December.

Distrib. : Common in wet places in grassland; Patur, Narnala, Shahanur etc.

NYMPHOIDES Segu.

Nymphoides hydrophylla (Lour.) O. Ktze. Revis. Gen. Pl. 429. 1891; L. Carmer in Dassan. & Fosb. Rev. Fl. Ceylon 3 : 208. 1981. *Menyanthes hydrophylla* Lour. Fl. Cochinch. 1 : 129. 1790. *Nymphoides cristata* (Roxb.) O. Ktze. Revis. Gen. Pl. 2 : 429. 1891; *Limnanthemum cristatum* (Roxb.) Griseb. Gen. Sp. Gent. 342. 1839; Hook. f. Fl. Brit. India 4 : 131. 1883; Cooke, Fl. Pres. Bombay 2 : 261. 1958 (Repr. ed.).

Mar. : *Kumudini*'.

Small herbs in ponds. Leaves floating, circular, glabrous 5-10 cm in diameter. Flowers numerous in dense clusters, white, pedicillate. Capsules broadly ovoid or subglobose, 0.5 cm in diameter, glabrous, pale-brown. Seeds pale yellowish-brown, compressed.

Fls. & Frts. : April - October.

Illus. : Wight, Ill. t. 157. bis. fig. 4. 1840.

Distrib. : Common in ponds; Akot, Palodi etc.

BORAGINACEAE

1. Woody shrubs or trees	..	<i>Cordia</i>
1. Herbs :		
2. Flowers small, less than 1 cm across; calyx not winged in fruits :		
3. Flowers in unilateral spikes	..	<i>Heliotropium</i>
3. Flowers either solitary or in racemes :		
4. Nutlets attached to the carpophore	..	<i>Cynoglossum</i>
4. Nutlets without carpophore	..	<i>Coldenia</i>
2. Flowers larger, more than 1 cm across; calyx winged or auricled at the base in fruits	..	<i>Trichodesma</i>

COLDENIA L.

Coldenia procumbens L. Sp. Pl. 125. 1753; Hook. f. Fl. Brit. India. 4 : 144. 1883; Cooke, Fl. Pres. Bombay 2 : 271. 1958 (Repr. ed.).

Mar. : 'Tripanki'.

White-hairy, glaucous-green, prostrate, annual herbs. Leaves, crisped, $1.2\text{--}3 \times 0.6\text{--}1.8$ cm, rounded at apex, ovate-oblong, coarsely serrate or sub-pinnatifid. Flowers pale yellow, solitary, axillary, nearly sessile. Fruits conical, 4-lobed, upto 0.3 cm long.

Fls. & Frts. : November - May.

Distrib. : Throught on moist ground; Akola, Akot, Medshi, Patur, Shahanur etc.

CORDIA L.

1. Leaves opposite or subopposite, pinnately veined ..	<i>C. gharaf</i>
1. Leaves alternate, 3-5 nerved from base :	
2. Leaves tomentose beneath ..	<i>C. macleodi</i>
2. Leaves not tomentose beneath ..	<i>C. dichotoma</i>

Cordia dichotoma Forst. f. Prodr. 18. 1876. *Cordia myxa* auct. plur. non L. Hook. f. Fl. Brit. India 4 : 136. 1883; Cooke, Fl. Pres. Bombay 2 : 265. 1958 (Repr. ed.).

Mar.: 'Bhokar'.

Middle sized trees with young parts pubescent. Leaves alternate ovate, elliptic or orbicular $4\text{--}9 \times 3\text{--}5.5$ cm, coriaceous, glabrous. Flowers white or creamy yellow, polygamous in axillary and terminal cymose panicles. Drupes pale orange, globose.

Fls. & Frts. : March - June.

Illus. : Bedd., Flor. Sylvat. t. 245, A. 1872.

Distrib. : Planted in fields & occasional in deciduous forests; Akot, Narnala etc.

Cordia gharaf (Forsk.) Ehrenb. & Asch. in Bitzung. Bericht. Ges. Naturf. Fl. Berlin 46. 1879; *Cornus gharaf* Forsk. Fl. Aegypt.-Arab. 94. 1775. *Cordia rothii* R. & S. Syst. Veg. 4 : 798. 1819; Hook. f. Fl. Brit. India 4 : 138. 1883; Cooke, 2 : 268. 1958 (Repr. ed.).

Mar. : 'Condani'.

Small trees 5-6 m tall; young parts pubescent. Leaves 6—12 × 2—6 cm, sub-opposite, oblanceolate or elliptic-oblong. Flowers white, in short lateral and terminal, trichotomously branched, peduncled, densely tomentose cymes (when fruiting glabrous). Drupes ovoid, acute, longitudinally striate, glabrous, reddish brown.

Fls. & Frts. : February - May.

Illus. : Wight, Icon. t. 1379. 1848.

Distrib. : Occasional around fields.

Cordia macleodii Hook. f. & Th. in Journ. Linn. Soc. 2 : 128. 1858; Hook. f. Fl. Brit. India 4 : 139. 1883; Cooke, Fl. Pres. Bombay 2 : 266. 1958 (Repr. ed.).

Mar. : 'Dahipalas'.

Tall trees, upto 12 m in height with greyish brown bark. Leaves 3-5 nerved, 5-15 cm long and nearly as broad as long, ovate, obtuse, alternate or sometimes opposite. Flowers white, in terminal and axillary tomentose cymes.

Fls. & Frts. : April - June.

Distrib. : Occasional on the roadsides and in field; Morna, Patur.

CYNOGLOSSUM L.

Cynoglossum meeholdii Brand. in Fedde. Repert. 14. 323. 1916. *C. denticulatum* DC. var. *zeylanica* Cl. in Hook. f. Fl. Brit. India 4 : 157. 1883; Cooke, Fl. Pres. Bombay 2 : 284. 1958 (Repr. ed.).

Erect, branched annuals, about 30-60 cm tall. Stems and branches clothed with hairs. Leaves 3—7 × 1.3—2.5 cm, lanceolate, acute, with stiff hairs above and appressed hairs beneath. Flowers pale blue in terminal and axillary racemes; calyx persistent; fruits with hairy margins. Nutlets glochidiate; its margins furnished on the rim with prickles with a distinct head and decurved hookes from the apex.

Fls. & Frts. : August - November.

Distrib. : Rare, at Narnala fort; S. Y. Kamble 153745.

HELIOTROPIUM L.

1. Prostrate, villos herbs; calyx broad and campanulate ... *H. supinum*
1. Plants erect or erectly spreading; calyx narrow and not as above :

 2. Flowers yellow or greenish yellow in 15-30 cm long spikes; corolla lobes caudate-acuminate ... *H. subratum*

2. Flowers white in spike not longer than 15 cm; corolla lobes not caudate acuminate :
3. Leaves ovate, 5-10 cm broad; anthers not connivent by their tips .. *H. ovalifolium*
3. Leaves linear-lanceolate, 2-4 mm broad; anthers connivent by their tips .. *H. marifolium*

Heliotropium marifolium Koen. ex Retz. Obs. Bot. 2 : 8. 1781; Cooke, Fl. Pres. Bombay 2 : 280. 1958 (Repr. ed.). *H. scabrum* Retz. Obs. Bot. 2 : 8. 1810; Hook. f. Fl. Brit. India 4 : 152. 1883.

Divaricately branched, woody herbs, branching from the base, clothed all over with white appressed hairs from bulbous bases. Leaves linear-lanceolate, 10—18 × 2-3 mm. Flowers white, in terminal 2-ranked, spicate racemes.

Fls. & Frts. : June - September.

Illus. : Wight, Icon. t. 1389. 1848.

Distrib. : Occasional on rocky soil of waste lands.

Heliotropium ovalifolium Forsk. Fl. Aegypt-Arab. 38. 1775; Hook. f. Fl. Brit. India 4 : 150. 1883; Cooke, Fl. Pres. Bombay 2 : 278. 1958 (Repr. ed.).

Erect or procumbent herbs, upto 20 cm tall. Stems clothed with white hairs from bulbous bases, branching from the base. Leaves ovate, elliptic or obovate, ca 12—17 × 5—10 mm. Flowers white, in terminal, ebracteate, 2-4 cm long spikes. Nutlets ovate, 1-5 mm long.

Fls. & Frts. : June - February.

Illus. : Wight, Icon. t. 1388. 1848.

Distrib. : Common along streams and wet places; Akot, Mahan, Patur, Pinjor, Narnala.

Heliotropium subulatum Hochst. ex DC. Prodr. 9 : 528 & 551. 1845. *H. zeylanicum* Hook. f. Fl. Brit. India 4 : 148. 1883; Cooke, Fl. Pres. Bombay 2 : 274. 1958 (Repr. ed.) (non Lam. 1787).

Small erect, 20-45 cm tall, scabridly hairy annuals, Leaves 1.2—6.1 × 0.2—1.5 cm, lanceolate and densely strigose. Flowers greenish yellow, sessile, in 15-30 cm long, terminal, simple or branched, scorpioid cymes. Corolla lobes caudate-acuminate. Nuts 4, conical, glabrous, minutely tuberculate.

Fls. & Frts. : July - November.

Illus. : Wight, Icon. t. 892. 1844-45.

Distrib. : Occasional on waste places; on way to Manglurpir from Kinhiraja.

Heliotropium supinum L. Sp. Pl. 130. 1753. Hook. f. Fl. Brit. India 4 : 149 1883; Cooke, Fl. Pres. Bombay 2 : 275. 1958 (Repr. ed.).

Prostrate, softly villous herbs. Stems spreading, thickly clothed with soft white hairs. Leaves 1.2—2.6×0.5—1.5 cm, alternate, ovate-elliptic or obovate, softly villous on both sides; petioles slender. Flowers subsessile, in simple or once-forked, densely villous, 5-9 cm long, unilateral cymes. Calyx broad and campanulate. Fruits of 2-3, dark brown; nutlets thinly pubescent or nearly glabrescent, rounded and obscurely tuberculate on back.

Fls. & Frts. : November - July.

Illus. : Wight, Icon. t. 1387. 1848.

Distrub. : Common in drying moist ground along margins of ponds and ditches etc.; Mahan, Patur. etc.

TRICHODESMA R. Br. *nom. cons.*

- | | |
|--|--|
| 1. Anthers exerted, combined into a complete cone; leaves crowded, elongate-lanceolate, villous .. | <i>T. indicum</i>
var. <i>indicum</i> |
| 1. Anthers included, connivent but free; leaves distant, broadly ovate or ovate-oblong, scabrid .. | <i>T. sedgwickianum</i> |

Trichodesma indicum (L.) R. Br. Prodr. 496. 1810; Hook. f. Fl. Brit. India 4 : 153. 1883; Cooke, Fl. Pres. Bombay 2 : 281. 1958 (Repr. ed.).
Borago indica L. Sp. Pl. 137. 1753.

Mar.: *Chota halpa*'.

Annuals, erect, much branched, 15-40 cm high. Leaves 4-10×0.6—5 cm, variable, sessile, ovate or oblong or lanceolate-oblong, clothed above with stiff hairs, more or less densely villous beneath. Flowers violet-blue, solitary, leaf-opposed and in terminal few-flowered cymes. Fruits pyramidal with persistent style. Nutlets ovoid, smooth, bluish white.

Fls. & Frts. : August - December.

Illus. : Wight, Illustr. t. 172.

Distrub. : Common during the monsoon; Akot, Chikhaldar, Narnala, Patur, Shahanur etc.

Trichodesma sedgwickianum Banerjee, Bull. Bot. Soc. Bengal 16 (1 &) 9-11, 1962 (1963). *T. amplexicaule* DC. Prodr. 10 W 172. 1846, non Roth 1821; Hook. f. Fl. Brit. India 4 : 154. 1883. *T. indicum* R. Br. var. *amplexicaule* Cooke, Fl. Pres. Bombay 2 : 215. 1958 (Repr. ed.).

Erect herbs upto 60 cm tall, branched above. Leaves simple, opposite, sessile, sub-amplexicaule, ovate-oblong, scabrid, (especially beneath) with distinct stiff hairs. Flowers pinkish-lilac, solitary, leaf-opposed and in terminal, few-flowered cymes, stamens always included. Fruits of four nutlets; nutlets smooth, ovoid.

Fls. & Frts. : July - October.

Distrib. : Occasional during monsoon; Patur, Shahanur etc.

CONVOLVULACEAE

1. Corolla tubes usually uniformly enlarged from base to apex :
 2. Styles two; plants not twining .. *Evolvulus*
 2. Style one, stigmas two; plants twining :
 3. Stigmas globose; capsules 4-valved or circumscissile .. *Merremia*
 3. Stigmas long; capsules 3-valved .. *Jacquemontia*
1. Corolla tubes not uniformly enlarged from base to apex :
 4. Fruits dehiscent, thin valved .. *Ipomoea*
 4. Fruits indehiscent, fleshy or leathery :
 5. Corolla hypocrateriform, white or cream-white; stigmas elliptic-oblong; fruit woody .. *Rivea*
 5. Corolla not as above, bright rosy purple; stigmas globose; fruits mealy or fleshy .. *Argyreia*

ARGYREIA Lour.

1. Bracts orbicular or suborbicular, 1.3 cm in diameter; sepals also orbicular or broadly obovate .. *A. cymosa*
1. Bracts linear or oblong :
 2. Sepals unequal narrow, linear-oblong or lanceolate; leaves ovate, shortly acute rounded or slightly cordate at base, sparsely hispid above .. *A. sericea*
 2. Sepals ovate-obtuse; leaves broadly ovate, abruptly acuminate, cordate at base, more densely covered with grey or slightly golden hairs, strigose above, tomentose beneath .. *A. hirsuta*

Argyreia cymosa (Roxb.) Sweet, Hort. Brit. ed. 1 : 289. 1827; Clarke in Hook. f. Fl. Brit. India. 4 : 190. 1883; Cooke, Fl. Pres. Bombay 2 : 327. 1958 (Repr. ed.). *Letsomia cymosa* Roxb. Fl. Ind. 1 : 492. 1820.

Large, woody twiners with appressed-pubescent stems. Leaves broadly ovate or suborbicular, 5—11 × 6—12 cm, cordate at base. Flowers pale pink in branched, capitate cymes. Fruits globose, brown, 1.8-2 cm in diameter.

Fls. & Frts. : October - March.

Illus : Wight, Icon. t. 1844.

Distrib. : Occasional near hedges of fields; Akot, Patur, Palodi.

Argyreia hirsuta Arn. Pugill. Pl. Ind. Or. 38. 1836; Hook. f., Fl. Brit. India 4 : 189. 1883. *Rivea hirsuta* Wight, Icon.t. 891. 1844.

Large, shaggy climbers with large flowers. Leaves ovate-cordate, acute, villous above, shaggy beneath. Flowers pale purple, darker in the centre. Fruits orange-coloured when ripe.

Fls. & Frts. : September - February.

Illus. : Wight, Icon. I. c.

Distrib. : Occasional; Medshi, Shahanur.

Argyreia sericea Dalz. in Dalz. & Gibbs. Bombay Fl. 169. 1861. ; Hook. f. Fl. Brit. India 4 : 188. 1883. Cooke, Fl. Pres. Bombay 2 : 326. 1958 (Repr. ed.).

Mar. : 'Gavel'.

Large silky twiners. Leaves 8-16 × 5—11 cm, broadly ovate, acuminate, hispid or strigose with appressed hairy above, silvery white beneath. Flowers pink, in capitate or sub-capitate cymes. Fruits upto 1.5 cm in diameter, orange coloured.

Fls. & Frts. : September - January.

Distrib. : Occasional on the hills; Medshi, Patur etc.

EVOLVULUS L.

Evolvulus alsinoides (L.) Sp. Pl. ed. 2 : 392. 1762; Clarke in Hook. f. Fl. Brit. India 4 : 220. 1883; Ooststroom in Steenis, Fl. Malesiana Ser. 1 : 4(4) 395. 1953; Cooke, Fl. Pres. Bombay 2 : 297. 1958 (Repr. ed.). *Convolvulus alsinoides* L. Sp. Pl. 157. 1753.

Mar. : 'Vishnu-Kranta'.

Perennial trailing herbs with a small, woody, branched rootstock and 14-40 cm long hairy stems. Leaves ovate, obovate, elliptic or lanceolate, 6—25 × 4—8 mm. Flowers blue, ca 1 cm across, axillary, solitary. Capsules 3-4 mm across, oblong, smooth, glabrous.

Fls. & Frts. : June - October.

Illus. : Wight, III, t. 168. bis. fig. 10. 1840.

Distrib. : Very common on rocky or gravelly soil of open grass-lands; Akot, Medshi, Patur, Shabanur etc.

IPOMOEA L.

- | | |
|---|------------------------|
| 1. Flowers yellow; corolla hirsute .. | <i>I. petaloidea</i> |
| 1. Flowers other than yellow; corolla not hirsute : | |
| 2. Flowers deep red or scarlet : | |
| 3. Leaves pinnatisect .. | <i>I. quamoclit</i> |
| 3. Leaves entire or shallowly three lobed .. | <i>I. hederifolia</i> |
| 2. Flowers other than deep red or scarlet : | |
| 4. Flowers white or creamy white; rarely purple within : | |
| 5. Outer sepals cordate or basal lobes triangular .. | <i>I. sinensis</i> |
| 5. Outer sepals not as above : | |
| 6. Corolla upto 1.5 cm long, white; fruiting sepals much recurved; capsules hairy .. | <i>I. eriocarpa</i> |
| 6. Corolla more than 2 cm long, creamy white, often purple within; fruiting calyx not as above; capsules glabrous .. | <i>I. obscura</i> |
| 4. Flowers purple or rose coloured, sometimes purple or blue at corolla mouth; if corolla white, leaves deeply or faintly lobed : | |
| 7. Shrubs or woody twiners .. | <i>I. fistulosa</i> |
| 7. Prostrate or twining herbs : | |
| 8. Corolla tubes white but mouth blue or deep purple .. | <i>I. nil</i> |
| 8. Corolla pale to bright or deep purple : | |
| 9. Leaves entire; stems hollow; aquatic plant .. | <i>I. aquatica</i> |
| 9. Leaves deeply lobed; plants and stems not as above .. | <i>I. pes-tigridis</i> |

Ipomoea aquatica Forsk. Fl. Aegypt. - Arab. 44. 1775; Hook. f. Fl. Brit. India 4 : 210. 1883; Ooststroom in Steenis, Fl. Malesiana Ser. 14 (4) : 473. 1953; Cooke, Fl. Pres. Bombay 2 : 315. 1958 (Repr. ed.). *Convolvulus repens* Vahl Symb. Bot. I : 17. 1790 (non L.).

Mar.: 'Nalachi Bhaji'.

Annuals; stems long, prostrate, trailing on mud or floating on water giving out adventitious roots at nodes, glabrous, spongy. Leaves ovate or lanceolate, $8-12 \times 4-8$ cm. Flowers pink, solitary or in few flowered dichasial cymes. Capsules ovoid, upto 0.8 cm long.

Fls. & Frts. : September - June.

Distrib. : Occasional in ponds and also cultivated as vegetable; Karanja.

Ipomoea eriocarpa R. Br. Prodr. 484. 1810; Hook. f. Fl. Brit. India 4 : 204. 1883; Oostroom in Steenis, Fl. Malesiana Ser. 1 14(4) : 462. 1953; Cooke Fl. Pres. Bombay 2 : 312. 1958 (Repr. ed.). *Convolvulus hispidus* Vahl, Symb. Bot. 3 : 29. 1794. *Ipomoea hispida* (Vahl) R. & S. Syst. Veg. 4 : 238. 1819 (non Zucc. 1809).

Herbaceous twiners; leaves ovate-oblong or oblong-lanceolate, $4-7 \times 2-3.5$ cm. Flowers pink, 1-3 or more in axillary clusters, ca 1 cm across. Capsules globose, hairy.

Fls. & Frts. : October - February.

Illus. : Wight, Icon. t. 169. 1839.

Distrib. : Common weed in the Jawar field and among grasses; Akot, Narnala, Palodi etc.

Ipomoea fistulosa Mart. ex Choisy in DC. Prodr. 9 : 349. Jan.. 1845 *I. crassicaulis* (Benth.) B. L. Robinson in Proc. Amer. Acad. 51 : 430. 1916. *I. carnea* auct. non Jacq. 1760; Cooke, Fl. Pres. Bombay 2 : 321. 1958 (Repr. ed.)

Scandent shrubs with milky juice and hairy young parts. Leaves broadly ovate, $6-13 \times 5-10$ cm—10 cm, thinly pubescent beneath. Flowers pale pink in axillary or terminal corymbose cymes. Fruits not seen.

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

Distrib. : Native of S. America; planted or naturalized; Akot, Mahan, Patur etc.

Ipomoea hederifolia L. Syst. Nat. ed. 10. 925. 1759; Verdcourt, Fl. Trp. Afr. 132. 1863. *Ipomoea angulata* Lamk. Table, Encycl. 1 : 464. 1791. *Quamoclit coccinea* Cooke, Fl. Pres. Bombay 2 : 330. 1958 (Repr. ed.).

Twining with obtusely 4-gonous stems; branches minutely pubescent. Leaves broadly ovate, $6-9 \times 5-7.5$ cm, acuminate, cordate and broadly cuneate at base. Flowers scarlet, in terminal, lax, dichasial cymes. Capsules globose, 4-gonous, upto 0.8 cm, glabrous.

Fls. & Frts. : September - January.

Illus. : Bhandari, Fl. Ind. Desert 255. Fig. 88. 1978.

Distrib. : Occasional on the hedges; Futra, Palodi etc.

***Ipomoea nil* (L.) Roth Cat. Bot. I : 36. 1797; Ooststroom in Steenis, Fl. Malesiana Ser. V(4) : 1953. *Convolvulus nil* L. Sp. Pl. (ed. 2) 219. 1762. *Ipomoea hederacea* auct. non Jacq. Hook. f. Fl. Brit. India 4 : 199. 1883. Cooke, Fl. Pres. Bombay 2 : 321. 1958 (Repr. ed.).**

Herbaceous twiners; stems clothed with spreading hairs. Leaves entire or more often palmately 3-lobed, 6-9 cm long and broad. Flowers blue, solitary or in 2-3 flowered cymes. Capsules broadly ovoid or globose, 0.8-1 cm in diameter.

Fls. & Frts. : September - January.

Distrib. : Common in hedges around fields; Mahan, Palodi.

***Ipomoea obscura* (L.) Ker-Gawl. in Bot. Reg. 3. t. 239. 1817; Hook. f. Fl. Brit. India 4 : 207. 1883; Ooststroom in Steenis, Fl. Malesiana Ser. 14(4) : 471. 1953; Cooke, Fl. Pres. Bombay 2 : 317. 1958 (Repr. ed.). *Convolvulus obscurus* L. Sp. Pl. (ed. 2) 220. 1762.**

Annual, glabrous, herbaceous twiners with young parts pubescent. Leaves broadly ovate, 4-5 × 3.5-5 cm, glabrous or sparsely hairy. Flowers pale-yellow, 2-2.5 cm long. Capsules broadly ovate, 0.9-1 cm long, ovoid, apiculate.

Fls. & Frts. : October - February.

Illus. : Bhandari, Fl. Ind. Desert 257. fig. 90. 1978.

Distrib. : Common in hedges around fields; Akot, Palodi, Patur etc.

***Ipomoea pes-caprae* L. Sp. Pl. 162. 1753; Hook. f. Fl. Brit. India 4 : 204; 1883; Ooststroom in Steenis, Fl. Malesiana Ser. 14 (4) : 467. 1953. Cooke, Fl. Pres. Bombay 2 : 320. 1958 (Repr. ed.).**

Slender twining or prostrate, herbaceous annuals. Leaves 3-9 cm long, slightly broader, deeply 5-7 lobed, broadly ovate or orbicular. Flowers pale pink, 3-4 cm long. Capsules 7-8 cm long, ovoid, glabrous.

Fls. & Frts. : September - November.

Illus. : Wight, Icon. t. 836. 1839.

Distrib. : Throughout on hedges; Akot Kalakamta, Medshi, Morna etc.

Ipomoea petaloidea Choisy, Convol. Or. 69. 1833; Clarke, in Hook, f. Fl. Brit. India 4 : 212. 1883; Haines, Bot. Bihar & Orissa 2 : 628. 1961(Repr. ed.).

Large shrubby climbers. Leaves ovate-elliptic, shallowly cordate, with rounded base, 4—8 × 2.5—6 cm. Flowers yellow in 1-many flowered cymes and easily distinguished from those of *I. cymosa* by the sepals being 15-20 mm long and by the corolla being densely hirsute except on the small basal tubular portion.

Fls. & Frts. : February.

Frts. : Not seen.

Distrib. : Rare climber; Morna (Kamble 152761, BSI).

Note:— This species has been reported for the first time from Maharashtra.

Ipomoea quamoclit L. Sp. Pl. 159. 1753; Hook. f. Fl. Brit. India 4 : 199. 1883; Ooststroom in Steenis, Fl. Malesiana Ser. 14 (4) : 482. 1953; Cooke, Fl. Pres. Bombay 2 : 331. 1958 (Repr. ed.).

Mar. : ‘*Ganeshpushpa*’.

Slender, glabrous, herbaceous twiners. Leaves ovate to oblong, in outline, 2—8 × 1—5 cm, deeply pinnatisect; segments narrowly linear or filiform. Flower scarlet-red, 2.5-3.5 cm long, axillary, solitary or few in cymes. Capsules ovoid, nearly globose, glabrous.

Fls. & Frts. : August - October.

Illus. : Bhandari, Fl. Ind. Desert 259. fig. 92. 1978.

Distrib. : Common on hedges and cultivated in gardens; Akola, Mahan, Palodi etc.

Ipomoea sinensis (Desr.) Choisy in Mem. Soc. Phys. Geneve 6 : 459. 1833. *Convolvulus sinensis* Desr. in Lam. Encycl. 3 : 482. 1834. *Ipomoea calycina* (Choisy) Clarke in Hook. f. Fl. Brit. India 4 : 201. 1883; Cooke, Fl. Pres. Bombay 2 : 311. 1958 (Repr. ed.).

Twining, thinly hairy herbs. Leaves 5—8 × 3—5 cm, ovate, acute, acuminate, sparsely hairy or nearly glabrous. Flowers white, 1-3 in axillary cymes. Capsule 0.8 cm, long, ovoid, pointed, glabrous Seeds oblong, villous.

Fls. & Frts. : October - December.

Illus. : Wight, Icon. t. 833. 1839.

Distrib. : Common on hedges and in fields; Morna, Palodi.

JACQUEMONTIA Choisy

Jacquemontia paniculata (Burm. f.) Hall. f. in Engl. Bot. Jahrb. 16 : 541. 1893 and 18 : 95. 1894; Cooke, Fl. Pres. Bombay 2 : 303. 1958 (Repr. ed.). *Ipomoea paniculata* Burm. f. Fl. Ind. 50. t. 21. f. 3. 1768. *Convolvus parviflorus* Vahl, Symb. Bot. 3 : 29. 1794; Hook. f. Fl. Brit. India 4 : 220. 1883. (*non* DC. 1789).

Twiners with pale to reddish brown bark. Leaves 4—8 × —3—5 cm, ovate acuminate, nearly glabrous. Flowers white; in pedunculate, many-flowered, umbellate cymes. Capsules 0.5 cm in diameter, globose, glabrous, 8-valved

Fls. & Frts. : October - March

Illus. : Burm. f. l. c.

Distrib. : Occasional on hedges; Medshi.

MERREMIA Dennst. ex Endl. *nom. cons.*

Merremia gangetica (L.) Cuford, Bull. Jard. Bot. Etat 31 (Suppl.) : 743. 1961; *Merremia emarginata* (Burm. f.) Hall. f. in Engl. Bot. Jahrb. 16 : 552. 1893; Ooststroom in Steenis, Fl. Malesiana Ser. 1.4 (4) : 444. 1953. Cooke, Fl. Pres. Bombay 2 : 305. 1958 (Repr. ed.). *Evolvulus emarginatus* Burm. f. Fl. Ind. 77. t. 30. f. 1. 1768. *Ipomoea rentiformis* Choisy, Convolv. Orient. in Mem. Soc. Phys. Geneve. 6 : 446. 1834; Hook. f. Fl. Brit. India 4 : 206. 1883.

Mar. : 'Undirkani'.

Prostrate herbs with filiform stems, rooting at nodes. Leaves reniform, 1.5-3.0 cm broad. Flowers yellow, axillary, 1-3 together. Capsules 0.4-0.5 cm across, subglobose, apiculate.

Fls. & Frts. : October - January.

Illus. : Burm. f. l. c.

Distrib. : Common in water lodged area; Akola, Karanja, Palodi etc.

RIVEA Choisy

Rivea hypocarteriformis Choisy in Mem. Soc. Phys. Geneve 6 : 408. 1833; Hook. f. Fl. Brit. India 4 : 184. 1883; Cooke, Fl. Pres. Bombay 2:323. 1958 (Repr. ed.).

Mar. : 'Phanji'.

Woody twiners with appressed white hairs. Leaves reniform-ovate, 4—8 × 5—10 cm, sometimes broader than long. Flowers white, 4-6 cm long. Fruits globose, 1.2-1.5 cm in diameter, ovoid, apiculate. Seeds oblong or slightly trigonous.

Fls. & Frts. : July - October.

Illus. : Bhandari, Fl. Ind. Desert. 264. fig. 98. 1978.

Distrib. : Common on shrubs in hilly forests; Karanja, Medshi, Narnala, Shahanur etc.

CUSCUTACEAE

CUSCUTA L.

1. Style 1, short, stout; stigmas; thick, ovoid	..	<i>C. reflexa</i>
1. Styles 2, long, slender; stigmas capitate	..	<i>C. chinensis</i>

Cuscuta chinensis Lam. Encycl. Meth. 2 : 229. 1876; Hook. f. Fl. Brit. India 4 : 226. 1883; Cooke, Fl. Pres. Bombay 2 : 293. 1958 (Repr. ed.).

Mar. : 'Amarvel'.

Twining herbs with filiform, glabrous, yellow or yellowish-brown, much branched stems. Flowers white, solitary or in short stalked cymes. Capsules globose, didymous, upto 2.5 mm in diameter.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 1373. 1848.

Distrib. : Occasional, Medshi.

Cuscuta reflexa Roxb. Pl. Cor. 2 : 3. 104. 1819 & Fl. Ind. 1 : 445. 1832 Hook. f. Fl. Brit. India 4 : 225; Cooke, Fl. Pres. Bombay 2 : 292. 1958 (Repr. ed.).

Mar. : 'Amarvel'.

Leafless stem-parasites, twining. Stems glabrous, pale yellow, somewhat thick and fleshy. Flowers white or creamy white, solitary or 2-3 in cymes or short racemes. Capsules globose, circumscissile near the base, glabrous.

Fls. & Frts. : December - April.

Distrib. : Common on different hosts such as *Ficus*, *Vitex negundo* etc; Karanja, Morna, Palodi.

SOLANACEAE

1. Fruiting calyx much enlarged, enveloping the berry ..	<i>Physalis</i>
1. Fruiting calyx not enlarged :	
2. Fruits berry, smooth ..	<i>Solanum</i>
2. Fruits spiny or tuberculate capsule ..	<i>Datura</i>

DATURA L.

1. Capsules ovate; spine limited, long woody and or unequal length ..	<i>D. ferox</i>
1. Capsules globose, spines numerous, spinous or tuberculate :	
2. Plants hairy or tomentose; capsules densely, weakly spinous ..	<i>D. innoxia</i>
2. Plants glabrous; capsules tuberculate ..	<i>D. metel</i>

Datura ferox L. Amoen Acad. 3 : 403. 1756; Avery *et al* Genus *Datura* Blakeslee 21-22 fig. 4. 1959; Bhandari & Mehta in J. Bombay Nat. Hist. Soc. 76 : 550-551. fig. 5. 1980.

Undershrubs, upto 1.5 m high, in waste places. Leaves angular and sinuate. Flowers white, solitary axillary. Corolla 5-toothed, 4-6 cm long, 2-3 cm wide. Calyx slightly less than half. Capsule ovoid, 5-8 cm long, 4-6 cm wide including spines. Spines few of unequal size, with thick conical bases, reaching a length of 2.5 cm.

Fls. & Frts. : August - November.

Illus. : Avery *et al*. l. c.; Bhandari & Mehta, l. c.

Distrib. : Rare in waste places near village; Medshi (Kamble 150101, BSI).

Datura innoxia Mill. Grdn. Dict. (ed. 8) no. 5. 1768. *Datura metel* auct non L.; Hook. f. Fl. Brit. India 4 : 243. 1883; Cooke, Fl. Pres. Bombay 2 : 344. 1958 (Repr. ed.).

Mar. : 'Dhotra'.

Small undershrubs, upto 10 cm tall, softly pubescent. Leaves ovate, 10—15×6—8.5 cm, very unequal sided at base, obscurely sinuate, dentate. Flowers white, solitary in the fork of branches. Capsules globose, clothed with weak long spines, septifragally dehiscent, nodding, supported, on reflexed calyx base.

Fls. & Frts. : September - March.

Illus. : Avery *et al* in Blakeslee, Genus *Datura* 28, fig. 10. 1959.

Distrib. : Common in waste lands; Akot, Patur.

Datura metel L. Sp. Pl. 179. 1753. *D. fastuosa* L. Syst. 2:932. 1759; Hook. f. Fl. Brit. India 4 : 242. 1883; Cooke, Fl. Pras. Bombay 2 : 343. 1958 (Repr. ed.). *Datura fastuosa* L. var. *alba* Clarke in Hook. f. Fl. Brit. India 4 : 243. 1883; Cooke, Fl. Pres. Bombay 2 : 344. 1958 (Repr. ed.).

Mar. : *Kala-Dhotra*.

Erect, glabrous or subglabrous herbs. Stems often muriculate and tinged with purple. Leaves broadly ovate-lanceolate, variously deeply toothed, 12—18 × 9—11 cm. Flowers white or purplish. Capsules nodding, globose, covered all over with numerous straight tuberculate spines, brown when ripe.

Fls. & Frts. : July - March.

Illus. : Avery et al in Blakeslee, Genus *Datura* 33, fig. 13. 1959

Distrib. : Frequent in waste land; Karla, Murtijapur.

PHYSALIS L.

Physalis minima L. Sp. Pl. 183. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 238. 1883; Cooke, Fl. Pres. Bombay 2 : 340. 1958 (Repr. ed.).

Mar. : 'Chirboti'.

Soft herbs, 20-45 cm tall, profusely branched. Leaves broadly ovate, unequal sided at base; margins broadly serrate. Flowers uniformly pale-yellowish, solitary, axillary, nodding on a slender peduncle. Berries orange-yellow, ovate, 7-6 cm, shortly stalked, enclosed in a inflated persistant calyx.

Fls. & Frts. : October - February.

Distrib. : Common weed in wet places; Palodi, Patur, Umerkhed etc.

SOLANUM L.

1. Plants unarmed	..	<i>S. nigrum</i>
1. Plants armed with prickles :		
2. Prostrate or procumbent herbs	..	<i>S. surattense</i>
2. Erect shrubs or undershrubs :		
3. Flowers unisexual	..	<i>S. incanum</i>
3. Flowers bisexual :		
4. Racemes many flowered; calyx lobes triangular, oblong; berries small, globose, 0.8-1.5 cm in diameter	..	<i>S. indicum</i>

4. Racemes few flowered; calyx lobes narrowly elliptic or linear-oblong; berries large, globose, more than 2.5 cm across .. *S. melanogena*

Solanum incanum L. Sp. Pl. 188. 1753; Cooke, Fl. Pres. Bombay 2 : 337. 1958 (Repr. ed.). *Solanum coagulans* Forsk. Fl. Aegypt.-Arab. 47. 1775; Hook. f. Fl. Brit. India 4 : 236. 1883.

Undershrubs, 30-60 m tall, prickly and stellate, tomentose all over. Leaves ovate-elliptic, 3—8 × 2—5 cm, sinuately lobed. Flowers purple on paired peduncles, bright-violet, axillary. Berries ovoid or globose, 2-2.5 cm in diameter.

Fls. & Fr.s. : January - June.

Distrib. : Common in waste land near villages; Chikhawal, Patur etc.

Solanum indicum L. Sp. Pl. 187. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 234. 1883; Cooke, Fl. Pres. Bombay 2 : 336. 1958 (Repr. ed.).

Mar. : 'Mothi-ringni'.

Erect, armed, stellately hairy undershrubs, upto 1 m tall with pale-brown or purplish bark. Leaves 4—10 × 1.5—6 cm, broadly elliptic or elliptic-oblong, stellately pubescent, prickly on nerves. Flowers drooping, in extra-axillary racemes. Berries globose, glabrous.

Fls. & Fr.s. : July - December.

Illus. : Wight, Icon. t. 346. 1840.

Distrib. : Occasional; Manora.

Solanum melanogena L. Sp. Pl. 186. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 235. 1883; Cooke, Fl. Pres. Bombay 2 : 339. 1958 (Repr. ed.).

Mar. : 'Wanga'.

Armed annuals, 30-60 cm tall; stems and branches stellately, gray-tomentose. Prickless few, short. Leaves ovate-oblong, 15-22 × 6-10 cm, often smaller, sinuately lobed. Flowers purple in short, few-flowered, racemose cymes. Berries ovoid, ellipsoid or oblong, varying in colours.

Fls. & Frs. : Throughout the year.

Distrib. : Cultivated for fruits; Fetra, Kinhiraja, Medshi, Narnala.

Solanum nigrum L. Sp. Pl. 186. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 229. 1883; Cooke, Fl. Pres. Bombay 2 : 332. 1958 (Repr. ed.).

Erect annuals, about 30-40 cm tall. Stems glabrous or sparsely hairy. Leaves ovate-lanceolate $2-8 \times 1.5-5$ cm, tapering into a petiole. Flowers white, in pendulous, subumbellate cymes. Berries globose, red or deep-purple, 5-6 mm in diameter. Seeds many discoid, yellow.

Fls. & Frts. : August - January.

Illus. : Wight, Icon. t. 344. 1840.

Distrib. : A common weed in waste fields and waste lands;
Karanja, Medshi, Narnala, Patur etc.

Solanum surattense Burm. f. Fl. Ind. 57. 1768. (excl. syn. Pluck. & Raj.
Solanum xanthocarpum Schrad. & Wendl. Sert. Hanov. 1 : 8. t. 2. 1795;
Clarke in Hook. f. Fl. Brit. India 4 : 236. 1883; Cooke, Fl. Pres. Bombay
2 : 335. 1958 (Repr. ed.).

'Mar. : *Bhul-ringni*'.

Prostrate annuals, armed all over, with straight, sharp, yellow prickles. Leaves ovate-elliptic or elliptic oblong $5-12 \times 1-5$ cm. sinuately pinnatifid. Flowers purple in extra-axillary, few-flowered cymes or solitary. Berries 1.8-2.0 cm across, yellow, globose.

Fls. & Frts. : January - June.

Distrib. : Very common in waste land along roadside; Mahan,
Palodi, Patur etc.

SCROPHULARIACEAE

1. Leaves heterophylous; submerged ones pinnatisect, those above water entire .. *Limnophila*
1. Leaves not heterophylous :
 2. Leaves alternate .. *Verbascum*
 2. Leaves all opposite or atleast basal ones opposite :
 3. Corolla spurred or subsaccate; capsules porous or irregularly dehiscent .. *Kickxia*
 3. Corolla neither saccate or spurred; capsules regularly valvular dehiscent :
 4. Plants semi or total parasite :
 5. Leaves much dissected .. *Sapubia*
 5. Leaves entire, seldom scaly :
 6. Corolla subglobose- campanulate; limb oblique; calyx campanulate; both anther cells perfect .. *Alectra*

6. Corolla narrow-tubular; lobes unequal; calyx tubular, 5-toothed; only one anther cell perfect ..	<i>Striga</i>
4. Plants not parasitic :	
7. Flowers yellow	<i>Lindenbergia</i>
7. Flowers white, rosy-purple, red or blue :	
8. Perfect stamens 4, if 2, leaves 3-5 nerved from base :	
9. Corolla two-lipped :	
10. Viscidly pubescent plants; seeds reticulate ..	<i>Stemodia</i>
10. Plants not as above; seeds granular, muricate or rugose ..	<i>Lindernia</i>
9. Corolla not two-lipped :	
11. Glandular-hairy plants; leaves pinnatifid ..	<i>Sutera</i>
11. Plants glabrous or if hairy, hairs not glandular-hairy; leaves entire ..	<i>Bacopa</i>
8. Perfect stamens 2 ..	<i>Veronica</i>

ALECTRA Thunb.

1. Inflorescence branched; filaments hairy ..	<i>A. thomsonii</i>
1. Inflorescence unbranched; filaments glabrous ..	<i>A. parasitica</i>

Alectra parasitica A. Rich. Tent. Fl. Abyss. 11 : 117. 1851.

Erect herbs, upto 25 cm in height, under the shade of *Vitex negundo* L. (apparently root parasite). Stem dark purple, angular, hispidullous. Rhizome, orange red, without scales. Floral leaves or bracts scale like. Flowers yellow, with red to brown streaks, in terminal spikes or racemes. Capsules subglobose, about 0.5 cm across, loculicidal.

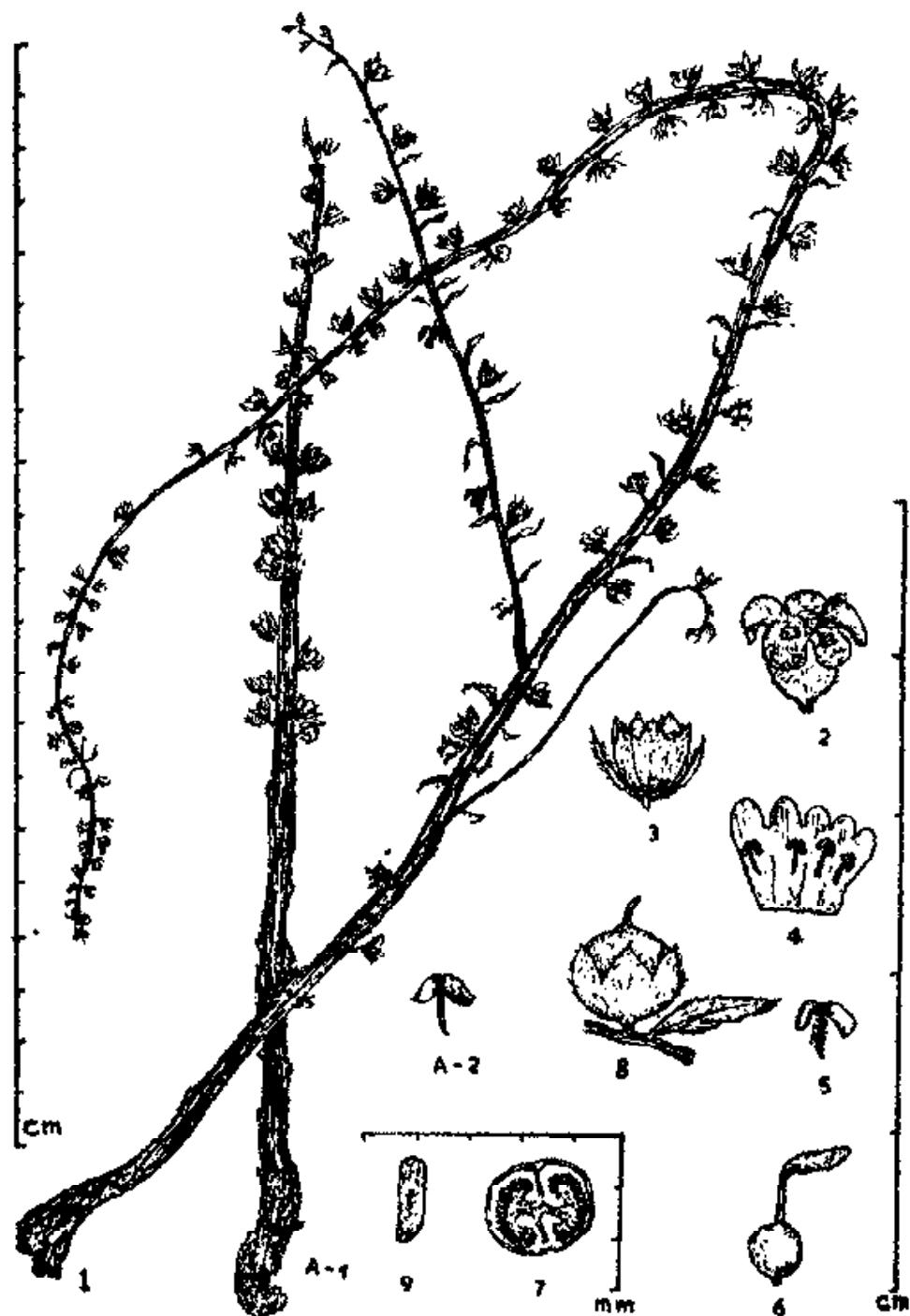
Fls. & Frts. : August - November.

Distrib. : Rare under the shade of *Vitex negundo* and *Barleria* sp.; Kalamata and Shahanur (Kamble 150188, BSI).

Notes : This species has been recorded for the first time from India.

Alectra thomsonii Hook. f. Fl. Brit. India 4 : 297. 1884.

Erect, parasitic herbs under *Barleria* species, upto 60 cm tall. Rhizomes orange red, without scales. Floral leaves scale like, sparsely serrate, elliptic-ovate to linear-lanceolate. Flowers yellow, streaked with brown, in terminal, branched racemes. Stamens 4-5 cm with ciliate filaments. Capsules little broader than long. Seeds numerous, cuneiform.



Figs. 1-9 : *Alectra thomsonii* Hook. f. 1. Whole plant. 2. Flower. 3. Calyx with two bracteoles. 4. Corolla (spread open). 5. Stamen with ciliate filament. 6. Ovary with inflexed style. 7. T. S. Ovary. 8. Fruit with persistent calyx and bract. 9. Seed. Figs. A1 & A2 : *Alectra parasitica* A. Rich. A1. Whole plant. A2. Stamen with glabrous filament.

Fls. & Frts. : August - November.

Distrib. : Rare; Shahanur (*Kamble* 150497, BSI).

Notes— This species has been recorded for the first time from Maharashtra.

BACOPA Aubl. *nom. cons.*

Bacopa monnieri (L.) Wettstein in Engler and Prantl, Pflanzefam. 4 (3b) : 77. 1891; *Lysimachia monnieri* L. in Torner Cent. Pl. 2 : 9. 1751. *Herpestis monniera* Benth. Scroph. Ind. 30 : 1835; Hook. f. Fl. Brit. India 4 : 272. 1884. *Moniera cuneifolia* Michaux Fl. Bor. Amer. 2 : 22. 1803; Cooke, Fl. Pres. Bombay 2 : 356. 1958 (Repr. ed.).

Mar. : *Nira-brahmi* *

Prostrate, fleshy, glabrous, herbs. Leaves opposite, sessile, obovate-oblong, 1—2.5 × 0.3—0.7 cm, fleshy, glabrous. Flowers blue or purple on slender, solitary, axillary pedicels 1-3 cm long. Capsules ovoid, 0.3 cm long, acute, glabrous. Seeds oblong, striate.

Fls. & Frts. : Throughout the year.

Distrib. : Common in marshes along stream; Karla, Mahan, Manora.

KICKXIA Dumort

Kickxia ramosissima (Wall.) Janchen in Oesterr Bot. Zeit. 82 : 152. 1933. *Linaria ramosissima* Wall. Pl. As. Rar. 2 : 43. t. 153. 1831.; Hook. f. Fl. Brit. India 4 : 251. 1883; Cooke, Fl. Pres. Bombay 2 : 353. 1958 (Repr. ed.).

Perennial herbs, often much branched from the base. Branches slender, 30-75 cm long, glabrous. Leaves alternate, 1—4 × 0.8—3.5 cm, glabrous; the lower 3-7 lobed, triangular, hastate; the upper usually lanceolate-sagittate, apiculate. Flowers yellow, with filiform, axillary pedicels. Capsules sub-globose, 0.3 cm in diameter.

Fls. & Frts. : September - December.

Illus. : Wight, Ill t. 185. 1840.

Distrib. : Common on the fort wall; Narnala.

LIMNOPHILA R. Br. *nom. cons.*

Limnophila indica (L.) Druce, Rep. Bot. Exch. Club Soc. Brit. Isles 3 : 420. 1914. *Hoonia indica* L. Syst. Nat. (ed. 10) 919. 1759. *Limnophila gratio-*, *loides* R. Br. Prodr. 442. 1810; Hook. f. Fl. Brit. India 4 : 271. 1884; Cooke, Fl. Pres. Bombay 2 : 362. 1958 (Repr. ed.).

Small, 10-20 cm tall annuals with villous, puberulous or glabrous stem. Leaves 3-nerved, punctate; emerged leaves serrulate to lobed; submerged leaves dissected. Flowers whitish-purple, axillary, solitary and in terminal racemes.

Fls. & Frts. : December - April.

Illus. : Wight, Icon. t. 861. 1844-1845.

Distrib. : Occasional in ponds; Adan dam, Karanja etc.

LINDENBERGIA Lehm.

Lindenbergia muraria (Roxb. ex D. Don) P. Bruehl in Journ. Dept. Sci. Calc. Univ. 2 (Bot.) : 27. 1920. *Stemodia muraria* Roxb. ex D. Don Prodr. Fl. Nep. 89. 1825. *Lindenbergia urticaefolia* Lehm. in Link & Otto, Icon. Pl. Rar. Hort. Berol. 95. t. 31. 1818; Hook. f. Fl. Brit. India 4 : 262. 1884; Cooke, Fl. Pres. Bombay 2 : 379. 1958 (Repr. ed.).

Mar. : 'Dhol'.

Densely glandular-hairy herbs. Leaves 1.5—5 × 1—2 cm, ovate subacute, crenate-serrate, glandular-villous. Flowers axillary, developing into leafy racemes. Capsules 0.3-0.6 cm long, oblong, glabrous. Seeds ellipsoid, oblong, shallowly reticulate.

Fls. & Frts. : September - February.

Illus. : Lehm. 1928 (*loc. cit.*).

Distrib. : Occasional in the crevices of the rocks of fort; Narnala.

LINDERNIA Allioni

1. Leaves palmately 3-5 nerved	..	<i>L. parviflora</i>
1. Leaves 1-nerved or penai-nerved	..	<i>L. crustacea</i>

Lindernia crustacea (L.) F. Mueller, Syst. Ceusus Austr. Pl. 97. 1882. *Capraria crustacea* L. Mant. 87. 1767. *Vandellia crustacea* (L.) Benth. Scroph. Ind. 35. 1885; Hook. f. Fl. Brit. India 4 : 279. 1884; Cooke, Fl. Pres. Bombay 2 : 366. 1958 (Repr. ed.).

Diffuse glabrous or sparsely hairy annuals, 10-40 cm tall. Leaves ovate, subacute. Flowers bright-bluish-purple, solitary, axillary or in terminal racemes. Capsule obovate, slightly exceeding calyx, upto 0.5 cm long.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 863. 1845.

Distrib. : Common among glasses and undergrowth of forest; Kasmar, Narnala etc.

Lindernia parviflora (Roxb.) Haines, Bot. Bihar & Orissa 2 : 635. 1922 & 2 : 665. 1961 (Repr. ed.). *Gratiola parviflora* Roxb. Pl. Cor. t. 203. 1811. *Hysanthes parviflora* (Roxb.) Bentham in DC. Prodr. 10-419. 1846; Hook. f. Fl. Brit. India 4 : 263. 1884; Cooke, Fl. Pres. Bombay 2 : 368. 1958 (Repr. ed.).

Erect, glabrous herbs. Leaves 1.2—2.5 × 0.6—1.2 cm, ovate-oblong or elliptic-lanceolate, rounded at base. Flowers white axillary, solitary in terminal racemes. Capsules oblong-oboid, acute, 0.6 cm long.

Fls. & Frts. : August - March.

Distrib. : Frequent in moist places; Medshi.

SOPUBIA Hamilton ex D. Don.

Sopubia delphinifolia (L.) G. Don, Gen. Syst. 4 : 560. 1837; Hook. f. Fl. Brit. India 4 : 302. 1884; Cooke, Fl. Pres. Bombay 2 : 378. 1958 (Repr. ed.).

Erect, much-branched, glabrous herbs, 30-60 cm tall. Leaves opposite, 2-4 cm long, pinnatisect; segments few, filiform. Flowers pink, axillary, solitary and in terminal racemes. Capsules 0.6 cm long, oblong, ellipsoid. Seeds cuneate-oblong.

Fls. & Frts. : July - January.

Distrib. : Common in wet grasslands amongst grasses; Kinhiraja, Mahan, Pinjer etc.

STEMODIA L. nom. cons.

Stemodia viscosa Roxb. Pl. Cor. t. 163. 1802; Hook. f. Fl. Brit. India 4 : 265. 1884; Cooke, Fl. Pres. Bombay 2 : 359. 1958 (Repr. ed.).

Erect, much branched, glandular-pubescent herbs, upto 40 cm tall. Leaves sessile, opposite, oblong-lanceolate or oblanceolate, 1—3 × 0.4—1.2 cm, acute, serrate. Flowers bluish-violet, axillary, solitary or in terminal racemes.

Capsules 0.6 cm long, ovoid-oblong, acuminate, 4-valved. Seeds minute, black.

Fls. & Frts. : November - February.

Illus. : Wight, Icon, t. 1408. 1849.

Distrib. : Common in harvested fields; Karanja, Medshi, Palodi, Pinjer etc.

STRIGA Loureiro

- | | | |
|--|----|------------------------|
| 1. Calyx tube 10-15 ribbed : | .. | |
| 2. Calyx mostly 15-nerved; secondary nerves continued with the sides of the adjacent calyx teeth, not ending at sinus .. | | <i>S. angustifolia</i> |
| 2. Calyx mostly 10-nerved; secondary nerves ending in sinus; flowers sulphur yellow .. | | <i>S. asiatica</i> |
| 1. Calyx tube 5-ribbed : | | |
| 3. Stems green; leaves linear, green; plants seabrid hairy .. | | <i>S. densiflora</i> |
| 3. Stems usually purple; leaves reduced to scales; plants nearly glabrous .. | | <i>S. gesneroides</i> |

Striga angustifolia (D. Don) Saldanha in Bull. Bot. Surv. India 5 : 70. 1963. *Buchnera angustifolia* D. Don. Prodr. Fl. Nep. 91. 1825. *Striga euphrasioides* sensu Benth. excluding basionym in Hook. companion Bot. Mag. 1 : 364. 1836; Hook. f. Fl. Brit. India 4 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 376. 1958 (Repr. ed.) (non *Buchnera euphrasioides* Vahl.)

Erect, much branched herbs, 10-30 cm tall; parasites on roots. Leaves linear, 2-4 × 0.2-0.3 cm, sessile, scabrous. Flowers white, sessile or shortly stalked, in terminal, spicate racemes. Capsules black, enclosed in the calyx, ellipsoid or slightly obovate. Seeds obovate, minute.

Fls. & Frts. : August - February.

Distrib. : Very common parasite on roots of different grasses; Mahan, Patur.

Striga asiatica (L.) O. Kuntze, Rev. Gen. Pl. 2 : 466. 1891. *Buchnera asiatica* L. Sp. Pl. 630. 1753. *Striga lutea* Lour. Fl. Cochinch. 22. 1790; Hook. f. Fl. Brit. India 3 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 375. 1958 (Repr. ed.).

Parasites on the roots, about 7-20 cm tall, with prickly hairs. Leaves sessile, 1.2-3 cm long, linear, rough. Flowers yellow, in lax spikes. Capsules 0.4-0.5 cm long, oblong-ellipsoid. Seeds minute.

Fls. & Frts. : June - January.

Distrib. : Common on gravelly soil; Karanja, Patur.

Striga densiflora Benth. in Hook. Comp. Bot. Mag. 1 : 363. 1836; Hook. f. Brit. India 4 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 375. 1958 (Repr. ed.). Saldanha C. J. Bull. Bot. Surv. India 5 (1) : 69. 1963. *Buchnera densiflora* Benth. Scroph. India 41. 1835.

15—40 cm tall, scabridly hairy herbs. Leaves $1-3 \times 0.2-0.5$ cm, sessile, narrowly linear. Flowers white, in slender spikes. Capsules upto 0.5 cm long, smooth, glabrous, globose or ovoid. Seeds blackish-brown, reticulate.

Fls. & Frts. : August - October.

Distrib. : Frequent in open grasslands; Mahan, Patur, Shelubudruk etc.

Striga gesnerioides (Willd.) Vatke, Oesterr. Bot. 7. 25 : 11. 1875. Saldanha C. J. Bull. Bot. Surv. India 5 (1) : 68. 1963. *Buchenera gesnerioides* Willd., Sp. Pl. 3 : 338. 1800. *Striga orobanchioides* R. Br. ex Endl. Bth. in Hook. Comp. Bot. Mag. 1 : 361. t. 19. 1836; Hook. f. Fl. Brit. India 4 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 374. 1958 (Repr. ed.).

Purple, parasites with prominent haustorial connections. Stems erect, upto 30 cm tall. Leaves reduced to scales, ovate-oblong, acute, dark purple like stem. Flowers sessile, white or pink in dense terminal spikes. Capsules oblong, ellipsoid, 0.6 cm long.

Fls. & Frts. : August - November.

Illus. : Wight, Icon. t. 1414. 1849.

Distrib. : Occasional, parasite on the roots of *Euphorbia* sp. or *Lepidagathis* sp.; Patur.

SUTERA Roth

Sutera dissecta (Del.) Walp. Repert. 3 : 372. 1844. *Capraria dissecta* Del. Fl. Egpt. 95. t. 32. f. 2. 1812. *Sutera glandulosa* Roth, Nov. Pl. Sp. 291. 1821; Hook. f. Fl. Brit. India 4 : 258. 1884; Cooke, Fl. Pres. Bombay 2 : 356. 1958 (Repr. ed.).

Mar. : 'Bhul'.

Erect, glandular-pubescent herbs, 10-30 cm tall. Leaves opposite or upper alternate, ovate or elliptic-oblong, $1-2.3 \times 0.5-0.8$ cm. Flowers

white, axillary, solitary or in terminal lax racemes. Capsules upto 0.4 cm long, ovoid-oblong or nearly spherical. Seeds spherical or oblong yellowish-brown.

Fls. & Frs. : December - February.

Illus. : Wight, Icon. t. 856. 1844 - 1845.

Distrib. : Common along ditches and in river beds; Kasmar, Medshi, Palodi etc.

VERBASCUM L.

Verbascum chinense (L.) Sant. Fl. Pur. 90. 1957. *Scrophularia chinensis* Mant. 2 : 250. 1771. *Celsia coronadeliana* Vahl. Symb. Bot. 3 : 79. 1794; Hook. f. Fl. Brit. India 4 : 251. 1884; Cooke, Fl. Pres. Bombay 2 : 352. 1958 (Repr. ed.).

Mar. : 'Kutaki'.

Erect, annual herbs, 30-90 cm tall, glandular hairy. Leaves radicle, $3-20 \times 2-8$ cm, long petioled, lyrate pinnatifid, elliptic-oblong or oblanceolate. Flowers yellow, axillary, solitary in elongating simple or branched, terminal racemes. Capsules globose, 0.5-0.6 cm in diameter.

Fls. & Frs. : January - June.

Illus. : Wight, Icon. t. 1406. 1849.

Disrib. : Common on waste lands around fields; Karla, Mahan, Marora, Medshi, Narnala etc.

VERONICA L.

Veronica anagallis L. Sp. Pl. 12. 1753; Hook. f. Fl. Brit. India 4 : 293. 1884; Cooke, Fl. Pres. Bombay 2 : 373. 1958 (Repr. ed.).

Erect or decumbent, glabrous herbs, 20-30 cm tall. Leaves sessile, opposite or upper alternate, linear oblong or oblong-lanceolate, $2-4 \times 1.5$ 2 cm. Flowers bluish-white in axillary and terminal racemes. Capsules compressed, orbicular, 0.3 cm in diameter.

Fls. & Frs. : December - July.

Distrib. : Rare in rocky moist areas; Narnala.

BIGNONIACEAE

DOLICHANDRONE (Fenzl) Seemann *nom. cons.*

Dolichandrone falcata Seem. in Journ. Bot. 8 : 381. 1870; Hook. f. Fl. Brit. India 4 : 1884; Cooke, F. I. Pres. Bombay 2 : 404. 1958 (Repr. ed.).
Mar. : 'Medshinghi'.

Deciduous trees, 6—10 m tall, with gray bark. Leaves simply pinnate, 7—15 cm long; leaflets usually 7, 1—3.5×1.2—1.7 cm, orbicular or obovate. Flowers white, in terminal few-flowered racemes. Capsules flat, falcately curved, 2.5—4.5 cm long, 1.2—1.7 cm broad, acute at apex.

Fls. & Frts. : April February

Distrib. : Frequent in hill forests; Mahan, Medshi, Palodi, Pinger etc.

PEDALIACEAE

SESAMUM L.

- | | |
|---|----------------------|
| 1. Plants prostrate or procumbent with deeply pinnatifid or laciniate leaves; capsules 1.2-1.5 cm long .. | <i>S. laciniatum</i> |
| 1. Plants erect with entire or palmately lobed leaves; capsules 2-2.5 cm long .. | <i>S. malayanum</i> |

Sesamum laciniatum Klein ex Willd., Sp. Pl. 3 : 359. 1800; Hook. f. Fl. Brit. India 4 : 387. 1884.

Prostrate herbs; covered with long, soft hairs. Leaves elliptic to orbicular, deeply pinnatifid to spathulate, coarsely lobed, 1-3 cm long, nearly as broad. Flowers dark purple, solitary, axillary. Capsules 1.2—1.5×0.6—0.7 cm, oblong, compressed. Seeds many ovoid.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 1345. 1848.

Distrib. : Occasional in open grassland on rocky soil.

Sesamum malayanum Nair, Bull. Bot. Surv. India 5 (3 & 4) : 251—253. 1963.

Strongly smelling annuals; 0.5—4 cm tall with branches and stems quadrangular. Leaves very variable, often heteromorphic, opposite or upper alternate, usually 3-foliate, 3-lobed or 3-partite; lower ones undivided. Flowers

pink or pinkish-white, solitary in the axils of higher leaves. Capsules erect, oblong, quadrangular, 2—2.5 cm long. Seeds brownish-black, 0.2 to 0.25 cm long.

Fls. & Frts. : August - December.

Illus. : Nair, (*loc. cit.*)

Distrib. : Frequent in waste places, road sides and as a weed in cultivated fields; Akot, Patur, Shelubudruk etc.

MARTYNIACEAE

MARTYNIA L.

Martynia annua L. Sp. Pl. 618. 1753; *Martynia diandra* Glos. Obs. Bot. 14. t. 1. 185; Hook. f. Fl. Brit. India 4 : 386. 1884; Cooke, Fl. Pres. Bombay 2 : 414. 1958 (Repr. ed.).

Mar. : 'Vinchavi'.

Glandular-hairy herbs, upto 2 m tall. Leaves thin, broadly ovate or suborbicular, 15—25 × 12—23 cm, lobed. Flowers pink, in erect terminal racemes. Fruits ovoid, with short beak, glandular-pubescent when young. Seeds black; testa thin.

Fls. & Frts. : July - October.

Distrib. : Native of Mexico but naturalised and found as weed in waste places; Akot, Medshi, Patur, Shahanur etc.

ACANTHACEAE

1. Plants with sharp axillary spines :

- | | | |
|---|----|-------------------|
| 2. Bracts bristle-tipped; capsules 2-seeded | .. | <i>Barkeria</i> |
| 2. Bracts not bristle-tipped; capsules 4-8-seeded | .. | <i>Hygrophila</i> |

1. Plants without axillary spines :

- | | | |
|--|----|---------------------|
| 3. Bracts or sepals stiff spine-tipped : | | |
| 4. Leaves opposite : | | |
| 5. Inflorescence axillary, compact, globose spikes or subradical, globose compact head | .. | <i>Lepidagathis</i> |
| 5. Inflorescence not as above, axillary or terminal in position : | | |
| 6. Corolla upto 0.4 cm long | .. | <i>Dicliptera</i> |
| 6. Corolla 2.5-4 cm long | .. | <i>Barkeria</i> |

4. Leaves whorled at the nodes	<i>Blepharis</i>
3. Bracts or sepals not stiff spine-tipped :	
7. Seeds glabrous (variously reticulate, rugose or echinate) :	
8. Corolla upto 8 cm long	<i>Barleria</i>
8. Corolla less than 2 cm long :	
9. Inflorescence a spike :	
10. Spike secund; placentas elastically separating from the base of the capsule	<i>Rungia</i>
10. Spike not secund; placentas not separating elastically from the base of the capsule	<i>Justicia</i>
9. Inflorescence not as above :	
11. Calyx glandular hairy; seeds numerous, oblong	<i>Andrographis</i>
11. Calyx not glandular hairy; seeds 4, orbicular	<i>Peristrophe</i>
7. Seeds hygroscopically hairy :	
12. Capsules clavate; seeds margined :	
13. Flowers in axillary or terminal spikes	<i>Eranthemum</i>
13. Flowers axillary, solitary or few together	<i>Dipteracanthus</i>
12. Capsules not clavate; seeds not margined :	
14. Capsules linear-oblong, distinctly beaked or sharply pointed :	
15. Plants densely bristly, glabrous	<i>Gantebua</i>
15. Plants glandular-pubescent	<i>Dyschoriste</i>
14. Capsules oblong, acute sparsely pubescent :	
16. Procumbent herbs; inflorescence in axillary or terminal spikes	<i>Hygraphila</i>
16. Suberect herbs' inflorescence terminal or axillary heads	<i>Hemigraphis</i>

ANDROGRAPHIS Wall. ex Nees

Andrographis echioides (L.) Nees in Wall. Pl. As Rar. 3 : 117. 1832;
Hook. f. Fl. Brit. India 4 : 505. 1884; Cooke, Fl. Pres. Bombay 2 : 451. 1958
(Repr. ed.). *Justicia echioides* L. Sp. Pl. 16. 1753.

Glandular annuals 8—20 cm tall. Leaves 1—4.5 × 0.4—2 cm, oblong to elliptic-oblong, obtuse or acute. Flowers about 1 cm long, creamy with purple dots within the throat, in 3-7 cm long racemes. Capsules elliptic-oblong, 1—1.2 × 0.3.—0.4 cm, sparsely hairy with persistent calyx. Seeds brownish, oblong.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 3 : 327. 1931.

Distrib. : Occasional; Mahan, Palodi.

BARLERIA L.

1. Floral parts such as bracts, calyx bristle-tipped :

- | | | |
|---|----|---------------------|
| 2. Spiny shrubs; capsules 2- seeded | .. | <i>B. prionitis</i> |
| 2. Non spinous shrubs; capsules 4- seeded | .. | <i>B. cristata</i> |
| 1. Floral parts not bristle-tipped | .. | <i>B. gibsoni</i> |

Barleria cristata L. Sp. Pl. 636. 1753; Hook. f. Fl. Brit. India 4 : 488. 1884; Fr. Santapau in Univ. Bombay Bot. Mem. 59. 1952; Cooke, Fl. Pres. Bombay 2 : 460. 1958 (Repr. ed.).

Mar. : 'Gokran'.

40—70 cm tall branched, woody bushes. Leaves 4—15 × 1—5 cm, ovate, elliptic-oblong, lanceolate with tapering base, acute or acuminate. Flowers light blue or white, in axillary or terminal congested spikes. Bracteoles lanceolate, 2 cm long, pubescent with toothed margins. Capsules ellipsoid, acute, 1—1.5 cm long. Seeds orbicular, silky hairy, compressed.

Fls. & Frts. : June - December.

Distrib. : Rare at Narnala fort (Akot) S. Y. Kamble 153792.

Barleria gibsoni Dalz. in Hook. f. Kew Journ. Bot. 2 : 339. 1850; Hook. f. Fl. Brit. India 4 : 487. 1884; Sant. in Univ. Bombay Bot. Mem. 2 : 62. 1952; Cooke, Fl. Pres. Bombay 2 : 464. 1958 (Repr. ed.).

Mar. : 'Gura'.

Undershrubs 60—100 cm tall. Leaves 8—1.5 × 5—8 cm, opposite, elliptic, acuminate, glabrous, tapering into a short petiole, turning black on drying. Flowers solitary, axillary and in terminal spikes. Bracts foliaceous 2—5 cm long, elliptic-lanceolate, acute. Bracteoles 1.25 cm long, narrow, linear; corolla pink, glabrous. Capsules oblong, acuminate, glabrous. Seeds ellipsoid black.

Fls. & Frts. : September - November.

Distrib. : Rare, Narnala fort, S. Y. Kamble 150479.

Barleria prionitis L. Sp. Pl. 636. 1753. Hook. f. Fl. Brit. India 4 : 482. 1884; Fr. Santapau in Univ. Bombay Bot. Mem. 2 : 57. 1952; Cooke, Fl. Pres. Bombay 2 : 457. 1958 (Repr. ed.).

Mar. : 'Pivali Koranti'.

Erect much branched bushes 1—1.5 m tall. Leaves 8—18 × 2.5—3.5 cm opposite, elliptic with tapering base, glabrescent, usually with acicular axillary spines. Flowers yellow, in axillary and terminal spicate clusters; corolla pubescent outside; bracts foliaceous oblong lanceolate, acute and bristle-tipped. Capsules ovoid with a beak. Seeds hairy, flattened, orbicular.

Fls. & Frts. : October - January.

Ihus. : Wight, Icon. t. 452. 1841. Trim. Fl. Ceyl. 3 : 318. 1931.

Distrib. : Rare : Narnala fort, S. Y. Kamble, 160756.

BLEPHARIS A. L. Juss.

- | | |
|--|---------------------------|
| 1. Leaves obovate-oblong or spatulate, obtuse, sessile and fleshy .. | <i>B. repens</i> |
| 1. Leaves elliptic-lanceolate, acute, petiolate and membranous .. | <i>B. maderaspatensis</i> |

Blepharis maderaspatensis (L.) Roth Nov. Pl. Sp. 320. 1821. *Acanthus maderaspatensis* L. Sp. Pl. 639. 1753. *Blepharis boerhaviaefolia* Pers. Syn. Pl. 2 : 180. 1806; Hook. f. Fl. Brit. India 4 : 478. 1884; Santapau in Univ. Bombay Bot. Mem. 2 : 15. 1952; Cooke, Fl. Pres. Bombay 2 : 424. 1958 (Repr. ed.).

Prostrate or procumbent herbs. Leaves whorled, 4 at each node, 0.7—3.5 × 0.3—1.2 cm, sparsely hairy. Bracts in opposite pairs, spatulate 3-nerved with bristly margins. Flowers pale blue. Capsules 0.6—0.7 cm long, ovoid. Seeds with blunt spines.

Fls. & Frts. : October - February.

Ihus. : Wight, Icon. t. 458. 1841. Trim. Fl. 3 : 316. 1931.

Distrib. : Rare at Akot, S. Y. Kamble, 152912.

Blepharis repens (Vahl) Roth Nov. Sp. Pl. 321. 1821. *Acanthus repens* Vahl, Symb. 2 : 76. 1791. *Blepharis molluginifolia* Pers. Syn. Pl. 2 : 180. 1806; Hook. f. Fl. Brit. India 4 : 479. 1884; Cooke, Fl. Pres. Bombay 2 : 425. 1958 (Repr. ed.).

Prostrate herbs rooting at nodes. Leaves 0.2—2.5 × 0.2—0.7 cm in whorls of 4 at each node; bracts in opposite pairs with rounded apices, strongly 3-nerved and with retrorsly hairy marginal bristles. Flowers solitary, axillary. Capsules elliptic, compressed, 0.6 cm long. Seeds hairy.

Fls. & Frts. : September - November.

Illus. : Trim. Fl. Ceyl. 3 : 316. 1931.

Distrib. : Rare at Karanja S. Y. Kamble, 160894 & 150473.

DICLIPTERA A. L. Juss. nom. cons.

***Dicliptera verticillata* (Forsk.) Christ. in Dansk. Bot. Arkiv. 4 (3) : 11. 1922. *Oianthera verticillata* Forsk. Fl. Aegpt.-Arab. 1 : 9. 1775. *Dicliptera micranthes* Nees in Wall. Pl. As. Rar. 3 : 112. 1832; Hook. f. Fl. Brit. India 4 : 553. 1885; Cooke, Fl. Pres. Bombay 2 : 481. 1958 (Repr. ed.).**

Diffusely branched, 20—45 cm tall, erect herbs, Leaves 3—10 × 2—3 cm, elliptic, acute or acuminate, glabrescent or appressedly hairy, petiolate. Bracts herbaceous veined, oblong, obovate and cuspidate. Flowers sessile in axillary clusters. Capsules ellipsoid, compressed, shortly stalked, pubescent at the tip only, 0.4—0.5 cm long.

Fls. & Frts. : November - February.

Distrib. : Common, Alegaon, Medshi, Patur.

DIPTERACANTHUS Nees emend. Bremek.

- | | |
|-----------------------|----------------------|
| 1. Capsules glabrous | <i>D. patulus</i> |
| 1. Capsules pubescent | <i>D. prostratus</i> |

***Dipteracanthus patulus* (Jacq.) Nees. in Wall. Pl. As. Rar. 3 82. 1832
Ruellia patula Jacq. Misc. Bot. 2 358. 1871.; Hook. f. Fl. Brit. India 4 412. 1884; Santapau in Univ. Bombay Bot. Mem. 2 : 24. 1952; Cooke, Fl. Pres. Bombay 2 : 432. 1958 (Repr. ed.).**

Mar. 'Kutmora'.

Suberect or diffuse, hairy pubescent, woody herbs, 20—40 cm tall. Leaves 0.4—1.5 × 0.4—1.0 cm, ovate or elliptic, obtuse, petiolate. Flowers axillary, solitary or 2—3 together, purple, bracteoles foliaceous. Capsules 1—2 cm long; seeds orbicular.

Fls. & Frts. : June - November.

Illus. : Wight, Icon. t. 1505. 1850, Trim. Fl. Ceyl. 3 296. 1931.

Distrib. : Rare at Akot, S. Y. Kamble 152886.

***Dipteracanthus prostratus* (Poir.) Nees in Wall. Pl. As. Rar. 3 81. 1832.
Ruellia prostrata Poir. in Lam. Encyl. 6. 349. 1804; Hook. f. Fl. Brit. India 4: 411. 1884. *Ruellia prostrata* Poir. var. *dejecta* Cl. in Hook. f., Fl. Brit. India**

4. 412. 1884; Santapau in Univ. Bombay Bot. Mem. 2 : 24. 1952; Cooke, Fl. Pres. Bombay 2 : 431. 1958 (Repr. ed.).

Straggling bushy herbs 20—60 cm tall, more or less pubescent. Leaves sessile, axillary, solitary or few together. Corolla infundibuliform, pale mauviolet. Bracteoles foliaceous, upto 2.3 cm long. Capsules 2—0.6; seeds 16—20 orbicular.

Fls. & Frts. : June - February.

Illus. : Trim. Fl. Ceyl. 3 : 295. 1931.

Distrib. : Common ; Akot, Medshi, Morna, Palodi, Patur, Shahapur.

DYSCHORISTE Nees

Dyschoriste dalzellii (T. Anders. ex Bedd.) O. Ktze. Rev. Gen. Pl. 1 : 486. 1891; Santapau in Univ. Bombay Bot. Mem. 2 : 31. 1952; Cooke, Fl. Pres. Bombay 2 : 438. 1958 (Repr. ed.). *Calophanes dalzellii* T. Anders ex Bedd. Icon. Pl. Ind. Or. 1 . 60. t. 248. 1874; Hook. f. Fl. Brit. India 4 . 411. 1884.

Woody herbs 40—90 cm tall. Leaves 0.3—2.5 × 3—4.5 cm, elliptic-ovate, acute. Flowers pedicellate, solitary or few together, blue; bracteoles lanceolate, caducous. Seeds broadly ellipsoid.

Fls. & Frts. : June - February.

Distrib. : Rare at Narnala fort; S. Y. Kamble, 150474, 160774, 153786 and 152834.

ERANTHEMUM L.

Eranthemum roseum (Vahl) R. Br. Prodr. 477. 1810. *Justicia rosea* Vahl, Enum. 1 : 165. 1804. *Dedalacanthus roseus* T. Anders. in Journ. Linn. Soc. 9 : 487. 1887; Hook. f. Fl. Brit. India 4 : 419. 1884; Santapau in Univ. Bombay Bot. Mem. 2 : 34. 1952; Cooke, Fl. Pres. Bombay 2 : 439. 1958 (Repr. ed.).

Mar. : 'Dashamuli'.

Erect undershrubs, 30—100 cm tall. Leaves 2.5—20 × 2—9 cm, elliptic, oblong, acuminate, with tapering base, petiolate, strigosely hairy. Bracts foliaceous, 0.8—15. × 0.6—0.7 cm, white, prominently green-nerved, elliptic-obovate, acute or apiculate, hairy. Flowers white or purple; corolla tube narrow, 1 mm across. Capsules 0.8 —1 cm long, pointed. Seeds suborbicular.

Fls. & Frts. : November - February.

Distrib. : Common as an undergrowth in forest; Chikhawal, Fatra Mangarulpur.

GANTELBUA Bremek.

Gantelbuia urens (Heyne ex Roth) Bremek. in Verh. Nederl. Acad. Wet. (11) 40 (1) : 148. 1944; Santapau in Univ. Bombay Bot. Mem. 2 : 28. 1952. *Ruellia urens* Heyne ex Roth, Nov. Pl. Sp. 302. 1821. *Hemigraphis dura* T. Anders in Journ. Linn. Soc. 9 : 461. 1867 excl. Syn. *Ruellia crispa* Nees. non L.; Hook. f. Fl. Brit. India 4 : 422. 1884; Cooke, Fl. Pres. Bombay 2 : 433. 1958 (Repr. ed.).

Branched herbs, sparsely strigose. Leaves $0.7-2 \times 0.5-1$ cm, elliptic, oblong or obovate, attenuated into a short petiole. Bracts 2-2.5 cm long, spatulate. Flowers bright rosy purple; tube ca 2.5 cm long, slender, Capsules 0.8-1 cm long; seeds suborbicular and yellowish-brown.

Fls. & Frts. : January - February.

Distrib. : Rare at Akot; S. Y. Kamble, 152879.

HEMIGRAPHIS R. Br.

Hemigraphis latebrosa (Heyne ex Roth) Nees in DC. Prodr. 11 : 723. 1847; Hook. f. Fl. Brit. India 4 : 423. 1884; Santapau in Univ. Bombay Bot. Mem. 2 : 26. 1952; Cooke, Fl. Pres. Bombay 2 : 434. 1958 (Repr. ed.) *Ruellia latebrosa* Heyne ex Roth. Nov. Pl. Sp. 307. 1821.

Diffuse, much branched, weak herbs, pubescent all over. Leaves 0.6-7 \times 0.4-4 cm, ovate membranous, acuminate, crenate-serrate, petiolate, 3 cm long. Flowers white with blue or bright purple mouth. Capsules 0.6-0.7 cm long, 4-angled, 6-seeded. Seeds broadly ellipsoid or suborbicular, yellowish-brown.

Fls. & Frts. : September - February.

Illus. : Wight, Icon. t. 1504. 1850.

Distrib. : Rare at Narnala fort; S. Y. Kamble, 160777 & (Akot); S. Y. Kamble, 152849.

HYGROPHILA R. Br.

- 1. Flowers in axillary whorls; corolla 2.5-3 cm long
- 1. Flowers in terminal spikes; corolla 1-1.4 cm long

H. auriculata

H. serpyllum

Hygrophila auriculata (K. Schum.) Heine in Kew. Bull. 16 : 172. 1962.
Barleria auriculata K. Schum. in K. Schum. & Thom. Besker. Guin. Pl. 285. 1827. *Asteracantha longifolia* Nees in Wall. Pl. As. Rar. 3 : 90. 1832; Cooke, Fl. Pres. Bombay 2 : 428. 1958 (Repr. ed.). *Hygrophila spinosa* T. Anders. in Thw. Enum. 225. 1860; Hook. f. Fl. Brit. India 4 : 488. 1884.

Mar. : 'Talimkhana'

Stout annual herbs, 0.3—1.5 m tall. Spines in the whorls at the nodes. Leaves 5—10 × 1—2 cm, oblong-lanceolate or oblanceolate, hairy. Bracts foliaceous, ca 2—5 cm, lanceolate, hairy. Flowers 8 in 4 pairs at each node; corolla 2—5—3 long, bluish-purple. Capsules 0.7—0.8 cm long, 4—8-seeded.

Fls. & Frts. : June - February.

Illus. : Wight, Icon. t. 449. 1841; Trim. Fl. Ceyl. 3 : 293. 1931.

Distrib. : Common weed in marshes and nalas.

Hygrophila serpyllum (Nees) T. Anders. in Journ. Linn. Soc. 9 : 456. 1867; Hook. f. Fl. Brit. India 4 : 406. 1884. Santapau in Univ. Bombay Bot. Mem. 2 : 19. 1752; Cooke, Fl. Pres. Bombay 2 : 429. 1958 (Repr. ed.) *Physichilus serpyllum* Nees in Hk. Comp. Bot. Mag. 2 : 311. 1837.

Mar. : 'Ran-tewan'.

Unarmed herbs spreading on ground. Leaves 1—2.5 × 0.6—2 cm, ovate, elliptic or sub-orbicular, hairy. Bracts 0.6 cm long, oblong or elliptic, subacute; bracteoles 0.6 cm long, oblong to linear, acute. Flowers blue. Capsule valves grooved on the back, 8—10-seeded. Seeds ovoid.

Fls. & Frts. : September - February.

Illus. : Wight, Icon. t. 1493. 1849.

Distrib. : Rare at Kashmar; S. Y. Kamble, 152926.

JUSTICIA L.

- | | |
|---|----------------------------|
| 1. Calyx 5-partite; bracts orbicular & stalked .. | <i>J. betonica</i> |
| 1. Calyx 4-partite; bracts not as above : | |
| 2. Bracts and bracteoles shorter than the calyx .. | <i>J. diffusa</i> |
| 2. Bracts and bracteoles as long as or longer than the calyx : | |
| 3. Bracts glabrous .. | <i>J. quinqueangularis</i> |
| 3. Bracts hairy : | |
| 4. Bracts elliptic, subacute, 1.5 mm broad, leaves with irregular spicules .. | <i>J. simplex</i> |
| 4. Bracts linear to linear-lanceolate, 0.5 mm broad; leaves with transverse spicules .. | <i>J. micrantha</i> |

Justicia betonica L. Sp. Pl. 15. 1753; Hook. f. Fl. Brit. India 4 : 525. 1885.
J. betonica var. *ramosissima* (Roxb.) Cl. in Hook f. Fl. Brit. India 4 : 525.
 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 85. 1952; Cooke, Fl. Pres.
 Bombay 2 : 486. 1958 (Repr. ed.).

Branched undershrubs, 60—120 cm tall. Leaves 5—10 × 2—4 cm, ovate, acute, acuminate, glabrous, subcrenulate, sessile or sub-sessile. Bracts 0.6—2 cm long, ovate, acute, mucronate, nerved, bracteoles 1.25 cm, lanceolate. Flowers in spikes 2—12 cm long. Capsules 0.6—1 cm long, broadly clavate with a short stalk. Seeds suborbicular.

Fls. & Frts. : August - December.

Distrib. : Occasional; Palodi, Umberwadi.

Justicia diffusa Willd. Sp. Pl. 1 : 87. 1797 Hook. f. Fl. Brit. India 4 : 538.
 1885; Santapau in Univ. Bombay Bot. Mem. 87. 1952, Cooke, Fl. Pres.
 Bombay 2 : 489. 1958 (Repr. ed.).

Diffuse herbs, 10—30 cm tall. Leaves 0.5—3.5 × 0.5—2 cm, ovate to elliptic-lanceolate, glabrous. Flowers in axillary and terminal, linear spikes 2—15 cm long, 0.5 cm wide, pale purple. Bracts ovate, acuminate with scarious margins. Capsules 0.4—0.5 cm long, pointed, oblong, stalked, glabrous. Seeds concentrically rugose.

Fls. & Frts. : September - December.

Illus. : Trim. Fl. Ceyl. 3 : 338. 1931.

Distrib. : Occasional near Khadki.

Justicia neesi Ramah. in Saldanha & Nicolson, Fl. Hassan Distt. 551. 1976. *Justicia micrantha* Wall. (Cat. 2449. 1830); Clarke in Hook. f. Fl. Brit. India 4 : 536. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 87.—952; Cooke, Fl. Pres.) Bombay 2 : 489. 1958 (Repr. ed.).

Branched erect herbs, 20—30 cm tall. Leaves 2—6.5 × 0.6—2.5 cm, narrowly elliptic with cuneate base, hairy. Bracts linear, tipped with divaricate bristles. Flowers in axillary or terminal spikes, 0.6—3 cm long, pale purple. Calyx teeth with divaricate bristle at the apex. Capsules 0.3—0.6 cm long, tapering into short stalk, mucronate, sub-obtuse, glabrous except at the tip, 4-Seeded.

Fls. & Frts. : August - September.

Distrib. : Rare at Narnala, S. Y. Kamble, 150457.

Justicia quinqueangularis Koen. ex Roxb. Hort. Beng. 80. 1814; Hook. f. Fl. Brit. India 4 : 536. 1885; Santapau, in Univ. Bombay Bot. Mem. 2 : 490. 1958 (Repr. ed.).

Branched glabrous herbs upto 50 cm tall. Stems angular. Leaves $1-5 \times 0.4-1$ cm, elliptic-oblong to oblong-lanceolate. Bracts and bracteoles linear, obtuse $0.4-0.5$ cm long. Flowers pink, in terminal, $2.5-10$ cm long, spikes. Capsules $0.6-0.8$ cm long, oblong, glabrous. Seeds spherical.

Fls. & Frts. : September - November.

Distrib. : Common in open areas; Chikhawal, Medshi, Morna, Palodi.

Justicia simplex D. Don, Prodr. Fl. Nep. 118. 1825; Hook. f. Fl. Brit. India 4 : 539. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 89. 1952; Cooke, Fl. Pres. Bombay 2 : 490. 1958 (Repr. ed.).

Branched erect herbs, 30—60 cm tall. Leaves $1.2-4.5 \times 0.8-1.8$ cm, ovate-oblong to elliptic, oblong-lanceolate, appressedly hairy. Bracts elliptic, subacute and hairy, bracteoles still narrower. Flowers in axillary and terminal, $3-5$ cm long spikes. Capsules $0.4-0.7$ cm long, linear, oblong and pubescent at the tip. Seeds orbicular.

Fls. & Frts. : August - December.

Distrib. : Occasional; Karanja, Pinjar.

LEPIDAGATHIS Willd.

- | | |
|--|---------------------|
| 1. Calyx 4-partite; bracts hairy with straight spines .. | <i>L. cristata</i> |
| 1. Calyx 5-partite; bracts glabrous or nearly so with recurved spines .. | <i>L. trinervis</i> |

Lepidagathis cristata Willd. S. Pl. 3 : 400. 1800; Hook. f. Brit. India 4: 516. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 71. 1952; Cooke, Fl. Pres. Bombay 2 : 470. 1958 (Repr. ed.).

Mar. : 'Bhuigend'.

Perennial herbs, erect and branched. Leaves $0.6-3.5 \times 0.4-1.5$ cm, linear-oblong, acute with hairy nerves below. Flowers in sub-globose inflorescence $2-6$ cm across. Corolla hairy outside ca $1-4$ cm long, white or pale pink, dotted with brown or purple spots. Capsules $0.4-0.6$ cm long, ovoid, subacute, glabrous 2-seeded, rounded.

Fls. & Frts. : November - February.

Distrib. : Common; Chikhawal, Karanja, Medshi, Mahan, Patu,

Lepidagathis trinervis Wall. ex Nees in Wall. Pl. As. Rar. 3 : 96. 1832; Hook. f. Fl. Brit. India 4 : 517. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 72. 1952; Cooke, Fl. Pres. Bombay 2 : 471. 1958 (Repr. ed.).

Woody perennial herbs, 12—25 cm tall, diffusely branched. Leaves 2—7.5 0.5—0.6 cm, oblong, lanceolate, acuminate, 3-nerved, sessile. Spikes 1.25—2 cm long, usually 2 or more together. Corolla white, spotted with yellow, brown & purple 0.6—0.8 cm long. Capsules 0.4—0.6 cm long, ovoid-lanceolate. Seeds 2 oblong, hairy.

Fls. & Frts. : August - February.

Distrib. : Common in waste places along road sides and hill slopes; Morna, Narnala fort, Patur.

PERISTROPHE Nees

Peristrophe paniculata (Forssk.) Brummitt in Kew Bull 38:451. 1983. *Dianthera paniculata* Forssk. Fl. Aegypt-Arab. 7.1775. *Peristrophe bicalyculata* (Retz.) Nees in Wall. Pl. As. Rar. 3 : 113. 1812; Hook. f. Fl. Brit. India 4 : 554. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 93. 1952; Cooke, Fl. Pres. Bombay 2 : 495. 1958 (Repr. ed.).

Tall erect herbs, 1—1.5 m high, much branched with angular branches. Leaves 3.3—10 × 1.8—4.2 cm, ovate, acuminate or elliptic-ovate with appressed hairs. Flowers in trichotomous cymes in large panicles; corolla rosaceous, 1.25 cm long. Capsules 0.8—1 cm long, shortly beaked, pubescent and stalked. Seeds orbicular, papillose.

Fls. & Frts. : October - February.

Distrib. : Rare; at Patur, S. Y. Kamble, 160802.

RUNGIA Nees

- | | |
|--|---------------------|
| 1. Bracts dimorphic; upper lip of corolla acuminate and not emarginate | <i>R. pectinata</i> |
| I. Bracts uniform; upper lip of corolla notched or emarginate : | |
| 2. Erect herbs; capsules ovoid, oblong, truncate and shortly mucronate | <i>R. elegans</i> |
| 2. Decumbent herbs rooting at nodes; capsules ovoid, oblong and acute | <i>R. repens</i> |

Rungia elegans Dalz. in Dalz. & Gibbs. Bombay Fl. 196. 1861; Hook. f. Fl. Brit. India 4 : 549. 1885; Santapau in Univ. Bombay Bot. Mem. 2 : 79. 1952; Cooke, Fl. Pres. Bombay 2 : 480. 1958 (Repr. ed.).

Herbs 15—45 cm tall with soft white hairs. Leaves $2 \times 1.5\text{--}4.3$ cm, ovate, elliptic, acute with hairy nerves. Bracts ovate, acute with scarious margins, 0.6—1.3 cm long. Spikes 2.5—4 cm long; corolla blue, 1.3 cm long. Capsules 0.4—0.5 cm long; seeds broadly oblong or suborbicular, rugose.

Fls. & Frts. September - January.

Distrib. : Rare along forest Patur, Palodi, S. Y. Kamble, 150359.

Rungia pectinata (L.) Nees in DC. Prodr. 11 : 469. 1847; Santapau in Univ. Bombay Bot. Mem. 2 : 77. 1952. *Justicia pectinata* L. Amoen. Acad. 4 : 299. 1789. *Rungia parviflora* Nees var. *pectinata* (L.) Cl. in Hook. f. Fl. Brit. India 4 : 550. 1885; Cooke, Fl. Pres. Bombay 2 : 478. 1958 (Repr. ed.).

Straggling herbs, much branched. Leaves $1\text{--}6 \times 0.5\text{--}2.2$ cm, elliptic-oblong or elliptic-lanceolate, glabrous or sparsely hairy; spikes axillary or terminal in clusters of 2—4 together, 0.8—2.5 cm long; corolla blue, 1—3 cm long. Capsules 0.25—0.3 cm long, flat, ovoid, pubescent at tip. Seeds orbicular, echinate, flat.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. t. I 47. 1850.

Distrib. : Common as an undergrowth in forest, waste places and roadside; Chikhalwal, Mahan, Palodi, Patur.

Rungia repens (L.) Nees in Wall. Pl. As. Rar. 3 : 110. 1832; Hook. f. Fl. Brit. India 4 : 549. 1885; Santapau in Univ. Bombay Bot. Mem. Bot. Mem. 2 : 78. 1952; Cooke, Fl. Pres. Bombay 2 : 480. 1958 (Repr. ed.). *Justicia repens* L. Sp. Pl. 15. 1753.

Stems creeping, slender, glabrous or puberulous. Leaves $2.5\text{--}5 \times 1.3\text{--}2$ cm, subsessile, oblong-lanceolate, acute, base usually tapering. Flowers in erect terminal spikes 2.5—7 cm long. Bracts broadly elliptic with scarious margins; bracteoles linear-lanceolate. Corolla white or pink with dark spots. Capsules 0.4—0.6 cm long, pubescent. Seeds suborbicular rugose with concentric furrows.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. t. 465. 1841. Trim. Fl. Ceyl. 3 : 343. 1931.

Distrib. : Common in open areas and as undergrowth in deciduous forest, Karanja, Mahan, Palodi, Patur.

VERBENACEAE

1. Leaves compound, 3-5-foliate	<i>Vitex</i>
1. Leaves simple :	
2. Prostrate herbs, rooting at nodes	<i>Phyla</i>
2. Trees or shrubs, at times with sarmentose branches :	
3. Large trees; fruits enclosed in a persistent, much inflated calyx	<i>Tectona</i>
3. Shrubs or small trees, at times straggling; fruits not as above :	
4. Corolla distinctly 2-lipped	<i>Gmelina</i>
4. Corolla nearly regular or nearly subzygomorphic :	
5. Inflorescence an elongate spike; simple or branched; plants usually unarmed	<i>Clerodendrum</i>
5. Inflorescence a capitulate spike; plants generally armed	<i>Lantana</i>

CLERODENDRUM L.

1. Calyx lobes long, ovate, acuminate; leaves opposite, upto 8 cm long	<i>C. multiflorum</i>
1. Calyx lobes very short, broadly triangular; leaves often in whorls of 3, reaching more than 15 cm	<i>C. serratum</i>

Clerodendrum multiflorum (Burm. f.) O. Ktze. Rev. Gen. Pl. 3 : 526. 1891. *Volkameria multiflorum* Burm. f. Fl. Ind. 137. t. 45. f. 1. 1768; *Clerodendrum phlomidis* L. f. Suppl. 292. 1781; Hook. f. Fl. Brit. India 4 : 590. 1884; Cooke, Fl. Pres. Bombay 2 : 511. 1958 (Repr. ed.).

Large bushes or small trees, upto 3 m tall. Leaves 4—6 × 3—4 cm, ovate or subrhomboid, obtuse or acute, glabrous above, puberulous beneath. Flowers creamy-white, in axillary, dichotomous cymes. Drupes upto 0.6 cm long, broadly obovoid, depressed, glabrous or sparsely hairy.

Fls. & Frts. : August - April.

Illus. Wight, Icon. t. 1473. 1849.

Distrb. Common in hedges; Akot, Medshi, Patur, Shahanur etc.

Clerodendrum serratum (L.) Moon, Cat. 46. No. 382. 1824; Hook. f. Fl. Brit. India 4 : 592; Cooke, Fl. Pres. Bombay 2 : 512. 1958 (Repr. ed.) *Volkamaria serrata* L. Mant. 90. 1767.

Mar. : 'Bharang'.

Shrubs upto 2 m tall with bluntly quadrangular stems. Leaves 12—15 × 5-7 cm, sometimes reaching 25 cm in length, broadly elliptic-oblong or obovate

oblong, coarsely and sharply serrate. Flowers numerous, pale blue or bluish-purple, in dichotomous cymes. Drupes 0.5—0.7 cm long, 4-lobed, obovoid, glabrous.

Fls. & Frts. : June - November.

Illus. Wight, Icon. t. 1472. 1849.

Distrib. : Occasional on hill slopes; Medshi, Narnala, Palodi etc.

GMELINA L.

Gmelina arborea Roxb. Hort. Beng. 46. 1814 (nomen) & Pl. Cor. 3 : 42. t. 246. 1819; Hook. f. Fl. Brit. India 4 : 581. 1884; Cooke, Fl. Pres. Bombay 2 : 504. 1958 (Repr. ed.).

Mar. : 'Shivani' or 'Shivan'.

Deciduous, unarmed trees upto 12 m tall with greyish-yellow bark. Leaves 10—20 × 7—14 cm, broadly ovate, glabrous above and fulvous tomentose beneath. Flowers yellow, in terminal panicles. Drupes 2—2.5 cm long, oblong, glabrous, smooth, yellow or orange when ripe.

Fls. & Frts. : January - May.

Illus. : Wight, Icon. t. 1470. 1849.

Distrib. : Occasional; Narnala, Palodi etc.

LANTANA L.

- | | | |
|--|------------------|--|
| 1. Bracts lanceolate, 3-5 nerved; corolla pink (red) to yellow, not white;
plants usually armed | .. | <i>L. camara</i>
<i>var. aculeata</i> |
| 1. Bracts ovate, 5-7 nerved; corolla pink to pale purple or white; plants
usually unarmed | <i>L. indica</i> | |

Lantana camara L. var. *aculeata* (L.) Moldenke, Torreya 34 : 9. 1934. *Lantana aculeata* L. Sp. Pl. 627. 1753. *Lantana camara* auct. non L. Hook f. Fl. Brit. India 4 : 652. 1885; Cooke, Fl. Pres. Bombay 2 : 498. 1958 (Repr. ed.).

Mar. : 'Tantani' or 'Ghaneri'.

Straggling shrubs 1—3 m tall; branches aculeate with recurved prickles. Leaves 3—8 × 1.5—3.5 cm, ovate to oblong-ovate, crenate-dentate. Flowers usually orange-red to scarlet in dense, corymbose heads. Drupes globose, 0.3—0.4 cm in diameter, shining, bluish-black when ripe.

Fls. & Frts. : Throughout the year.

Distrib. : Throughout, everywhere; Akot, Medshi, Palodi, Shahanur etc.

Lantana indica Roxb. (Hort. Beng. 46. 1814, et.) Fl. Ind. 3 : 89. 1832; Hook. f. Fl. Brit. India 4 : 562. 1885; Cooke, Fl. Pres. Bombay 2 : 478. 1958 (Repr. ed.).

Mar. : 'Ghaneri'.

Erect, unarmed, sparsely pubescent shrubs. Leaves opposite, ovate, acute; rounded-cordate and decurrent at the base with dense, appressed-white, pubescence beneath. Spikes cylindrical, 1-3 cm long; bracts foliaceous, ovate, acuminate; corolla pink to pale purple.

Fls. & Frts. : Through the year.

Illus. : Wight, Icon. t. 1464. 1849.

Distrib. : Frequent in plains; Akot, Patur etc.

▼ PHYLA Lour.

Phyla nodiflora (L.) Greene, Pittonia 4 : 46. 1899. *Verbena nodiflora* L., Sp. Pl. 20. 1753. *Lippia nodiflora* A. Rich. ex Michaux, Fl. Bor. Amer. 2 : 15. 1803; Hook. f. Fl. Brit. India 4 : 563. 1885; Cooke, Fl. Pres. Bombay 2 : 499. 1958 (Repr. ed.).

Mar. : 'Ratoliya'.

Prostrate perennial herbs, rooting at nodes. Leaves 0.5—3 × 0.3—2 cm opposite, subsessile, obovate. Flowers white or pale pink, sessile, densely packed in peduncled axillary heads, later becoming spicate and oblong-cylindric in fruit. Fruits globose, smooth.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 1463. 1849.

Distrib. : Common in pastures; Morna, Pinjar, Shahanur etc.

TECTONA L. f. *nom cons.*

Tectona grandis L. f. Suppl. 151. 1781; Hook. f. Fl. Brit. India 4 : 570. 1885; Cooke, Fl. Pres. Bombay 2 : 503. 1958 (Repr. ed.).

Mar. : 'Sag' or 'Sagwan'.

Large deciduous trees, 15—20 m tall with straight trunk. Leaves 30—50 × 15—20 cm, elliptic or obovate, acute, coriaceous, rough. Flowers white,

shortly pedicillate in terminal panicles. Fruits subglobose, somewhat 4-lobed, upto 1—3 cm in diameter.

Fls. & Frts. : June - December.

Illus. : Bedd. Fl. Sylv. t. 250. 1872.

Distrib. : Planted in hill forests; Medshi, Palodi, Patur etc.

VITEX L.

Vitex negundo L. Sp. Pl. 638. 1753; Hook. f. Fl. Brit. India 4 : 583. 1885; Cooke, Fl. Pres. Bombay 2 : 508. 1958 (Repr. ed.).

Mar. : 'Nirgudi'.

Shrubs or small trees with quadrangular branches. Leaves often 3-foliate or occasionally 5-foliate; leaflets 2—15×1—4 cm, elliptic to lanceolate. Flowers pale bluish-purple in axillary or terminal panicles. Drupes 0.2—0.3 cm in diameter, dark purple to almost black, globose with 4 obovate-oblong seeds.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 519. 1842.

Distrib. : Common along river banks and canals; Kalamata, Karanja, Pinjar, Shahanur etc.

LAMIACEAE (LABIATAE)

1. Perfect stamens 2	..	<i>Salvia</i>
1. Perfect stamens 4 :		
2. Stamens erect or spreading; anther cells free :		
3. Corolla lobes 4; stamens equal or subequal :		
4. Calyx 5-toothed, not plumose; stamens exerted ..		<i>Pogostemon</i>
4. Calyx 5-partite, segments plumose; stamens not exerted ..		<i>Colebrookea</i>
3. Corolla lobes 2-lipped; stamens didynamous :		
5. Flower orange-coloured ..		<i>Leonotis</i>
5. Flowers white, blue, bluish-purple or creamy-yellow :		
6. Corolla lobes hooked ..		<i>Leucas</i>
6. Corolla lobes not hooked :		
7. Calyx segments 5-10-nerved; lower pair of stamens longer; plants more than 60 cm tall ..		<i>Anisomeles</i>
7. Calyx segments 15-nerved; upper pair of stamens longer; plants not more than 60 cm tall ..		<i>Nepeta</i>

2. Stamens declinate; anther cells at length confluent. :
8. Leaves pinnatisect
- Lavandula*
9. Leaves not pinnatisect :
9. Lower lip of corolla somewhat declinate, flat or slightly concave generally narrower but hardly longer than usually 4- lobed upper lip :
10. Corolla tube short, lower lip flat; stigmas 2-fid
- Ocimum*
10. Corolla tube usually long; lower lip concave; stigmas entire
- Orthosiphon*
9. Lower lip of corolla deflexed, concave, boat-shaped or saccate, much longer than upper lip :
11. Corolla obscurely 2- lipped, two upper lips 4- lobed, 2 lobes flat, similar and subequal as two laterals, saccate lower lip
- Hyptis*
11. Upper lip of corolla very short, obtusely 3-4 toothed; lower lip much elongate, boat shaped :
12. Calyx equally 5-toothed or upper lip large rounded & reflexed, the others narrow, subulate
- Plectranthus*
12. Calyx very oblique, 2- lipped, upper lip large, entire, inflexed, closing the mouth, lower lip truncate, 4- toothed; or calyx 1-lipped, 5- toothed, not quite closing the mouth
- Anisochilus*

ANISOCHILUS Wall.

Anisochilus carnosus Wall. Pl. As. Rar. 2 : 18. 1831; Hook. f. Fl. Brit. India 4 : 627. 1885; Mukherjee S. K. in Rec. Bot. Surv. India 14 : 58. 1940; Cooke, Fl. Pres. Bombay 2 : 532. 1958 (Repr. ed.).

Mar. 'Panjiri'.

Annuals, erect 40—60 cm tall with bluntly quadrangular, glabrous or finely pubescent stems. Leaves 2.5—4.5 × 1.2—2 cm, broadly ovate crenate. Flowers pale purple, in dense cylindric spikes. Nutlets smooth, brown, suborbicular.

Fls. & Frts. : September - November.

Illus. : Wight, Ill. t. 176. Fig. 1. 1850.

Distrib. : Occasional; Narnala Fort.

ANISOMELES R. Br.

1. Plants glabrous; flowers white or creamy-white, 1-2.2 cm long
- A. heyneana*
1. Plants densely pubescent; flowers reddish-purple, 1.5-1.8 cm long
- A. indica*

Anisomeles heyneana Benth. in Wall. Pl. As. Rat. 1 : 59. 1830; Hook. f. Fl. Brit. India 4 : 672. 1885; Mukherjee, S. K., Rec. Bot. Surv. India 14 : 152. 1940; Cooke, Fl. Pres. Bombay 2 : 543. 1958 (Repr. ed.).

Mar. : 'Chandhra'.

Tall erect herbs reaching 150 cm high, glabrous or slightly pubescent. Leaves 5—16 × 2—15 cm, thin, green, ovate-lanceolate, crenate-serrate. Flowers white, in axillary or terminal racemes. Nutlets oblong, brown.

Fls. & Frts. : September - December,

Distrib. . Occasional; Akot, Mahan, Palodi etc.

Anisomeles indica (L.) O. Ktze Rev. Gen. Pl. 512. 1891; Mukherjee S. K. Rec. Bot. Surv. India 14 : 15. 1940. *Nepeta indica* L. Sp. Pl. 571. 1753. *Anisomeles ovata* R. Br. in Ait. Hort. Kew (ed. 2) 3 : 364. 1811; Hook. f. Fl. Brit. India 4 : 672. 1885; Cooke, Fl. Pres. Bombay 2 : 543. 1958 (Repr. ed.).

Mar. : 'Gopali'.

Erect woody annuals, 1—1.5 m. tall with quadrangular branches, Leaves 3—10 × 2—6 cm, ovate, crenate-serrate. Flowers pink, in dense axillary whorls which are distant below and form dense spike above. Nutlets 0.25 cm long, broadly ovoid, black, smooth.

Fls. & Frts. : August - January.

Illus. : Wight, Icon. t. 865. 1844.

Distrib. : Common along river banks, gullies and in hill forests; Chikhalwal, Narnala etc.

COLEBROOKEA J. E. Smith

Colebrookea oppositifolia Sm. Exot. Bot. 2 : t. 115. 1805; Hook. f. Fl. Brit. India 4 : 642. 1885; Mukherjee, S. K. Rec. Bot. Surv. India 14 : 84. 1940; Cooke, Fl. Pres. Bombay 2 : 541. 1958 (Repr. ed.). *Colebrookea ternifolia* Roxb., Pl. Cor. 3 : 40. t. 245. 1819.

Mar. : 'Bhaman'.

Much branched shrubs, 1.5—3.5 m tall. Leaves 10—15 × 2—4 cm, light-green, opposite or ternate, oblong-lanceolate or oblanceolate. Flowers white, numerous in axillary or terminal paniculate spikes. Nutlets oblong-obovoid, pubescent.

Fls. & Frts. : November - April.

Distrib. Common in ghat; Akot, Narnala, Shahanur etc.

HYPTIS N. J. Jacquin

Hyptis suaveolens (L.) Poit. in Ann. Mus. Natl. Hist. Nat. 7 : 472. t. 29. f. 2. 1806; Hook. f. Fl. Brit. India 4 : 630. 1885; Mukherjee S. K. Bot. Surv. India 14 63. 1940. Cooke, Fl. Pres. Bombay 2 : 560. 1958 (Repr. ed.). *Balloa suaveolens* L. Syst. (ed. 10) 1100. 1759.

Erect woody, glandular-tomentose herbs ca 90 cm to 1 m tall. Leaves 6—11 × 5.5—9 cm, ovate; the lower ovate-cordate. Flowers blue, in axillary and terminal whorls forming lax panicles. Nutlets bluish-brown, ovoid, cuneate.

Fls. & Frts. : September - December.

Distrib. : Tropical American weed, now naturalized and found on waste land; Kalamata, Karanja, Karla, Narnala etc.

LAVANDULA L.

Lavandula bipinnata (Roth.) O. Ktze. Rev. Gen. Pl. 521. 1891; *Bisteropogon bipinnatus* Roth, Nov. Pl. Sp. 255. 1820. Mukherjee S. K., Rec. Bot. Surv. India 14 65. 1940. *Lavandula burmanni* Benth. Lab. Gen. et. Sp. 151. 1833 & in DC. Prodr. 12 : 147. 1848; Hook. f. Fl. Brit. India 4 : 631. 1885; Cooke, Fl. Pres. Bombay 2 : 534. 1958 (Repr. ed.).

Mar. 'Gorea'.

Erect herbs, 0.5—1 m tall. Leaves deeply divided into linear to linear-lanceolate, segments, pubescent on both the surfaces. Flowers white, with blue tinge, in terminal, simple or branched spikes. Nutlets oblong-ellipsoid, smooth, black.

Fls. & Frts. : September - January.

Illus. : Wight, Icon. t. 1438. 1849.

Dis.tib. : Common on hill slopes amongst grasses; Akot, Narnala.

LEONOTIS R. Br.

Leonotis nepetifolia (L.) R. Br., Prodr. 504. 1810; Ait. Hort. Kew (ed. 2) 3 : 409. 1811; Mukherjee S. K., Rec. Bot. Surv. India 14 : 185. 1940.; Cooke, Fl. Pres. Bombay 2 : 555. 1958 (Repr. ed.).

Mar. 'Matisul' or 'Dipmal'.

Erect woody herbs, 1—1.5 m tall. Leaves broadly ovate to lanceolate, 6—15 × 3—10 cm, acuminate, broadly serrate. Flowers orange-red, in

axillary, dense, globose, many-flowered whorls. Nutlets about 0.4 cm long, obovoid, brown, obliquely truncate at apex.

Frts. : September - January.

Illus. : Wight, Icon. t. 867. 1844-1845.

Distrib. : Frequent along stream banks and gullies in shade of trees; Akot, Narnala etc.

LEUCAS R. Br.

1. Calyx mouth straight or nearly so :

2. Whorls 1 to 4-flowered .. *L. biflora*

2. Whorls 6 to many-flowered .. *L. stricta*

1. Calyx mouth oblique : .. *L. martinicensis*

3. Calyx teeth very short :

4. Flowers in axillary and terminal whorls; calyx mouth not villous within .. *L. aspera*

4. Flowers in terminal whorls; calyx mouth villous within .. *L. cephalotes*

Leucas aspera (Willd.) Sprengel, Syst. 2 : 743. 1825; Hook. f. Fl. Brit. India 4 : 690. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 166. 1940; Cooke, Fl. Pres. Bombay 2 : 548. 1958 (Repr. ed.). *Phlomis aspera* Willd. in Link, Enum. Hort. Berol. 2 : 113. 1809.

Erect annuals, 15-45 cm tall. Leaves 2-6 × 0.6-2 cm, linear-oblong or oblong-lanceolate. Flowers white, sessile or nearly so in terminal and axillary many-flowered, globose whorls. Nutlets 0.2 cm long, oblong.

Fls. & Frts. : June - October.

Distrib. : Common weed in wet fields; Chikhawal, Kinhiraja, Narnala etc.

Leucas biflora R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4 : 683. 1885; Mukherjee, S. K., Rec. Bot. Surv. India 1 : 180. 1940; Cooke, Fl. Pres. Bombay 2 : 553. 1958 (Repr. ed.).

Slender, procumbent or straggling, pubescent herbs with long tap roots. Leaves ovate 1.5-3 × 1-1.7 cm, acute, rounded at base, broadly crenate-serrate. Flowers white, often 2 at the node. Nutlets black, oblong, trigonous, 0.2 cm long.

Fls. & Frts. : June - December.

Distrib. : Frequent on rocky soil along river; Adna river bank, and Adan Dam near Karanja.

Leucas cephalotes (Roxb. ex Roth) Spreng., Syst. 2 : 743. 1825; Hook. f. Fl. Brit. India 4 : 689. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 168. 1940; Cooke, Fl. Pres. Bombay 2 : 549. 1958 (Repr. ed.). *Phlomis cephalotes* Roxb. Hort. Beng. 46. 1814 (*nomen*) ex Roth, Nov. Pl. Sp. 262. 1821.

Appressedly pubescent erect annuals, 40—70 cm tall. Leaves 3—7 × 1.2—2 cm, broadly lanceolate, subacute membranous, crenate-serrate. Flowers white, sessile in large, terminal, globose whorls, 3—4 cm across. Nutlets 0.3 cm across. Nutlets 0.3 cm long, obovoid, glabrous, dark-brown.

Fls. & Frts. : August - January.

Illus. : Wight, Icon. t. 337. 1840.

Distrib. : Occasional; Mahan, Shahanur.

Leucas martinicensis (N. Jacq.) R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4 : 68. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 169. 1940; Cooke, Fl. Pres. Bombay 2 : 550. 1958 (Repr. ed.). *Clinopodium martiniense* Jacq. Amer. Hist. 173. 1763.

Erect, simple or branched, stout herbs upto 1 m tall. Leaves 5—9 × 1.5—3.5 cm, crenate-serrate, ovate to ovate-lanceolate obtuse or broadly acuminate. Flowers white, in dense or occasionally few-flowered axillary or terminal clusters 1.5—2.5 cm in diameter. Nutlets black, oblong 0.2—0.3 cm long.

Fls. & Frts. : September - March.

Distrib. : Occasional on waste land; Karla, Patur, Shelubudruk.

Leucas stricta Benth. in Wall. Cat. 2045. 1829 (*nomin. nud.*) et Wall. Pl. As. Rar. 1 : 61. 1830; Hook. f. Fl. Brit. India 4 : 688. 1885; Cooke, Fl. Pres. Bombay 2 : 551. 1958 (Repr. ed.).

Slender, erect, annuals, 15—30 cm tall. Leaves 2—6 cm long, linear-oblong or oblong-lanceolate, hispid. Flowers white, subsessile in solitary terminal whorls. Nutlets 0.2—0.3 cm long, smooth, brown, oblong-obovoid or trigonous.

Fls. & Frts. : July - December.

Distrib. : Occasional on gravelly slopes; Kalakamta.

NEPETA L.

Nepeta hindostana (Heyne ex Roth) Haines var. *woodrowii* (Cooke) Santapau, Fl. Purandhar 110. 1958. *Nepeta ruderalis* Buch.-Ham. ex Hook.

f. Fl. Brit. India 4 : 661. 1885; Var. *Woodrufi* Cooke. Fl. Pres. Bombay 2 : 556. 1958 (Repr. ed.).

Erect or suberect 30—50 cm tall herbs. Leaves— $4.5 \times 1—3.5$ cm, broadly ovate or suborbicular, pubescent. Flowers bluish-purple in axillary cymes, culminating into terminal interrupted racemes. Nutlets oblong-ellipsoid, brown, smooth with white spot, mucilaginous when wetted

Fls. & Frts. : October—December.

Distrib. : Rare on walls of fort; Narnala, Akot (Kamble, 160776, 152862 & BSI).

OCIMUM L.

- | | |
|--|----------------------|
| 1. Pedicels shorter than the calyx; corolla white; nutlets mucilaginous when wetted .. | <i>O. americanum</i> |
| 1. Pedicels usually longer than the calyx; corolla pink or purple; nutlets not mucilaginous when wetted .. | <i>O. sanctum</i> |

Ocimum americanum L. in Juslenius, Cent. Pl. 1 : 115. 1755. *O. canum* Sims. in Bot. Mag. 51 : t. 2452. 1824; Hook. f. Fl. Brit. India 4 : 607. 1885; Cooke, Fl. Pres. Bombay 2 : 521. 1958 (Repr. ed.).

Mar. : 'Rantulashi'.

Erect much branched, pubescent herbs about 30—45 cm tall. Leaves $2.5—4.0 \times 1.5—2.0$ cm, ovate or ovate-lanceolate, entire, sessile. Flowers white, arranged in close whorls, on 7—20 cm long axis. Nutlets ellipsoid, black, mucilaginous when wetted.

Fls. & Frts. : August—October.

Distrib. : Common in waste land; Pinjar, Patur, Washim etc.

Ocimum sanctum L. Mant. 1 : 85. 1767; Hook. f. Fl. Brit. India 4 : 609. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 19. 1940; Cooke, Fl. Pres. Bombay 2 : 521. 1958 (Repr. ed.).

Mar. : 'Tulas' or 'Kalitulasi.'

Erect annuals, 30—60 cm tall, much branched. Stems and branches usually purplish. Leaves $2—5 \times 1.6—3$ cm, elliptic-oblong, acute, entire or crenate-serrate. Flowers pink, in thyrsoid racemes. Nutlets more than 0.1 cm long, smooth, brown.

Fls. & Frts. : Throughout the year.

Illus. : Mahesh., Illus. Fl. Delhi f. 174. 1966.

Distrib. : Cultivated or as an escape; Shelubrudruk.

ORTHOSIPHON Benth.

1. Leaves smaller, upto 5-2 cm; inflorescence less than 15 cm length .. *O. pallidus*
 1. Leaves larger, upto 10.5 x 5 cm; inflorescence more than 15 cm long and upto 30 cm in length .. *O. rubicundus*

Orthosiphon pallidus Royle, MSS. ex Benth. in Hook. Bot. Misc. 3 : 370. 1833; Hook. f. Fl. Brit. India 4 : 613. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 23. 1940. Cooke, Fl. Pres. Bombay 2 : 523. 1958 (Repr. ed.).

Suffrutiscent herbs with finely pubescent branches. Leaves 2.5—5 x 1—2 cm, ovate, usually obtuse, crenate or serrate, glabrous or nearly so, gland-dotted. Flowers white or pale-lilac, in terminal racemes. Nutlets subglobose, smooth, yellowish-brown.

Fls. & Frts. : June—October.

Distrib. : Very common; Mahan, Pinjar, Shelubudruk etc.

Orthosiphon rubicundus (D. Don) Benth. in Wall. Pl. As. Rar. 2 : 14. 1831; Hook. f. Fl. Brit. India 4 : 614. 1885; Mukherjee S. K., Rec. Bot. Surv. India 14 : 25. 1940; *Plectranthus rubicundus* D. Don, Prodr. Fl. Nepal 116. 1825.

Erect pubescent or glabrate herbs. Leaves ovate or ovate-lanceolate coarsely toothed, upto 10.5 cm. Flowers white, rose or pink, in 15—30 cm long, lax racemes. Stamens slightly exerted from corolla tube. Nutlets suborbicular, compressed, nearly smooth.

Fls. & Frts. : May—August.

Distrib. : Occasional; Karla near Patur.

PLECTRANTHUS L'Herit. nom. cons.

Plectranthus mollis (Aiton) Spieng., Syst. 2 : 690. 1825. *Ocimum molle* Aiton, Hort. Kew 2 : 322. 1789. *Plectranthus incanus* Link, Enum. Hort. Berol 2 : 120. 1822; Hook. f. Fl. Brit. India 4 : 621. 1885; Cooke, Fl. Pres. Bombay 2 : 529. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 47. 1940.

Erect herbs, 30—60 cm tall. Leaves 5—10 x 4—9 cm, acute, crenate, sparsely pubescent. Flowers light blue or lilac, in few-flowered cymes arranged in axillary and terminal racemes. Nutlets subglobose or broadly oblong, pale brown or dotted with purple.

Fls. & Frts. : August—December.

Distrib. : Occasional as an undergrowth in wet soil; Narnala.

POGOSTEMON Desf. *nom. cons. prop.*

Pogostemon parviflorus Benth. in Wall. Pl. As. Rar. 1 : 31. 1830; Hook. f. Fl. Brit. India 4 : 632. 1885; Mukherjee, S. K., Rec. Bot. Surv. India 14 : 25. 1940; Cooke, Fl. Pres. Bombay 2 : 536. 1958 (Repr. ed.).

Suffruticose, 1—2 m tall, often with quadrangular, smooth and shining, purplish branches. Leaves 4.5—20 × 2.5—14 cm, ovate, acute or acuminate coarsely and irregularly toothed. Flowers pale to bright pink, in terminal and axillary panicles. Nutlets ellipsoid, trigonous, smooth.

Fls. & Frts. October—May.

Distrib. Frequent in hilly region; Narnala Fort.

SALVIA L.

- | | |
|--|--------------------|
| 1. Wild herbs; radical leaves oblanceolate, caudine leaves lanceolate; flowers 0.4- 0.6 cm long, pale purple .. | <i>S. plebeia</i> |
| 1. Cultigens, herbs or shrubs; no radical leaves, caudine leaves all similar; flowers larger and deep scarlet .. | <i>S. coccinea</i> |

Salvia coccinea Buc'hoz et Etlinger, Salvia 23. 1777; Hook. f. Fl. Brit. India 4 : 656. 1885 (Syn. under *S. girardiana*); Cooke, Fl. Pres. Bombay 2 : 558. 1958 (Repr. ed.).

Subshubby annuals or perennials, 30—60 cm tall, leaves 2—5 × 2—3.5 cm, acute, crenate ovate or deltoid. Flowers deep scarlet, in terminal racemes, few to many in distant whorls. Fruits included in the persistent calyx.

Fls. & Frts. March—May.

Distrib. Native of central and South America, often grown in gardens and also found as an escape; Narnala Fort.

Salvia plebeia R. Br. Prodr. 501 : 1810; Hook. f. Fl. Brit. India 4 : 655. 1825; Mukherjee S. K., Rec. Bot. Surv. India 14 : 111. 1940; Cooke, Fl. Pres. Bombay 2 : 567. 1958 (Repr. ed.).

Erect annuals 30—60 cm tall. Stems and branches quadrangular, clothed with white hairs and with few scattered glands. Radical leaves 6—13 × 1—3.5 cm, oblanceolate; caudine leaves much smaller, lanceolate. Flowers pale blue or purplish, in axillary and terminal racemes. Nutlets broadly obovoid, smooth, glabrous, 0.1 cm long.

Fls. & Frts. December—March.

Distrib. Common in drying moist places; Karanja, Medshi.

NYCTAGINACEAE

BOERHAVIA L.

1. Leaves unequal in pairs; flowers sessile or subsessile; stamens included .. *B. diffusa*
2. Leaves equal in each pairs; flowers pedicillate; stamens exserted .. *B. chinensis*

Boerhavia chinensis (L.) Aschers. & Schweinf., Beitr. Fl. Aeth. 1 : 167. 1867; *Valeriana chinensis* L. Sp. Pl. 33. 1753. *Boerhavia repanda* Willd., Sp. Pl. 1 : 22. 1797; Hook. f. Fl. Brit. India 4 : 709. 1885; Cooke, Fl. Pres. Bombay 2 : 564. 1958 (Repr. ed.).

Scandent, glabrous or minutely pubescent perennial herbs. Leaves 2.5—10 × 2—7 cm, broadly ovate, acute or acuminate, repand, sinuate. Flowers bright-pink, pedicelled, 3—6 in pedunculate umbels. Fruits 0.4—0.6 cm long, obovoid-oblong or clavate, ribbed.

Fls. & Frts. : October—January.

Illus. : Wight, Icon. t. 1766. 1851.

Distrib. : Occasional weed in dry deciduous plains, Akola, Mahan.

Boerhavia diffusa L., Sp. Pl. 3. 1753; Cooke, Fl. Pres. Bombay 2 : 563. 1958 (Repr. ed.). *B. repens* L. Sp. Pl. 3. 1753; Hook. f. Fl. Brit. India 4 : 709. 1885; *B. repens* L. var. *diffusa* Hook. f. Fl. Brit. India 4 : 709. 1885.

Mar. : 'Punarnava'.

Diffuse woody herbs with fusiform roots. Leaves 1—3 × 07—2.5 cm, broadly ovate, elliptic-oblong or suborbicular. Flowers pink, minute, subsessile in umbels forming axillary and terminal, corymbose panicles. Fruits upto 0.3 cm, broadly and bluntly 5-ribbed, glandular.

Fls. & Frts. : Throughout the year.

Distrib. : Common in waste land and in grasslands; Karla, Mahan, Palodi, Patur etc.

AMARANTHACEAE

1. Leaves alternate (rarely opposite or fascicled ie. *Aerva*)
2. Staminodes present between the stamens or forming a short hypogynous cup .. *Aerva*
2. Staminodes absent :
 3. Ovaries 2 to many-ovuled; flowers in simple or branched spikes .. *Celosia*

3. Ovaries 1-ovuled; flowers in axillary clusters, spikes or panicles :		
4. Flowers bisexual :		
5. Inflorescence a spike	<i>Digera</i>	
5. Inflorescence sessile or stalked heads	<i>Allmania</i>	
4. Flowers unisexual or polygamous; fruits indehiscent or circumscissile	<i>Amaranthus</i>	
1. Leaves opposite or clustered :		
6. Flowers in elongated terminal spikes :		
7. Flowers deflexed	<i>Achyranthes</i>	
7. Flowers not deflexed	<i>Pupalia</i>	
6. Flowers not in elongated terminal spikes :		
8. Spikes very short; staminal tube and styles short	<i>Alternanthera</i>	
8. Flowers in terminal globose or oblong spikes; staminal tube and styles long	<i>Gomphrena</i>	

ACHYRANTHES L.

Achyranthes aspera L. Sp. Pl. 204. 1753; Hook. f. Fl. Brit. India 4 : 730. 1885; Baker G.A. in Fl. Malesiana Ser. 14 (2) : 88. 1949; Cooke, Fl. Pres. Bombay 2 : 580. 1958 (Repr. ed.)

Mar. : 'Aaghada'.

Erect woody herbs branching from base. Leaves very variable, usually orbicular-obovate, broadly elliptic, acute or rounded at base, 3—6 × 2—3.5 cm, hairy or glabrous. Flowers pale green, in terminal simple or branched spikes. Utricles oblong-cylindric, truncate at the apex, brown, 0.2—0.3 cm long.

Fis. & Frts. : August - December.

Illus. : Wight, Icon. t. 1777. 1852.

Distrib. : Troublesome weed on roadsides and waste places; Kinhiraja, Palodi etc.

AERVA Forsk. *nom. cons.*

1. Spikes axillary; tepals 1.2-1.5mm long; stigmas 2, linear	<i>A. lanata</i>
1. Spikes axillary and terminal; tepals 2.0-2.5mm long; stigmas 1, globular or obscurely bilobed	<i>A. sanguinolenta</i>

Aerva lanata (L.) Juss. Ann. Mus. Nat. Hist. Paris 11 : 131. 1808; Hook. f. Fl. Brit. India 4 : 728. 1885; Baker G.A. in Fl. Malesiana Ser. 14 (2) : 84.

1949; Cooke, Fl. Pres. Bombay 2 : 578. 1958 (Repr. ed. *Achyranthes lanata* L. Sp. Pl. 204. 1753.

Mar. : 'Kapuri-Maduri'.

Erect or prostrate herbs, branching from rootstock. Leaves 1.5—6.5 × 1—3 cm, elliptic or obovate, rarely suborbicular. Spikes 0.6—2.5 cm long, axillary, usually 2—4 together. Flowers white, pentamerous. Utricles minute, dark black, ovoid.

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

Illus. : Wight, Icon. Vol. 6 t. 1776 bis, fig. A. 1882.

Distrib. : Everywhere in plains; Karanja, Karla, Narnala, Patur etc.

Aerva sanguinolenta (L.) Bl. Bijdr. 547. 1825; Baker G. A. Fl. in Fl. Malesiana Ser. 14 (2) : 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.).

Subscandent or scandent woody herbs 45—90 cm tall. Leaves 3—6 × 1.5—3 cm, alternate, broadly elliptic, ovate or obovate. Flowers bisexual in dense, axillary and terminal, densely tomentose spikes. Utricles broadly ovate.

Fls. & Frts. : August - November,

Illus. : Wight, Icon. t. 724. 1843.

Distrib. : Common in waste places Karanja, Patur etc.

ALLMANIA R. Br. ex Wight

Allmania nodiflora (L.) R. Br. var. *dichotoma* (Roth) J. Hooker, Fl. Brit. India 4 : 717. 1885. *Celosia dichotoma* Heyne ex Roth, Nov. Pl. Sp. Sp. 172. 1821. *Allmania dichotoma* (Roth) Wight, Icon. t. 1771. 1852.

Much branched herbs, upto 0.5 m high, branches slender. Leaves alternate with short petiole, broadly elliptic, acute, glabrous. 2—5 × 1.5—2 cm. Flowers in globose or ovoid, sessile or peduncled, axillary or terminal heads. Capsules 1.5 mm in diameter, membranous, circumscissile.

Fls. & Frts. : August - September.

Illus. : Wight, op. cit.

Distrib. : Rare in waste lands and roadsides; Medshi and Palodi in Akola district (S. Y. Kamble, 150368 & 150120, BSI).

ALTERNANTHERA Forsk.

1. Leaves broadly ovate or orbicular; heads with spinous bracts; tepals very dissimilar; glochidiate hairs present .. *A. pungens*
 1. Leaves oblong-elliptic or linear-oblong; heads without spinous bracts; tepals all similar; glochidiate hairs absent .. *A. sessilis*

Alternanthera pungens Humb., Bonpl. & Kunth, Nov. Gen. Sp. Pl. 2 : 206.
 1818. *Achyranthes repens* L. Sp. Pl. 205. 1753. *Alternanthera repens* (L.) Link Enum. Pl. Hort. Bot. Berol. 1 : 154. 1821. non Gmelin, 1791.

Prostrate herbs. Stems much branched; branches spreading, pubescent, 15—40 cm long. Leaves opposite, broadly ovate or orbicular, 1—3 × 0.1—2.7 cm, obtuse. Flowers in short axillary, pungent spikes, 6—10 mm long. Utricles compressed, orbicular, narrowly winged.

Fls. & Frts. : June - December.

Illus. : Mahesh., Illus. Fl. Delhi f. 180. 1966.

Distrib. : Common along roadside and in waste land; Karanja, Medshi etc.

Alternanthera sessilis (L.) R. Br. ex DC. Cat. Pl. Hort. Monspel. 4 : 77. 1813; Hook. f. 4 : 731. 1885. *Gomphrena sessilis* L. Sp. Pl. 225. 175. *Alternanthera triandra* Lam., Encycl. 1 : 95. 1783; Cooke, Fl. Pres. Bombay 2 : 584. 1958 (Repr. ed.).

Much branched prostrate or ascending herbs, rooting at lower nodes with branches upto 50 cm long. Leaves oblong-elliptic, oblanceolate or linear-oblong, 1—5 × 0.3—1.5 cm, obtuse or subacute. Flowers sessile, in small axillary heads, white or tinged with pink. Utricles obcordate, compressed with thickened margins.

Fls. & Frts. : July - March.

Illus. : Wight, Icon. t. 727. 1843.

Distrib. : Common in wet situations like edges of ponds, near streams etc; Karanja, Kinhiraja, Narnala, Patur etc.

AMARANTHUS L.

1. Ripe utricles indehiscent or bursting irregularly, falling off together with perianth; flowers trimerous and tepals not provided with apical awn .. *A. viridis*
 1. Ripe utricles circumscissile a little below the middle; perianth of utricles persisting till fall of lid and seed; flowers pentamerous; if trimerous then tepals with long, apical awn :
 2. Leaf axis spinous .. *A. spinosus*
 2. Leaf axis not spinous:

3. Tepals 3; stamens 3 ..	<i>A. tricolor</i>
3. Tepals 5; stamens 5 :	
4. Bracteoles longer than the tepals, aristate; flowers yellowish or reddish in spikes ..	<i>A. hybridus</i>
4. Bracteoles shorter than the tepals; flowers pale green in axillary clusters ..	<i>A. polygonoides</i>

Amaranthus hybridus W. Subsp. *cruentus* (L.) Thell. var. *paniculatus* Thell. in Aschers & Graehn. Syn. 5 (1) : 247. 1914; Baker C.A. in Fl. Malesiana Ser. 14 (2) : 79. 1949. *A. cruentus* L. Syst. (ed. 10) 2 : 1269. 1759. *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.)

Mar. : *Rajgira*

Stout annuals, 1—2 m tall. Leaves elliptic-lanceolate, 5—15 × 2—7 cm, acute or acuminate. Flowers numerous, in dense, thyrsoid, yellowish or red coloured spikes, the central ones the longest. Utricles 0.3 cm long, ovoid, narrowed at the tip, circumscissile about the middle.

Fls. & Frts. : September - January.

Illus. : Wight, Icon. t. 720. 1843.

Distrib. : Planted for vegetable, also an escape; Kinhiraja, Palodi etc.

Amaranthus polygonoides L. Fl. Jamaica Pugill. 2 : 27. 1759; Naik in Journ. Bombay Nat. Hist. Soc. 64 (1) : 134—135. 1967.

Herbs, 15—40 cm tall, sparingly branched. Leaves lanceolate to rhomboid, narrowed at base, tapering into 0.5—2 cm long petiole, 1—3 × 0.5—1.5 cm, acute with small mucronate apex. Flowers pale green, clustered in leaf axils. Utricles faintly rugose.

Fls. & Frts. : August - October.

Distrib. : Common in waste land along roadsides; Karla, Medshi etc.

Amaranthus spinosus L. Sp. Pl. 991. 1753; Hook. f. Fl. Brit. India 4 : 718. 1885; Baker C. A. in Fl. Malesiana Ser. 14 (2) : 78. 1949; Cooke, Fl. Pres. Bombay 2 : 573. 1958 (Repr. ed.).

Mar. : ‘Kate-math.’.

Profusely branched, glabrous herbs, 30—60 cm tall. Stems striated, usually green, with sharp axillary spines. Leaves 2-8 × 1—3 cm, ovate or

lanceolate. Flowers green, in axillary clusters and in terminal 6—12 cm long spikes. Utricles conic, thickened at the top, circumscissile and rugulose.

Fls. & Frts. : July - December.

Illus. : Wight, Icon. t. 513. 1841.

Distrib. : Common in waste lands; Karla, Kasmar, Pingar etc.

Amaranthus tricolor L. var. *tristis* (Prain) Nayer et al in Rec. Bot. Surv. India 19 (1) : 114. 1964. *A. gangeticus* L. var. *tristis* (Willd.) Prain, Bengal Pl. 869. 1903; Cooke, Fl. Pres. Bombay 2 : 574. 1958 (Repr. ed.). *A. tristis* Willd. Sp. Pl. 4 : 382. 1805.

Mar. : 'Chaulai'.

Erect or diffuse, glabrous herbs about 45—60 cm tall. Leaves 3—8 × 2—6 cm, broadly ovate, entire, with undulate margins and long tapering petiole. Flowers green, in dense, axillary clusters. Utricles ovoid, circumscissile, rugulose, membranous.

Fls. & Frts. : August - January.

Illus. : Wight, Icon. t. 714. 1843.

Distrib. : Cultivated and also occurring as a weed; Karanja, Karla, Medshi.

Amaranthus viridis L. Sp. Pl. 2 (2) : 1405. 1763; Hook. f. Fl. Brit. India 4 : 720. 1885; Cooke, Fl. Pres. Bombay 2 : 575. 1958 (Repr. ed.) *A. gracilis* Desf., Talb. Ecole. Bot. 43. 1804; Baker C. A. in Fl. Malesiana Ser. 14 (2) : 76. 1949.

Erect or procumbent herbs. Leaves 4—6 × 3—3.5 cm, ovate, entire, emarginate at apex. Flowers in axillary clusters and terminal, 8—15 cm long, interrupted spikes or panicles. Utricles globose, with short beak, much rugose, indehiscent. Seeds black.

Fls. & Frts. : August - December.

Distrib. : Occasional in waste lands and fields; Medshi.

CELOSIA L.

Celosia argentea L. Sp. Pl. 205. 1753; Hook. f. Fl. Brit. India 4 : 714. 1885; Baker C. A. in Fl. Malesiana Ser. 1, 4 (2) : 73. 1949; Cooke, Fl. Pres. Bombay 2 : 570. 1958 (Repr. ed.).

Mar. : 'Kurdu'.

Erect annuals, upto 1 m tall. Leaves variable, linear or linear-lanceolate, $2-10 \times 0.6-3$ cm, acute. Flowers white or pink, in dense terminal, lanceolate spikes. Capsules 0.3—0.4 cm long, ellipsoid, tapering at apex, circumscissile near the middle.

Fls. & Frts. : February - May.

Illus. : Wight, Icon. t. 1767. 1852.

Distrib. : Weed of harvested field and found in waste lands; Chikhawal, Kasmar, Patur etc.

DIGERA Forsk.

Digera muricata (L.) Mart. Beitr. Amar. 77, no. 2. 1825; Baker C.A. Fl. Malesiana Ser. 1, 4(2) : 80. 1949; *Achyranthes muricata* L. Sp. Pl. (ed. 2) 295. 1762; *Digera arvensis* Forsk. Fl. Aegypt.-Arab. 65. 1775; J Hook. f. Fl. Brit. India 4 : 717. 1885; Cooke, Fl. Pres. Bombay 2 : 572. 1958 (Repr. ed.).

Erect or procumbent herbs. Stems striated, glabrous or puberulous, 15—60 cm long. Leaves $2.5-7 \times 2-5$ cm, ovate. Flowers greenish-pink, in threes; two outer flowers reduced to crested scales; arranged in spikes. Utricles globose, about 0.2 cm in diameter.

Fls. & Frts. : June - February.

Illus. : Wight, Icon. t. 732. 1843.

Distrib. : Common weed in wet fields; Karanja, Patur, Pingar etc.

GOMPHRENA L.

Gomphrena celosioides Mart. in Beitr. Amar. 93. 1825; Baker, C. A. in Fl. Malesiana Ser 1, 4 (2) : 96. 1949; Sandwith in Kew Bull. 29. 1946. *Gomphrena decumbens* sensu Gamble, Fl. Madras 1179 (825). 1925. *non* Jacq.

Diffuse, pilose herbs. Branches prostrate or ascending. Leaves $1-4.5 \times 0.5-1.2$ cm, oblong-elliptic or oblanceolate, narrowed at both ends, with short hard mucro. Flowers white, in elongating capituliform, terminal spikes. Utricles indehiscent, compressed, smooth, glabrous.

Fls. & Frts. : All seasons.

Distrib. : Common on the plains, in dry or wet soil; Akot, Karanja etc.

PUPALIA A. L. JUSS. *nom. cons.*

Pupalia lappacea (L.) Juss. in Ann. Mus. Paris 2 : 132. 1803; Hook f. Fl. Brit. India 4 : 724. 1885; Baker C. A. Fl. Malesiana Ser. 1, 4 (2) : 83. 1949; Cooke, Fl. Pres. Bombay 2 : 583. 1958 (Repr. ed.). *Achyranthes lappacea* L. Sp. Pl. 204. 1753. *Achyranthes atropurpurea* Lam. Encycl. Meth. 1 : 346. 1875. *Pupalia atropurpurea* (Lam.) Moq. in DC. Prodr. 13 (2) : 337. 1849; Hook. f. Fl. Brit. India 4 : 723. 1885; Cooke, Fl. Pres. Bombay 2 : 582. 1958 (Repr. ed.).

Erect, suberect or straggling herbs or undershrubs. Leaves 3—10 × 1.5—5 cm, broadly ovate-elliptic, acute or acuminate. Flowers clustered, greenish-yellow or slightly tinged with pink. Utricles ovoid-oblong, membranous, glabrous. Seeds ellipsoid, dorsally compressed.

Fls. & Frts. : July - February.

Illus. : Wight, Icon. t. 731. 1843.

Distrib. : Common in hill forests; Karla, Mahan, Medshi, Patur, Shahanur etc.

CHENOPodiaceae

- | | | |
|---|----|--------------------|
| 1. Stems twining to the right; bracteoles adnate to the perianth; anthers versatile | .. | <i>Basella</i> |
| 1. Stems not twining; bracteoles free from the perianth; anthers erect or incurved in bud | .. | <i>Chenopodium</i> |

BASELLA L.

Basella rubra L. Sp. Pl. 272. 1753; Hook. f. Fl. Brit. India 5 : 20. 1886 Cooke, Fl. Pres. Bombay 2 : 594. 1958 (Repr. ed.).

Perennial herbs, stems glabrous, much branched, twining, succulent, pinkish-red or deep purple in colour. Leaves broadly ovate, 4—8 × 2—2.5 cm, acute or acuminate, thick. Flowers white or with pink or red tips, sessile, few, in lax, pedunculate, axillary spikes. Fruits 0.6—0.8 cm across, red, black, or white.

Fls. & Frts. : October - March.

Illus. : Wight, Icon. t. 896. 1844-1845.

Distrib. : Cultivated for vegetable; Patur.

CHENOPODIUM L.

Chenopodium album L. Sp. Pl. 219. 1753; Hook. f. Fl. Brit. India 5 : 3. 1886; Baker C. A. in Fl. Malesiana Ser. 1, 4 (2) : 102. 1949; Cooke, Fl. Pres. Bombay 2 : 586. 1958 (Repr. ed.).

Mar. : 'Chakvat'.

30-90 cm tall, nearly, green or reddish herbs. Leaves very variable in size and shape, 2-15 cm long, oblong, rhomboid, deltoid or lanceolate, entire, toothed or lobulate. Flowers minute, green, clustered in axillary and terminal compact spikes. Seeds orbicular.

Fls. & Frts. : November - March.

Distrib. : Cultivated for vegetable; Medshi, Patur, Pingar etc.

POLYGONACEAE

- | | |
|---|------------------|
| 1. Perianth segments 3-5; stamens 1-8; stigmas capitellate .. | <i>Polygonum</i> |
| 1. Perianth segments 6 in two whorls; stamens 6; stigmas fimbriate .. | <i>Rumex</i> |

POLYGONUM L.

- | | |
|--|--------------------|
| 1. Prostrate herbs; flowers in axillary clusters; leaves less than 0.3 cm broad .. | <i>P. plebeium</i> |
| 1. Erect or decumbent herbs; flowers in spicate racemes; leaves more than 1 cm broad; | |
| 2. Plants and ochreae glabrous; styles 2; nuts biconnex .. | <i>P. glabrum</i> |
| 2. Plants and ochreae strigose and or ciliate; styles usually 3; nuts usually trigonous .. | <i>P. barbatum</i> |

Polygonum barbatum L. var. **gracile** Steward in Contrib. Gray Herb. 88 : 50. 1930. **Polygonum serrulatum** Hook. f. Fl. Brit. India 5 : 38. 1886 auct. non Lagasca, 1816; Cooke, Fl. Pres. Bombay 3 : 7. 1958 (Repr. ed.).

Large herbs with glabrescent stems. Ochreae stigose with long cilia equalling the tube. Leaves 6—10 × 0.6—1.3 cm, linear-lanceolate, appressed-hairy. Flowers white or tinged with pink, in axillary and terminal, simple or branched racemes. Nuts smooth, glabrous.

Fls. & Frts. : November - April.

Distrib. : Occasional near the lake; Karanja, Mahan etc.

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.).

Procumbent, perennial herbs, 30-80 cm tall. Leaves 7-25 × 1-3 cm, lanceolate, finely acuminate, glabrous, closely gland-dotted. Flowers pink or pale pink, in terminal racemose panicles. Nutlets biconvex, 0.3, cm in diameter, orbicular or broadly ovoid, shining, black.

Fls. & Frts. : September - April.

Illus. : Wight, Icon. t. 1797. 1852.

Distrib. : Common in marshes along streams; Chikhalwal, Kinhiraja, Morna, Narnala etc.

Polygonum plebeium R. Br. Prodr. 420. 1810; Hook. f. Fl. Brit. India 5 : 27. 1886; Cooke, Fl. Pres. Bombay 3 : 4. 1958 (Repr. ed.).

Diffusely branched, prostrate herbs, often radially spreading. Leaves 0.6-1.6 cm long, linear or obovate-oblong, glabrous. Flowers pale to bright pink, axillary, solitary or 2-3, fascicled. Nuts trigonous, black, glabrous, 0.1-0.2 cm long.

Fls. & Frts. : December - March.

Distrib. : Common in drying moist grounds. Akola, Medshi, Palodi etc.

RUMEX L.

Rumex dentatus L. Mant. 2 : 226. 1771; Hook. f. Fl. Brit. India 5 59. 1886; Cooke, Fl. Pres. Bombay 3 : 10. 1958 (Repr. ed.).

Mar. 'Palak'.

Erect, simple or branched herbs, 25-50 cm tall. Leaves both radical and caudine; caudine ones 4-12 × 2-4 cm, radical ones much larger, all linear-lanceolate, oblong or elliptic-oblong, glabrous. Flowers greenish in terminal racemes, pedicillate, in distinct whorls, supported by small linear-oblong leaves. Nuts trigonous, 0.2-0.3 cm, long, black, smooth.

Fls. & Frts. : December - April.

Distrib. : Occasional in river beds; Akot, Kasmar etc.

ARISTOLOCHIACEAE

ARISTOLOCHIA L.

Aristolochia bracteolata Lam. Encycl. I : 258. 1783; Sant. & Wagh in Bull. Bot. Surv. Ind. 5 (2) : 105. 1964. *A. bracteata* Retz. Obs. 5 : 29. 1789; Hook. f. Fl. Brit. India 5 : 75. 1886; Cooke, Fl. Pres. Bombay 3 : 16. 1958 (Repr. ed.).

Prostrate, perennial herbs or undershrubs. Leaves 2-6 cm long and as much broad, broadly ovate or reniform, glabrous. Flowers dark purple, axillary, solitary. Capsules 1.5—2.5 cm long, oblong-ellipsoid, glabrous, ribbed.

Fls. & Frts. : July - December.

Distrib. : Occasional; Akot.

SANTALACEAE

SANTALUM L.

Santalum album L. Sp. Pl. 349. 1753; Hook. f. Fl. Brit. India 5 : 231. 1886; Cooke, Fl. Pres. Bombay 3 : 49. 1958 (Repr. ed.).

Mar. : 'Chandan'.

Small, evergreen, glabrous trees with slender, drooping branches. Leaves 4—7 × 2—3 cm, elliptic-lanceolate, subacute, glabrous and shining, green above, pale green and rather glaucous beneath. Flowers brownish-purple, in terminal and axillary, paniculate cymes.

Fls. & Frts. : March - October.

Illus. : Bedd. Fl. Sylv. t. 256. 1872.

Distrib. : Occasional in deciduous forest; Alegaon, Kasmar, Palodi.

LORANTHACEAE

- | | |
|--|---------------------|
| 1. Flowers unisexual; leafless parasites; leaves if present then without midrib .. | <i>Viscum</i> |
| 1. Flowers bisexual; leafy parasites; leaves with distinct midrib : | |
| 2. Flowers regular; corolla tube not split on one side .. | <i>Dendrophthoe</i> |
| 2. Flowers irregular; corolla tube split half-way one side .. | <i>Scurrula</i> |

DENDROPHTHOE Mart.

Dendrophthoe falcata (L. f.) Etting in Denksch. Kaiserl. Akad. Wiss. Math. Naturwiss. Kl. 32 : 52-53, 58, t. 13, f. 14. 1872. *Loranthus falcatus* L. f. Suppl. 211. 1781. *Loranthus longiflorus* Desr. in Lam. Encycl. 3 : 598. 1789; Hook. f. Fl. Brit. India 5 : 214. 1886; Cooke, Fl. Pres. Bombay 3 : 42. 1958 (Repr. ed.). *Loranthus longiflorus* Desr. var. *coccinea* Talb. Tr. (ed. 1) 172. 1894; Cooke, Fl. Pres. Bombay 3 : 43. 1958 (Repr. ed.).

Mar. : 'Bandgul'.

Dichotomously branched shrubs, with twiggy branches. Leaves 4—20 × 2.5—11 cm, glabrous, coriaceous, elliptic-oblong, obovate or ovate-lanceolate. Flowers white, creamy-white, pinkish or completely red in 2-6 cm long, unilateral spikes. Berries upto 1 cm long, globose.

Fls. & Frts. : September - May.

Illus. : Etting in Dansk. (*loc. cit.*)

Distrib. : Common parasite on several hosts; Medshi, Narnala, Wanaja etc.

SCURRULA L.

Scurrula philippensis (Cham. & Schlecht.) G. Don Gen. Syst. 3 : 442. 1834; Danser in Bull. Jard. Bot. Buitenz. S. 3, 10 : 352. 1929. *Loranthus philippensis* Cham. & Schlecht. in Linnaea 3 : 204. 1828. *L. scurrula* Hook. f. Fl. Brit. India 5. 208. 1886; Cooke, Fl. Pres. Bombay 3 : 40. 1958 (Repr. ed.).

Parasites on *Butea* sp. Leaves, inflorescence and shoots ochraceous to reddish-brown, tomentose. Leaves elliptic-oblong or obovate, 5—10 × 3.5—6 cm. Flowers yellowish, floccose-grey hairy, in short dense racemes 1.8—2.5 cm long. Fruits 0.9—1 cm long, pear-shaped, reddish-brown.

Fls. & Frts. : September - March.

Distrib. : Occasional in moist or dry forest; Narnala fort.

VISCUM L.

Viscum nepalense Spreng. Syst. Cur-Post. 47. 1827; Danser, Blumea 4 : 283. 1936; *Viscum articulatum* auct. non N. Burman, 1768; Hook. f. Fl. Brit. India 5 : 226. 1886; Cooke, Fl. Pres. Bombay 3 : 47. 1958 (Repr. ed.).

Profusely, dichotomously branched, pendulous parasites with jointed flattened, dark green branches. Flowers greenish-yellow. Fruits oblong, green, verrucose when young, white, glabrous and smooth at maturity.

Fls. & Frts. : October - April.

Distrib. : Common in plains and ghats on species of *Terminalia*, *Semecarpus* etc.; Chikhawal, Morna, Patur, Umerkhed etc.

EUPHORBIACEAE

1. Flowers monococious; perianth of sepals and petals absent .. *Euphorbia*
1. Flowers monoecious or dioecious; perianth of only sepals present :
2. Petals absent in both the sexes :
3. Ovules 2 in each cell of the ovary :
4. Flowers dioecious .. *Securinaga*
4. Flowers monoecious :
5. Stamens 5; fruits a berry .. *Kirganelia*
5. Stamens 3; fruits a capsule .. *Phyllanthus*
3. Ovules 1 in each cell of the ovary :
6. Climbing herbs; with stinging hairs; stamens 1-3 .. *Tragia*
6. Erect herbs, shrubs or trees; stinging hairs absent; stamens 8 :
7. Disc present, very conspicuous .. *Baliospermum*
7. Disc absent or very inconspicuous :
8. Flowers in terminal paniculate racemes; capsules prickly .. *Ricinus*
8. Flowers in axillary or extra-axillary spikes; capsules not prickly :
9. Bracts of female floret leafy & accrescent; stamens 8 .. *Acalypha*
9. Bracts of female floret not leafy or accrescent; stamens indefinite (more than 20)
10. Ovaries with red glands .. *Mallotus*
10. Ovaries without such glands .. *Homonoia*
2. Petals present at least in male flowers :
11. Shrubs or trees :
12. Flowers in terminal cymes; stamens 7; fruits a capsule .. *Jatropha*
12. Flowers in axillary or spicate clusters; stamens 5; fruits a drupe .. *Bridelia*
11. Herbs :
13. Plants with stellate hairs; filaments connate; seeds without caruncle .. *Chrozophora*
13. Plants without stellate hairs; filaments free; seeds carunculate .. *Croton*

ACALYPHA L.

1. Bracts with fimbriate-ciliate margins concealing the capsule,
without gland-tipped hairs .. *A. ciliata*
1. Bracts shortly elongate, not concealing the capsule, with gland-
tipped hairs .. *A. malabarica*

Acalypha ciliata Forst. Fl. Aegypt.-Arab. 162. 1775; Hook. f. Fl. Brit. India 5 : 417. 1887; Cooke, Fl. Pres. Bombay 3 : 109. 1958 (Repr. ed.).

Stout herbs, 30-70 cm tall; stem, becoming glabrescent with age, young parts pubescent. Leaves $3.5-5 \times 0.2-3.0$ cm, ovate, acuminate, serrate, long petiolate. Flowers greenish, in androgynous, 1-2 cm long spikes; the male flowers few, sessile at the top of the spike; the female several at the base. Capsules 3-lobed. Seeds reddish-brown, oblong and glabrous.

Fls. & Frts. : August-September.

Illus. : Trim. Fl. Ceyl. 4 : 59. 1931.

Distrib. : Rare at Karla, S. Y. Kamble, 150045.

Acalypha malabarica Muell.-Arg. in Linnaea 34 : 42. 1865; Hook. f. Fl. Brit. India 5 : 416. 1887; Cooke, Fl. Pres. Bombay 3 : 109. 1958 (Repr. ed.).

Leafy annuals 15-30 cm tall; stems pubescent. Leaves $1-3 \times 1.2-2$ cm, elliptic-ovate to elliptic-lanceolate, acute or acuminate, crenate, long-petioled, petioles 2-5 cm long. Flowers in axillary, androgynous spikes, 1.5 cm long. Male flowers terminal, few; female flowers many, basal in position. Capsules glabrous; seeds globosely ovoid, glabrous.

Fls. & Frts. : August - February.

Distrib. : Common near wet places, roadsides, fields and ghats; Karanja, Karla, Mahal, Patur, Shelubudruk.

BALIOSPERMUM BL.

Baliostpermum montanum (Willd.) Muell.-Arg. in DC. Prodr. 15 (2) : 1125. 1866. *Jatropha montana* Willd. Sp. Pl. 4 : 563. 1805. *Baliostpermum axillare* Bl. Bijdr. 604. 1825; Hook. f. Fl. Brit. India 5 : 461. 1887; Cooke, Fl. Pres. Bombay 3 : 106. 1958 (Repr. ed.).

Mar. : 'Jamalgota'.

Slender undershrubs 1-2 m, tall. Leaves $4-12.5 \times 2-5.5$ cm, ovate to ovate-lanceolate, elliptic or elliptic-lanceolate; shallowly lobed, glabrous 2-glandular, petioles 5-15 cm long. Flowers unisexual, yellowish in axillary

racemes of all male flowers with few female flowers below. Capsules $0.8-1 \times 0.7-1$ cm, 3-lobed, ovoid, pubescent; seeds oblong, trigonous, glabrous, white-mottled; bracts present.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. t. 1885. 1852.

Distrib. : Occasional; Akot, Patur.

BRIDELIA Willd.

- | | |
|--|--------------------|
| 1. Flowers monoecious, on leafless branches in spikes .. | <i>B. retusa</i> |
| 1. Flowers dioecious, in axillary clusters .. | <i>B. squamosa</i> |

Bridelia retusa (L.) Spr. Veg. 3 : 48. 1826; Hook. f. Fl. Brit. India 5 : 268. 1887. Cooke, Fl. Pres. Bombay 3 : 68. 1958 (Repr. ed.). *Cluytia retusa* L. Sp. Pl. 1042. 1753.

Mar. : 'Kutgi'.

Medium sized trees 5-12 m tall, with fissured, brownish bark. Leaves $7-13 \times 3.5-7.5$ cm, elliptic-oblong or obovate, tomentose beneath. Flowers greenish-yellow; calyx greenish, tinged with red, fleshy. Drupes fleshy on persistent, enlarged calyx, globose, 0.6-1 cm across, glabrous with purple bracts.

Fls. & Frts. : August - February.

Illus. : Bedd. Flora Sylvat. t. 260. 1873 Trim. Fl. Ceyl 4 : 10. 1931.

Bridelia squamosa (Lam.) Gehr. in Engl. Bot. Jahrb. 41. Beibl. 95 : 30. 1908; *Cluytia squamosa* Lam. Encycl. 5 (2) : 54. 1790.

Deciduous trees, 6-10 m tall, with yellow bark. Leaves $5-20 \times 4-10$ cm, ovate-elliptic or elliptic-oblong, glabrous above and pubescent below. Flowers dark purple, 0.8-1 cm across; drupes subglobose, fleshy.

Fls. & Frts. : August - November.

Distrib. : Occasional; Karanja, Wanoja.

CHROZOPHORA A. L. Juss.

- | | |
|--|------------------------|
| 1. Erect herbs; sepals of the female flowers triangular, acute .. | <i>C. rotundifolia</i> |
| 1. Prostrate herbs; sepals of the female flowers linear, finely acuminate .. | <i>C. prostrata</i> |

Chrozophora prostrata Dalz. in Dalz. & Gibbs. *Bombay Fl.* 233. 1861; Cooke, *Fl. Pres. Bombay* 3 : 105. 1958 (Repr. ed.).

Stellately pubescent herbs. Leaves 0.6—3 × 0.5—3 cm, ovate or ovate-oblong, deeply bullate, pubescent above and woolly beneath. Flowers in short axillary racemes, bracteate, unisexual. Capsules 0.4—0.5 cm across, 3-lobed, densely woolly; seeds auriculate.

Fls. & Frts. : June - March.

Distrib. : Common in wet places, along nala; Karanja, Palodi Shelubudruk.

Chrozophora rottleri (Geis.) Juss. ex Spr. Syst. 3 : 850. 1826. *Croton rottleri* Geis. Crot. Monogr. 54. 1807. *Chrozophora plicata* Viogt. Hort. sub. Calc. 156. 1846; Cooke, *Fl. Pres. Bombay* 3 : 104. 1958 (Repr. ed.). (non A. L. Juss. 1824).

Annual herbs, 15-60 cm tall, stellately pubescent, leaves coriaceous, 2—4 × 1.5—5 cm, ovate, shallowly lobed; lobes obtuse, hairy on both the surfaces with cordate or cuneate base. Flowers unisexual, yellowish, in axillary and terminal spikes. Capsules 0.6—0.8 cm across, stellately hairy, ovoid-globose.

Fls. & Frts. : June - July.

Distrib. : Occasional, Narnala fort, Akot.

CROTON L.

Croton bonplandianus Baill. in Adans. 4 : 339. 1864. *Croton sparciflorus* in Ann. N. Y. Acad. Sci. 7 : 221; Wt. 2 : 383.

Branched, erect herbs 30-40 cm tall. Leaves ovate-lanceolate, serrate, whorled or opposite or upper ones alternate; hairy. Flowers white, in 5-8 cm long, androgynous spikes, monoecious; male fascicled above and solitary female flowers below. Capsules roundish, 3-angled. Seeds oblong, shining.

Fls. & Frts. : Almost throughout the year.

Distrib. : Occasional but gregarious; Karanja.

EUPHORBIA L.

- | | | |
|-----------------------------------|----|---------------------|
| 1. Armed, succulent shrubs | .. | <i>E. nerifolia</i> |
| 1. Unarmed, non succulent herbs : | | |

2. Leaves atleast the lower ones alternate :		
3. Bracts perfoliate	..	<i>E. perbracteata</i>
3. Bracts not as above	..	<i>E. heterophylla</i>
2. Leaves all opposite :		
4. Capsules glabrous		<i>E. bombaiensis</i>
4. Capsules hairy :		
5. Limbs of the gland conspicuous :		
6. Limbs of the gland fimbriate	..	<i>E. cristata</i>
6. Limbs of the gland not fimbriate	..	<i>E. parviflora</i>
5. Limbs of the gland 0 or if present then very minute :		
7. Prostrate herbs, seeds tetragonal	..	<i>E. thymifolia</i>
7. Erect or ascending herbs, seeds trigonal	..	<i>E. hirta</i>

Euphorbia bombaiensis Santapau, Bull. Bot. Soc. of Bengal 8 : 17. 1954.
E. microphylla Heyne in Roth, Nov. Pl. Sp. 229. 1821; Hook. f. Fl. Brit. India 5 : 252. 18; Cooke, Fl. Pres. Bombay 3 : 65. 1958 (Repr. ed.).

Glabrescent annuals. Stems prostrate. Leaves 0.1—0.5 × 0.1—0.4 cm, ovate, obovate, subsessile, stipulate. Flowers in axillary cymes. Capsules 0.5-1.8 cm across, keeled. Seeds smooth yellowish-brown, obtusely 4-angled.

Fls. & Frts. : June - March.

Distrib. : Frequent near wet places; Akola, Mahan, Palodi.

Euphorbia cristata Heyne ex Roth, Nov. Pl. Sp. 226. 1821; Hook. f. Fl. Brit. India 247. 1887; pro parte tantum; Santapau, Bull. Bot. Soc. Bengal 8 : 12. 1954; *Chamaesyce cristata* (Roth) Webster. J. Arnold Arbor. 48 : 424. 1967.

Ascending herbs with long flexuous hairs. Leaves 1—2 × 0.6—1.3 cm, ovate, cordate, serrulate. Involucre hairy, subsessile. solitary, in the axils of the uppermost, imbricate leaves. Capsules globose.

Fls. & Frts. : August - September.

Distrib. : Rare at Pinjar, S. Y. Kamble 149919.

Euphorbia heterophylla L. Sp. Pl. 453. 1753; R. Sm. Kew Bull. 26 : 264 1972. *Euphorbia geniculata* Orteg. Nov. Rar. Pl. Hort. Matrit. Decad. 18. 1797; Hook. f. Fl. Brit. India 5 : 266. 1887; Santapau, Bull. Bot. Soc. of Bengal 8 : 3. 1954; Cooke, Fl. Pres. Bombay 3 : 66. 1958 (Repr. ed.).

Mar. : 'Dudhi'.

Erect geniculate herbs, 30-50 cm tall. Leaves 2-10 × 1-5 cm, elliptic or obovate, glabrous. Inflorescences in terminal cymes. Capsules 0.4-0.5 cm across, 3-lobed. Seeds ovoid, obtusely trigonous, truncate at one end and pointed at other end, black, glabrous.

Fls. & Frts. : August - February.

Distrib. : Common in ghats, waste lands, Karla, Shelubudruk.

Euphorbia hirta L. Sp. Pl. 454. 1753. *E. pilulifera* auct. non L. Hook. f. Fl. Brit. India 5 : 250. 1887; Santapau, Bull. Bot. Soc. Bengal 8 : 15. 1954; Cooke, Fl. Pres. Bombay 3 : 64. 1958 (Repr. ed.).

Mar. : 'Dudhi'.

Annual herbs, 10-30 cm tall, ascending, branched, patently hairy, leaves, 0.6-2.5 × 0.3-2.2 cm, green, mottled with violet; oblique-elliptic, acuminate or acute and serrate. Involucres numerous in dense axillary clustered cymes. Capsules 3-lobed, hairy; seeds reddish-brown, ovoid, trigonous.

Fls. & Frts. : Throughout the year.

Illus. : Trim. Fl. Ceyl. 4 : 7. 1931.

Distrib. : Very common throughout the district.

Euphorbia nerifolia L. Sp. Pl. 45. 1753; Hook. f. Fl. Brit. India 5 : 255. 1887; Santapau Bull. Bot. Soc. Bengal 8 : 7. 1954; Cooke, Fl. Pres. Bombay 3 : 59. 1958 (Repr. ed.).

Deciduous shrubs; young stems 5-angled, 1.5-2.0 cm tall. Stipular thorns black, stout, straight or slightly curved. Leaves 8-16 × 3.5-8 cm, subfleshy, glabrous, obovate-lanceolate or spatulate, crowded at ends of the branches. Inflorescence of cymes in the axils of thorns. Capsules 0.8-1.0 cm across, trigonous, red, glabrous.

Fls. & Frts. : March

Illus. : Bedd. for man. Pl. Fl. Sylvet P. ccxvi; Wight, Icon. t. 1862. 1852;

Distrib. : Rare at Medshi, S. Y. Kamble 152711.

Euphorbia parviflora L. Syst. (ed. 10) 2 : 104. 1759. *E. hypericifolia* L. var. *parviflora* (L.) Hook. f. Fl. Brit. India 5 : 250. 1887; Santapau, Bull. Soc. Bengal 8 : 13. 1954; Cooke, Fl. Pres. Bombay 3 : 63. 1958 (Repr. ed.).

Ascending or erect annual herbs, 15-45 cm high; stems glabrous or sparsely pubescent. Leaves 0.4-3 × 0.3-1 cm, ovate to ovate-oblong, margins

smooth. Inflorescence axillary, pedunculate, many-flowered cymes; limbs of the gland white, orbicular. Capsules subglobose. Seeds reddish-brown glabrous.

Fls. & Frts. : August - March.

Illus. : Trim. Fl. Ceyl. 4 : 7. 1931.

Distrib. : Very common throughout the district.

Euphorbia perbracteata Gage in Kew Bull. 1914. 238. 1914; Santapau, Bull. Bot. Soc. Bengal 8 : 10. 1954.

Glabrous annual herbs, 25-35 cm tall. Leaves $2-6 \times 0.2-0.5$ cm, linear-lanceolate or linear. Inflorescence, terminal cymes. Involucral glands semicircular; bracts foliaceous. Capsules smooth. Seeds grey or brown.

Fls. & Frts. : December

Distrib. : Rare at Patur, S. Y. Kamble 152825.

Euphorbia thymifolia L. Sp. Pl. 454. 1753; Hook. f. Fl. Brit. India 5 : 252. 1887; Santapau Bull. Bot. Soc. Bengal 8 : 16. 1954; Cooke, Fl. Pres. Bombay 3 : 64. 1958 (Repr. ed.).

Radially spreading, hairy herbs. Leaves $0.2-0.6 \times 0.1-0.4$ cm, ovate-oblong or nearly orbicular. Inflorescences axillary, cymose. Capsules 3-lobed, hairy on the keels. Seeds glabrous, transversely furrowed, reddish-brown.

Fls. & Frts. : Almost throughout the year.

Illus. : Trim. Fl. Ceyl. 4 : 8. 1931.

Distrib. : Rare at Pinjar, S. Y. Kamble, 149928.

HOMONOIA Lour.

Homonola riparia Lour. Fl. Cochinch. 637. 1790; Hook. f. Fl. Brit. India 5 : 455. 1887; Cooke, Fl. Pres. Bombay 3 : 118. 1958 (Repr. ed.).

Mar. : Sarni.

Evergreen bushy shrubs, 1-3 m tall. Leaves $4.5-13 \times 0.7-1.5$ cm, lanceolate to linear-lanceolate, glabrous above and scaly below. Flowers sessile in axillary spikes, 4-6 cm long. Capsules globose, ca 3 cm across. Seeds angular, glabrous, yellowish-brown.

Fls. & Frts. : January - June.

Illus. : Wight, Icon. t. 1868. 1852.

Distrib. : Rare; Fatra, S. Y. Kamble, 160970; Katepurna river bed 153985.

JATROPHA L.

- | | |
|---|------------------------|
| 1. Flowers greenish-yellow; stems, petioles and leaf margins with peltate glands .. | <i>J. gossypifolia</i> |
| 1. Flowers red; stems, petioles and leaf margins without such glands .. | <i>J. curcas</i> |

Jatropha curcas L. Sp. Pl. 1006, 1753; Hook. f. Fl. Brit. India 5 : 383. 1887; Cooke, Fl. Pres. Bombay 3 : 95. 1958 (Repr. ed.).

Mar. : 'Mogalerand'.

Large shrubs or small trees, 1—3 m tall. Leaves 4—12 × 4—11 cm, 1—2.5 cm across, globose or ovoid and yellow.

Fls. & Frts. : Almost throughout the year.

Distrib. : Mostly cultivated as a hedge plant along the fence or an escape; Rare at Shelubudruk, S. Y. Kamble 150214.

Jatropha gossypifolia L. Sp. Pl. 1006. 1753; Hook. f. Fl. Brit. India 5 : 383. 1887; Cooke, Fl. Pres. Bombay 3 : 94. 1958 (Repr. ed.).

1—1.5 cm tall, erect shrubs; stems and branches reddish-brown. Leaves 6—11 × 6.5—12 cm, deeply palmately 3-lobed; lobes obovate, margins serrate. Flowers in trichotomous terminal cymes. Capsules 1—1.5 cm long, 3-lobed, glabrous. Seeds oblong, glabrous.

Fls. & Frts. : Almost throughout the year.

Distrib. : Rare along roadside as a weed; Chikhawal, S. Y. Vamble 150136.

KIRGANELIA Baill.

Kirganella reticulata (Poir.) Baill. Etud. Gen. Eupl. 613. 1838. *Phyllanthus reticulatus* Poir. in Lam. Encycl. 5 : 298. 1804; Hook. f. Fl. Brit. India 5 288. 1887; Cooke, 3 : 81. 1958 (Repr. ed.). *Anisonema multiflora* Wight, Icon. 1852.

Straggling shrubs. Leaves $1-3 \times 0.5-1.0$ cm, oblong or elliptic, obtuse or acute. Flowers greenish-yellow, axillary; males 2-6, Clustered. Female flowers solitary. Fruits 0.4-0.5 cm across, globose, glabrous and smooth.. Seeds trigonous, finely granulate.

Fls. & Frts. : June - March.

Illus. : Trim. Fl. Ceyl. 4 : 19. 1931; Wight, Icon. t. 1899. 1852.

Distrib. : Not common, near moist situations; Adna dam side, Karanja Palodi.

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.) *Croton philippense* Lam. Encycl. 2 : 206. 1786.

Mar. : 'Shendri'.

5-10 m tall, deciduous trees, bark grey, young parts rusty-pubescent. Leaves $5-20 \times 3-12$ cm. ovate or ovate-lanceolate, acuminate, glandular beneath. Flowers in terminal spikes, clustered together, 4-9 cm long. Capsules pubescent, glandular red, 3-valved, 0.6-1.2 cm across. Seeds subglobose, black.

Fls. & Frts. : November - January.

Illus. : Trim. Fl. Ceyl. 4 : 68. 1931.

Distrib. : Rare Narnala fort; Akot S. Y. Kamble 160916, 160810.

PHYLLANTHUS L.

1. Trees; fruits fleshy	..	<i>P. emblica</i>
1. Herbs or shrubs; fruits not fleshy :		
2. Stipules peltate :		
3. Leaves obovate, cuneate; seeds with tubercles in regular lines; pedicels upto 2 mm long	..	<i>P. maderaspatensis</i>
3. Leaves linear-oblong; seeds with tubercles in irregular lines; pedicels 3-7 mm long	..	<i>P. virgatus</i>
2. Stipules lanceolate or subulate	..	<i>P. fraternus</i>

Phyllanthus emblica L. Sp. Pl. 982. 1753; Hook. f. Fl. Brit. India 5 : 289 1887; Cooke, Fl. Pres. Bombay 3 : 81. 1958 (Repr. ed.). *Emblica officinalis* Gaertn. Fruct. 2 : 122. 1791.

Mar. : 'Amla'.

Deciduous trees, 8—15 m tall, bark flaking. Leaves compound; pinnae $0.8-1.6 \times 0.2-0.3$ cm, oblong. Flowers greenish-yellow; male flowers fascicled at base, pedicelled; female flowers upwards, solitary, sessile. Fruits 2—5 cm across, spherical.

Fls. & Frts. : March - May.

Illus. : Wight, Icon. t. 1896. 1852; Trim. Fl. Ceyl. 4 : 19. 1931.

Distrib. : Occasional, Chikhawal & Karla in the forest.

Phyllanthus maderaspatensis L. Sp. Pl. 982. 1753; Hook. f. Fl. Brit. India 5 : 292. 1887; Cooke, Fl. Pres. Bombay 3 : 82. 1958. (Repr. ed.).

Erect branched, annual herbs. Leaves $0.5-2.3 \times 0.2-1$ cm, obtuse or acute or emarginate, glabrous. Flowers creamy-white, axillary on short pedicels, solitary. Capsules $0.2-0.3$ cm across, depressed, globose, glabrous 6-valved.

Fls. & Frts. : June - February.

Illus. : Wight, Icon. t. 1895; 1852; Trim. Fl. Ceyl. 4 : 20. 1931.

Distrib. : Common in moist situations & cultivated fields; Chikhawal, Palodi, Patur, Schelubudruk.

Phyllanthus fraternus Webster in Contrib. Gray Herb. 176. 53. 1955; *P.-niruri* auct. non L. 1753; Hook. f. Fl. Brit. India 5 : 298. 1887; Cooke, Fl. Pres. Bmbay 3 : 84. 1958 (Repr. ed.).

Mar. : 'Bhuiavali'.

Annual, glabrous herbs about 15-40 cm tall. Leaves $0.4-1.5 \times 0.15-10$ 1.0 cm, glabrous, elliptic-oblong, obtuse, subsessile, distichous, stipulate. Flowers solitary, axillary, greenish-yellow, unisexual; males 1-3 together and female solitary. Capsules $0.3-0.5$ cm across, depressed-globose, smooth, glabrous. Seeds 3-gonous.

Fls. & Frts. : January - March.

Illus. : Wight, Icon. t. 1894. 1852; Trim. Fl. Ceyl. 4 : 23. 1931.

Distrib. : Common in moist situation; Akola, Karla, Narnala fort, Shahanur.

Phyllanthus virgatus Forst. f. Fl. Ins. Austr. Prodri. 65. 1776. Rau in Bull. Bot. Surv. India 10 (Suppl. 2) : 72. 1969. *Phyllanthus simplex* Retz. Obs. 5 : 29. 1789; Hook. f. Fl. Brit. India 5 : 295. 1887; Cooke, Fl. Pres. Bombay 3 : 83. 1958 (Repr. ed.).

Erect herbs, 15—35 cm tall, glabrous. Leaves $0.5-2.0 \times 0.2-0.6$ cm distichous, elliptic, oblong-obtuse or acute, glabrous. Flowers creamy-white, axillary. Capsules globose, minutely tubercled. Seeds trigonous, glabrous, tubercled and dark brown.

Fls. & Frts. : June - March.

Illus. : Trim. Fl. Ceyl. 4 : 22. 1931.

Distrib. : Common as forest undergrowth in moist situations; Karla, Mangarulpur, Palodi, Pinjar.

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.).

Mar. : 'Erand'.

1.5—4 m tall, shrubs. Leaves 10—30 cm across, palmately lobed, peltate; lobes serrate, lanceolate, acuminate. Flowers yellowish. Fruits 0.8—1 cm long, 5-furrowed. Seeds 0.8 cm long, oblong, greenish-brown, glabrous, mottled white, carunculate.

Fls. & Frts. : Throughout the year.

Illus. : Trim. Fl. Ceyl. 4 : 72. 1931.

Distrib. : Rare at Narnala fort, S. Y. Kamble 150454.

SECURINEGA Comm. ex A. Juss. *nom. cons.*

Securinega virosa (Willd.) Baill. in Adansonia 6 : 334. 1865—66, *quoad synon. tantum. emend.* Pax & Hoffm. in Engl. Pflanzenfam. ed. 2, 19C : 60. 1931; Airy Shaw in Kew Bull. 56 : 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.). *Chorisandra pinnata* Wight, Icon. 1853.

Mar. : 'Pandharphalli'.

Much branched shrubs, 1—2 m tall. Leaves $2-5.2 \times 1-4.3$ cm, obovate, to elliptic-oblong to or nearly orbicular, glabrous, base acute. Flowers, greenish-yellow, in axillary clusters, unisexual; male flowers with 3—5 stamens; female flowers with glabrous ovary, styles 3, each deeply 2-lobed. Capsules 0.3—0.5 cm across, globose. Seeds with fleshy pericarp.

Fls. & Frts. June - September.

Illus. Wight, Icon. t. 1994, 1853. Bedd. For. Man. in Flor. Sylvat. P. cxvii.

Distrib. Common as an undergrowth; Karanja, Mangarulpur, medshi, Palodi, Shahanur, Shelubudruk.

TRAGIA L.

Tragia hildebrandtii Muell.-Arg. in Brenan Abb. 7 : 26. 1880.
Tragia cannabina L. f. Suppl. 415. 1781. (nom. illegit.); Cooke, Fl. Pres. Bombay 3 : 120. 1958 (Repr. ed.). *Tragia involucrata* L. var. *cannabina* Muell.-Arg. in DC, Prodr. 25 (2) : 944. 1866; Hook. f. Fl. Brit. India 5 : 465. 1837.

Mar. : 'Khajkhuiti'.

Straggling or erect shrubs, 1—3 m tall, hispid; stems stout. Leaves palmately deeply lobed; lobes dentate, lanceolate, middle lobe longer, 3—8 cm long. Racemes 2.5—5 cm long, axillary and terminal. Fruits densely hairy, 3-lobed; seeds globose, glabrous.

Fls. & Frts. June - November.

Distrib. Occasional bush, Fetra, Karanja.

ULMACEAE

1. Leaves elliptic, dark green on both sides; flowers clustered on leafless branches; fruits samara type .. *Holoptelea*
1. Leaves ovate-lanceolate or oblong-lanceolate, silky-tomentose beneath; flowers on leafy branches; fruits a drupe .. *Trema*

HOLOPTELEA Planch.

Holoptelea integrifolia (Roxb.) Planch. in Ann. Sci. Nat. (ser. 3) 10 : 266. 1948; Hook. f. Fl. Brit. India 5 : 481. 1886; Cooke, Fl. Pres. Bombay 3 : 127. 1958 (Repr. ed.). *Ulmus integrifolia* Roxb. Pl. Cor. I : 56. t. 78. 1795.

Deciduous trees upto 60 m tall with greyish-white, smooth bark. Leaves 5.5—13 x 3.5—6.5 cm, coriaceous, flat, broadly oblong or elliptic, deeply notched at apex. Seeds 0.5—0.9 cm long, ovate or ovate-oblong, winged.

Fls. & Frts. : December-May.

Distrib. : Occasional; Shahanur, Narnala etc.

TREMA Lour.

Trema orientalis (L.) Bl. Mus. Lugd.; Bot. 2 : 62. 1856; Hook. f. Fl. Brit. India 5 : 484. 1886; Cooke, Fl. Pres. Bombay 3 : 129. 1958 (Repr. ed. *Celtis orientalis* L. Sp. Pl. 1044. 1753).

Evergreen trees, 5—10 m tall, with ash-coloured, rough bark. Leaves 5—13 × 3.5—5.5 cm, sharply serrate. Flowers greenish-yellow or creamy-white. Fruits 0.5—1 cm across, smooth, glabrous, ovoid or globose, almost black when ripe.

Fls. & Frts. : September - March.

Illus. : Wight, Icon. t. 1971. 1853.

Distrib. : Occasional in hill forest; Narnala, Shahanur etc.

MORACEAE

FICUS L.

1. Leaf apices caudate-acuminate or long acuminate :

 2. Apical tails upto half as long as main part of blade .. *F. religiosa*
 2. Apical tails not more than $\frac{1}{3}$ as long as main part of the blade .. *F. arnotiana*

1. Leaf apices not as above :
 3. Receptacles sessile or very shortly pedunculate :
 4. Leaves tomentose beneath, atleast when young .. *F. benghalensis*
 4. Leaves glabrous .. *F. amplissima*
 3. Receptacles distinctly pedunculate :
 5. Receptacles in clusters on old trunks or special branches .. *F. racemosa*
 5. Receptacles clustered, all axillary or on branches and stems near the base .. *F. hispida*

Ficus amplissima Sm. in Rees, Ceylp. 14 (1) : no. 1. 1809. *F. tsieila* Roxb. Fl. Ind. 3 : 549. 1832; Hook. f. Fl. Brit. India 5 : 515. 1886; Cooke, Fl. Press. 1958 (Repr. ed.)

Mar. : '*Pimpri*'.

Large spreading trees without aerial roots. Leaves 7—15 × 3—8 cm, coriaceous, broadly and shortly acuminate. Receptacles sessile, axillary, solitary, crowded at the ends of branches, purple when ripe.

Fls. & Frts. : April - October.

Distrib. : Occasionally planted near fields; Chikhaval, Patur etc.

Ficus arnottiana Miq. in Ann. Mus. Lugd. Bot. 3 : 287. 1867; Hook. f. Fl. Brit. India 5 : 513. 1886; Cooke, Fl. Pres. Bombay 3 : 149. 1958. (Repr. ed.).

Mar. : 'Pair'.

Glabrous, deciduous trees. Leaves 8—16 × 5—10 cm, shortly cordate-acuminate, bright red and coriaceous when young, at length green, glabrous. Receptacles globose, flat at apex, about 1 cm in diameter.

Fls. & Frts. : June - September.

Distrib. : Occasional in the ravine slopes; Akot, Narnala etc.

Ficus benghalensis L. Hort. Cliff. 471, no. 4. 1737 et. Sp. Pl. 1059 1753; Hook. f. Fl. Brit. India 5 : 599. 1888; Cooke, Fl. Pres. Bombay 3 : 145. 1958 (Repr. ed.).

Mar. : 'Wad'.

Large trees sending down many aerial roots from branches and thus extending the growth of the tree indefinitely. Leaves 10—20 × 5—12 cm, coriaceous, ovate or orbicular-ovate to elliptic, obtuse, entire. Receptacle 1.5—2 cm in diameter, sessile in pairs, axillary, globose, puberulous, red, when ripe and with three bracts at the base.

Fls. & Frts. : April - June.

Illus. : Wight, Icon. t. 1989. 1853.

Distrib. : Occasionally seen near villages and fields; Patur, Wanaja etc.

Ficus hispida L. f. Suppl. 442. 1781; Hook. f. Fl. Brit. India 5 : 522. Cooke, Fl. Pres. Bombay 3 : 154. 1958 (Repr. ed.). *Ficus oppositifolia* Willd. Sp. Pl. 4 : 1151. 1804.

Mar. : 'Bokeda or Kala-umber'.

Shrubs or small trees without aerial roots; all parts hispid-pubescent. Leaves 10—30 × 3—15 cm, mostly opposite, petiolate, oblong-lanceolate to ovate or obovate or elliptic, blunt or acuminate, serrate. Receptacles paired, globose, upto 2.3 cm in diameter; slightly depressed at apex, yellow when ripe.

Fls. & Frts. : February - July.

Illus. : Wight, Icon. t. 638. 1843.

Distrib. : Common along banks of streams; Chikhawal, Karla, Karanja etc.

Ficus racemosa L. Sp. Pl. 1059. 1753. *Ficus glomerata* Roxb. Cor. Pl. 2 13. t. 123. 1789; Hook. f. Fl. Brit. India 5 : 535. 1888; Cooke, Fl. Pres. Bombay 3 : 154. 1958 (Repr. ed.).

Mar. : 'Umber'.

Evergreen trees 10-15 cm tall with young shoots puberulous. Leaves 4.5—15 × 3.5—7 cm, ovate-oblong, or elliptic-lanceolate, acute at apex, glabrous. Receptacles shortly pedunculate on short leafless warted branches, pyriform or subturbinate, 2—3 cm across, orange-red when ripe, ovate-triangular.

Fls. & Frts. : February - June.

Illus. : Wight, Icon. t. 667. 1843.

Distrib. : Common along streams and river banks; Kinhiraja, Patur, Shahanur etc.

Ficus religiosa L. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5 : 513. 1888; Cooke, Fl. Pres. Bombay 3 : 149. 1958 (Repr. ed.).

Mar. : 'Pimpal'.

Large glabrous trees. Leaves 10—18 × 7—10 cm, coriaceous, ovate-round, narrowed upwards and the apex produced into a linear-lanceolate part. Receptacles globose, 1-1.2 cm in diameter, dark-purple when ripe.

Fls. & Frts. : April - August.

Illus. : Wight, I con. 1967. 1853.

Distrib. : Planted near temples etc.; Kinhiraja.

Notes : Root, bark, leaves and fruits are used in medicine.

CANNABINACEAE

CANNABIS Tournef.

Cannabis sativa L. Sp. Pl. 1027. 1753; Hook. f. Fl. Brit. India 5 : 487. 1888; Cooke, Fl. Pres. Bombay 3 : 160. 1958 (Repr. ed.). *Cannabina indica* Lamk. Encycl. Method. 1 : 695. 1783.

Mar. : 'Ganja or Charas'.

Tall, erect annual herbs upto 2 m in height, cultivated for the intoxicating drugs known as Ganja or Charas. Stems and branches angular. Leaves alternate or the lower opposite, upper 1—3-partite and lower 5—11-partite,

serrate, palmatinerved. Flowers small, axillary, dioecious. Achenes compressed, crustaceous.

Fls. & Frts. : August - October.

Distrib. : Cultivated for intoxicating drugs; Patur.

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.). *C. verticillatum* Roxb. Fl. Ind. 3 : 624. 1832.

Submerged water plants, 20—90 cm long forming a much branched tangle of slender branches and leaves. Leaves 2—2.5 cm long; segments linear, toothed. Male flowers on separate axile from the female flowers but on the same plant. Fruits ellipsoid, slightly compressed, biconvex, with narrowly winged margins.

Fls. & Frts. : May - October.

Distrib. : Occasional in the lake near Karanja.

HYDROCHARITACEAE

- | | | |
|--|----|--------------------|
| 1. Flowers unisexual; stamens 1-3; fruits not winged | .. | <i>Vallisneria</i> |
| 1. Flowers bisexual; stamens 6-15; fruits winged | .. | <i>Ottelia</i> |

OTTELIA 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.). *Stratiotes alismoides* L. Sp. Pl. 553. 1753.

Flaccid, fleshy, submerged aquatic herbs, roots fibrous. Leaves 5—13 × 4—12 cm, variable, oblong, orbicular, cordate, petiolate; petioles trigonous. Spathes 2.5—5 cm long with undulate wings, 5—6-winged. Peduncles 20—35 cm long. Sepals oblong, green; petals 2—5 cm across, white and orbicular. Sepals oblong, green; petals 2—5 cm across, white and orbicular. Fruits 2.5—3 cm long, ellipsoid.

Fls. & Frts. : November - April.

Illus. : Trim. Fl. Ceyl. 4 : 125. 1931.

Distrib. : Rare, S. Y. Kamble 160825; Rhishi lake, Karanja.

VALLISNERIA L.

Vallisneria spiralis L. Sp. Pl. 1015. 1753; Hook. f. Fl. Brit. India 5 : 660. 1888; Cooke, Fl. Pres. Bombay 3 : 171. 1958 (Repr. ed.).

Mar. : 'Sheval'.

Submerged, stoloniferous, aquatic herbs with radical, linear leaves, varying in length, reaching $0.3-1.0 \times 30$ cm. Male flowers with didymous anthers; filaments thick; female flowers with three staminodes, each 2-fid; stigmas 3-toothed. Scapes long, slender, spirally coiled. Fruits linear.

Fls. & Frts. : November - April.

Distrib. : Occasional (Rhishi lake), Karanja, Morna.

ORCHIDACEAE

1. Lips spurred : spurs projecting beyond lateral sepals	..	<i>Habenaria</i>
1. Lips not spurred, often saccate at the base; sac never projecting beyond the lateral sepals :		
2. Leaves & flowers not appearing together	..	<i>Nervilia</i>
Leaves & flowers appearing together	..	<i>Zeuxine</i>

HABENARIA Willd.

1. Petals entire	..	<i>H. longicorniculata</i>
1. Petals 2-partite :		
2. Flowers pure white, greenish or rarely brownish-white, odourless or foul scented in day time; petal segments subequal, not filiform; spurs distinctly clavate at apex	..	<i>H. gibsonii</i>
2. Flowers white or green faintly or not at all scented; lower segments of petals 2-3 times longer than upper ones; spurs clavate or globular at apex :		
3. Leaves several, clustered about middle of stem; flowers brownish-green scentless, petal segments & lip filiform, variously contorted	..	<i>H. multicaudata</i>
3. Leaves 1-2, radical, flowers white, faintly scented; upper segment of petal somewhat triangular ovate;	..	<i>H. grandifloriformis</i>

Habenaria gibsonii Hook. f. Fl. Brit. India 6 : 135. 1890; Santapau & Kapadia, Orchids of Bombay 12. 1964. *H. digitata* Cooke, pro parte (non Lindle 1835) Fl. Pres. Bombay 3 : 220. 1958 (Repr. ed.).

Terrestrial herbs, 14-40 cm high. Tubers cylindrical. Leaves 3-5-15 \times 1-5-3.5 cm, alternate, pentastichous, ovate to oblong-lanceolate, acute.

rarely acuminate; margins wavy, paler in colour. Flowers white, bracteate, shortly stalked.

Fls. & Frts. : July - September.

Distrib. : Occasional at Narnala fort.

Habenaria grandifoliformis Blatt. & McCann. in J. Bombay nat. Hist. Soc. 36 : 17. 1932, charact. emend. Sant. & Kapad. Orchids of Bombay 17. 1966. *Habenaria grandiflora* Lindl. in Wall. Cat. n. 7032. 1828; nom. nud., Hook. f. Fl. Brit. India 6 : 136. 1890; Cooke, Fl. Pres. Bombay 3 : 221. 1958 (Repr. ed.).

Terrestrial herbs with globose or ellipsoid, $1.8-3 \times 0.8-2$ cm, tubers, Leaves 1—2, opposite, lying flat on the ground, coriaceous $2-9 \times 1.5-8$ cm, broadly ovate to suborbicular, acute or obtuse, 8—12 nerved. Flowers white, faintly perfumed, pedicillate on 5—20 cm long, erect, rigid terete scape. Capsules $2-2.8 \times 5$ cm, strongly ribbed.

Fls. & Frts. : June - November.

Illus. : Sant. & Kapad. 1966 (*loc. cit.*)

Distrib. : Occasional at Narnala fort.

Habenaria longicorniculata Graham, Cat. Bombay Pl. 202. 1839; Santapau & Kapadia, Orchids of Bombay 29. 1964. *H. longecalcarata* A. Rich. in Ann. Sc. Nat. (ser. 2) 15 : 71. t. 3B. 1841; Hook. f. Fl. Brit. India 6 : 141. 1890; Cooke, Fl. Pres. Bombay 3 : 223. 1958 (Repr. ed.).

Terrestrial, 30—115 cm heigh, herbs. Tubers 1—2 unequal. Leaves 3—10, pentastichously clustered near the base of stem, $3-23 \times 1.5-4$ cm, oblong or oblong-lanceolate. Flowers 1—4, faintly scented, bracteate. Capsules 25—30 cm long, narrowly fusiform, stalks 3 cm long, beaks 0.5 cm long.

Fls. & Frts. : July - October.

Illus. : Wight, Icon. t. 925. 1844 - 45.

Distrib. : Occasional in grasses; Narnala fort.

Habenaria multicandata Sedgew. in Rec. Bot. Surv. India 6 : 752. 1919; Blatt. & McCann. 16. Pl. 6. fig. a:21. 1931-32; Santapau & Kapad. Orchids, Bombay 14 : 1964.

Terrestrial herbs upto 65 cm tall. Leaves pentastichously clustered about the middle of the stem, tapering at the base into distinct 0.5—1 cm long,

pseudo-petiole, elliptic-oblong, acute or sub-acuminate, $4-15 \times 1.5-4$ cm
Flowers pale brownish-green, pedicillate in racemes.

Fls. & Frts. : Agust - September.

Illus. : Blatt. & McCann 1931 - 32. (*loc. cit.*)

Distrib. : Rare at Narnala fort (*Kamble*, 150473 A, *BSI*).

NERVILIA Comm. ex Gaud.

Nervilia aragoana Gaud. in Bot. Voy. Freycinet 422. t. 36. 1826.; Sant. & Kapad. in Orchi. Bombay 134. 1964; *Pogonia flabelliformis* Lindl. (in Wall. Cat. 7400. 1832. *nom. nud.*; et) Gen. Sp. Pl. Orchid, 415. 1840; Hook. f. Fl. Brit. India 6 : 121. 1890. *P. carinata* Wight, Icon. 5 (1) : 15. t. 1720. 1851.

Terrestrial herbs, tubers white, subglobose, Leaves erect, petiolate; lamina $9-12 \times 8-11$ cm, cordate, broadly ovate, almost orbicular, acute, acuminate, glabrous; nerves upto 18 in number. Scapes 10—25 cm tall, two-sheathed, green above and light purple below. Flowers drooping green, shortly stalked in racemes.

Fls. & Frts. : June - July.

Illus. : Wight, (*loc. cit.*)

Distrib. : Occasional on the fort; Narnala.

ZEUXINE Lindl. Corr. Rooper, *nom. cons.*

Zeuxine strateumatica (L.) Schltr. in Fedde, Repert. Beih. 1 : 77. 1911; Sant. & Kapad. in Journ. Bombay nat. Hist. Soc. 59 : 161. 1962. & Orch. of Bombay 167. 1964; *Orchis strateumatica* L. Sp. Pl. 2 : 943. 1753. *Zeuxine sulcata* Lindl. Gen. Sp. Orch. 485. 1840; Hook. f. Fl. Brit. India 6 : 106. 1890; Cooke, Fl. Pres. Bombay 3 : 213. 1958 (Repr. ed.).

Terrestrial herbs, 9-25 cm tall. Leaves linear, $2-9 \times 0.4-0.6$ cm, acuminate, clasping, sessile with hyaline truncate sheaths, generally passing into linear bracts upwards. Flowers white, in terminal, short, dense spike-like, 1.5-5 cm long racemes. Capsules ellipsoid, 0.7-0.4 cm, round at both ends with very short beak at apex.

Fls. & Frts. : January - February.

Illus. : Wight, Icon. t. 1725-1851.

Distrib. : Common grassy nalabs; Patur, Morna etc.

ZINGIBERACEAE

CURCUMA L.

Curcuma pseudomontana Grah. Cat. Pl. Bombay 210. 1839; Cooke Fl. Pres. Bombay 3 : 236. 1958 (Repr. ed.). *Curcuma montana* Baker in Hook. f. Fl. Brit. India 6 : 214. 1890 (P. P. non Rosc.)

Herbs, roots with subglobose tubers. Leaves 16—25 × 7—10 cm, petiolate; petioles 7-15 cm long, elliptic-oblong to oblong-lanceolate, acuminate. Flowers 2-3 together in a bract, in oblong spikes, 6—10 × 2.5—3 cm; peduncles 8-10 cm long. Flowering bracts obovate-lanceolate, mauve-purple in colour. Fruits ovoid.

Fls. & Frts. : June - September.

Distrib. : Rare, S. Y. Kamble 153865. Khaperdari.

AMARYLLIDACEAE

1. Anther filaments filiform, free	..	<i>Crinum</i>
1. Anther filaments filiform, connate below into a petaloid membranous cup	..	<i>Pancratium</i>

CRINUM L.

Crinum defixum Ker-Gawler, J. Sci. Arts. (London) 3 : 105. 1817; Hook. f. Fl. Brit. India 6 : 281. 1892; Cooke, Fl. Pres. Bombay 3 : 257. 1958 (Repr. ed.).

Scapigerous herbs with underground tunicated ovoid bulbs 2.5-5 cm across with fusiform base, necks 2-5-8 cm long, cylindric. Leaves 30-45 cm long, linear; scapes 30-70 cm long. Flowers white, fragrant in 6-12-flowered umbel; perianth lobes linear; filaments bright-red. Fruits subglobose, 2.5-3 cm across.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 4 : 271. 1931.

Distrib. : Rare, S. Y. Kamble 160972; Katapurna river bed, Fetra, Mangarulpur.

PANCRAZIUM L.

Pancratium longiflorum Roxb. Fl. Ind. 2 : 125. 1832; Hook. f. Fl. Brit. India 6 : 286. 1982..

Scapigerous herbs with globose, tunicated bulbs, 3-6 cm across, necks long cylindric 3-12 cm long and 2 cm broad. Leaves 20—30 × 1—2.5 cm, narrowly linear lanceolate or oblanceolate. Scapes shorter than the leaves 10-15 cm. Flowers white, perianth 12-15 cm long, staminal cups about 3 cm long with bifid teeth between the filaments.

Fls. & Frts. : June-July.

Distrib. : Occasional Kalamatha, Narnala, fort.

HYPOXIDACEAE

CURCULIGO Gaertn.

Curculigo orchoides Gaertn. Fruct. 1 : 63. 1788; Hook. f. Fl. Brit. India 6 : 279. 1892; Cooke, Fl. Pres. Bombay 3 : 255. 1958 (Repr. ed.). *Curculigo brevifolia* Dryand, in Ait. Hort. Kew ed. 2, 5 : 253. 1811.

Herbs with stout elongated tuberous root stock and with fleshy root fibres. Leaves sessile or petiolate, 10—60 × 1—5 cm, linear lanceolate or broadly elliptic-lanceolate, membranous; scapes short, 6-8 cm, with pedicellate, bright yellow flowers; perianth segments elliptic-oblong. Anthers linear, filaments short; stigmas 3-cleft; capsules 1-3 cm long, beaked.

Fls. & Frts. : June - September.

Illus. : Wight, Icon. 6 : 22. t. 2040. 1853; Trim. Fl. Ceyl. 4 : 269. 1931..

Distrib. : Common; Chikhaliwal, Manora, Narnala, Patur, Wanaja

AGAVACEAE

AGAVE L.

Agave cantala Roxb. Hort. Beng. 25. 1814; Cooke, Fl. Pres. Bombay 3 : 261. 1958 (Repr. ed.).

Rhizomatous succulent shrubs. Leaves 1-2 m long, 5-10 cm broad, lanceolate, margins remotely spinulose; spinules antrotorsely placed, curved. Leaves arranged in a rosette, scapes 1.5-2 m tall, branched upwards. Flowers greenish, fleshy; perianth lobes 6, oblong-linear, obtuse. Anthers 1.3 cm long, exerted; stigmas clavate.

Fls. & Frts. : January - June.

Distrib. : Rare, S. Y. Kamble I53966, Khaperdari.

DIOSCOREACEAE

DIOSCOREA L.

1. Leaves trifoliate ..	<i>D. hispida</i>
1. Leaves unifoliate ..	<i>D. bulbifera</i>

Dioscorea bulbifera L. Sp. Pl. 1033. 1753; Cooke, Fl. Pres. Bombay 3 : 265. 1958 (Repr. ed.). *D. sativa* Thunb. Fl. Jap. 151, 1784, non L. 1753; Hook. f. Fl. Brit. India 6 : 295. 1892. (excl. *D. cliffortiana*).

Extensive bulbiferous climbers bearing warted bulbils in the leaf axils. Leaves alternate, 3-12 × 5-8 cm, broadly ovate, acuminate, caudate, membranous, base cordate with deep or shallow broad sinus. Male flowers purplish or greenish, in 2.5-6 cm long spikes, bracteate; perianth segments fleshy. Female flowers in axillary solitary, or fascicled, 10-25 cm long pendulous spike. Capsules quadrate, oblong. Seeds winged.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 878. 1845; Trim. Fl. Ceyl. 279. 1931.

Distrib. : Frequent; Khadki Karla, Medshi.

Dioscorea hispida Dennst. Sch. Hort. Malab. 15. 1818. *D. daemonum* Roxb. Fl. Ind. 3 : 805. 1832; Hook. f. Fl. Brit. India 6 : 289. 1892; Cooke, Fl. Pres. Bombay 3 : 264. 1958 (Repr. ed.).

Twiners with prickly stems, roots lobed, tuberous. Leaves compound; leaflets 10-20 × 5-12 cm, cuneate-obovate, caudate, petiolate; common petiole 10-18 cm long, lateral leaflets with oblique bases. Male flowers dense, 0.4-0.8 cm long, on a villous, 12-40 cm long raceme; perianth lobes fleshy; stamens 6. Female flowers distant in solitary spikes. Capsules 5-2.5 cm, quadrate-oblong, smooth. Seeds winged.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 811. 1844.

Distrib. : Occasional; Chikhawal, Medshi.

LILIACEAE

1. Herbs with thick succulent leaves; leaf margins spinous dentate ..	<i>Aloe</i>
1. Herbs without thick succulent leaves; leaf margins not spinous dentate :	
2. Armed straggling undershrubs; fruits, a berry ..	<i>Asparagus</i>
2. Unarmed herbs; fruits either septicidal or loculicidal capsules :	

3. Climbers with leaf apex forming a tendril ..	<i>Gloriosa</i>
3. Erect herbs; leaf apex not as above :	
4. Scapigerous herbs :	
5. Leaves caudine ..	<i>Dipeadi</i>
5. Leaves radical :	
6. Herbs with tunicated bulbs :	
7. Capsules triquetrous; seeds flat ..	<i>Drimia</i>
7. Capsules not triquetrous; seeds ovoid or globose, nerves flat ..	<i>Scilla</i>
6. Herbs without tunicated bulbs, flowers fascicled in the axils of the bracts :	
8. Capsules 3-winged ..	<i>Chlorophytum</i>
8. Capsules not winged ..	<i>Asphodelus</i>
4. Non scapigerous herbs ..	<i>Iphigenia</i>

ALOE L.

Aloe vera L. Sp. Pl. 320.1753; Cooke, Fl. Pres. Bombay 3 : 283. 1958 (Repr. ed.). *A. barbadensis* Mill. Gard. Dict. No. 2. 1768.

Mar. : 'Korhad'

Acaulescent shrubs, leaves ensiform, upto 6 cm broad, arranged in a rosette. Scapes upto 1 m high, simple or branched. Flowers in 15-30 cm long racemes; perianth cylindric, yellow, ca 2.5 cm long, flowers bracteate.

Fls. & Frts. : November - March.

Distrib. : Occasional Akot, Karanja.

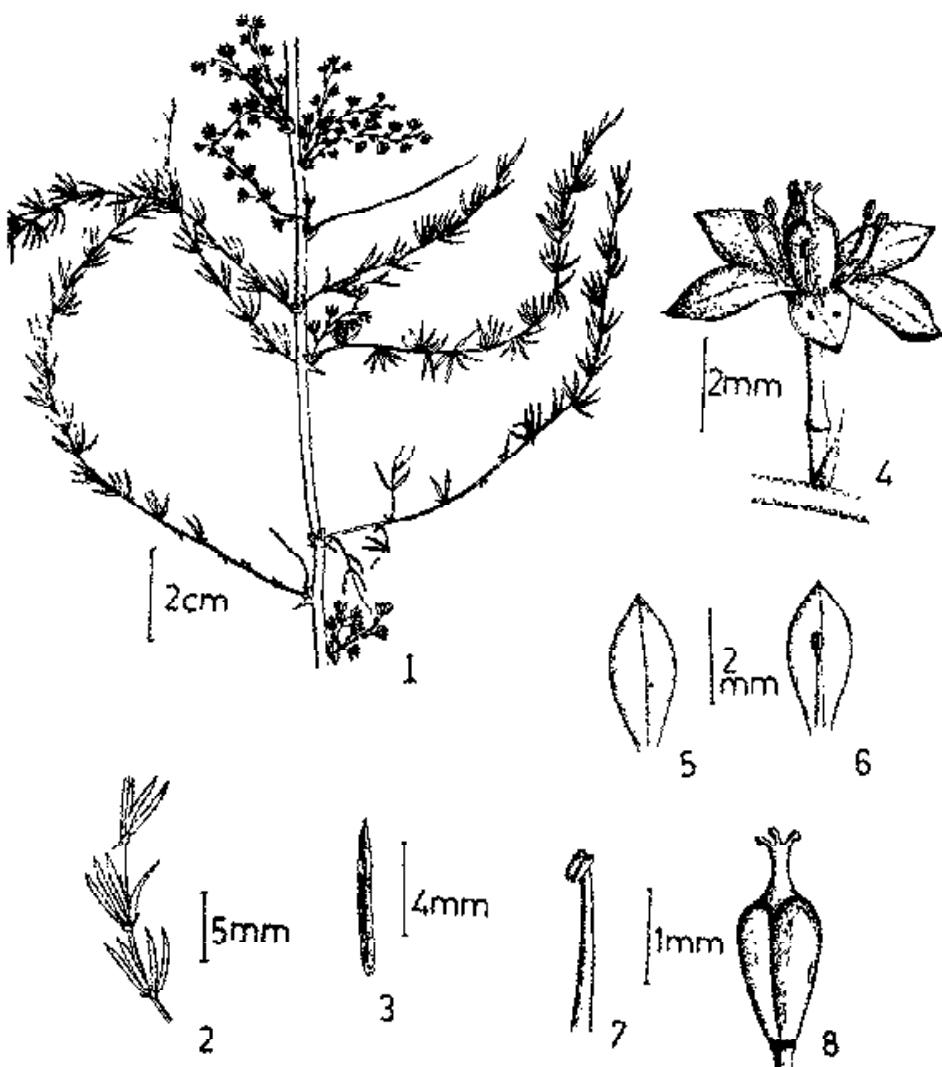
ASPARAGUS L.

1. Cladodes 2-6-nate, falcate, sometimes slightly compressed, 13-30 mm long; branchlets angular; bracts minute; pedicels slender, jointed at or above the middle ..	<i>A. racemosus</i> Var. <i>Javanicus</i>
1. Cladodes 3-6-nate, stout, acuminate, spreading, 6-9 mm long; bracts comparatively large; pedicels jointed at or below the middle ..	<i>A. laevissimus</i>

Asparagus laevissimus Steud. in Hohen. Pl. Nilg. Exsic. no. 1304; Hook. f. Fl. Brit. India 6 : 317. 1892; Cooke, Fl. Pres. Bombay 3 : 270. 1958 (Repr. ed.).

Mar. : 'Shatavari'

Subscandent bushes with terete stems, branches striate. Leaves with deflexed spinous spurs, leaves scaly, deciduous. Cladodes 3-6 nate, 0.5-0.7 cm long. Flowers in dense racemes, 2.5-5 cm long, pedicellate, solitary or in pairs; anthers subglobose, stigmas 3. Fruits globose 0.4-0.6 cm across.



Asparagus laevissimus Steud. 1. Branch with flowers in racemes, 2. Portion of branchlet, 3. Single cladode, 4. Complete flower, 5. Perianth, 6. Perianth with attached stamen, 7. Stamen & 8. Pistil.

Fls. & Frts. : June - August.

Distrib. : Common; Chikhawal, Medshi, Palodi, Pinjar, Wanoja

Asparagus racemosus Willd. var. *javanicus* (Kunth) Baker, Journ. Linn. Soc. 14 : 624. 1875; Hook. f. Fl. Brit. India 6 : 316. 1892; Cooke, Fl. Pres. Bombay 3 : 270. 1958 (Repr. ed.). *Asparagopsis javanica* Kunth, Enum. 5 : 100. 1850

Mar. : 'Shatavari'.

Extensive scandent bushes with tuberous root-stalks. Leaves scale-like with scarious portion upto 6.0 mm long; spines upto 6.0 mm long and slightly curved or straight; cladodes slender, triquetrous, 1-3-nate, divaricate, 10-30 mm long. Flowers white, in 2.5-6cm long racemes. Pedicels filiform, articulated. Anthers subglobose. Fruits subglobose, 0.4-0.6 cm across, red when ripe.

Fls. & Frts. : June - September.

Illus. : Wight, Icon. t. 2056. 1853.

Distrib. : Occasional; Chikhawal, Kalamatha.

ASPHODELUS L.

Asphodelus tenuifolius Cav. Ann. Ciene. Nat. 3 : 46. t. 27. f. 2. 1801; Hook. f. Fl. Brit. India 6 : 332. 1892; Cooke, Fl. Pres. Bombay 3 : 279. 1958 (Repr. ed.). *Asphodelus pauciflorum* Wight, Icon. 1853.

Annuals ca. 35 cm tall, with linear leaves. Scapes many from the root stalks, branched in the upper part. Flowers white, in lax racemes, pedicellate and bracteate; pedicels 0.5-0.8 cm long, articulated below the middle. Capsules globose, 0.3 cm across; valves rugose. Seeds sharply 3-gonous, black.

Fls. & Frts. : November - February.

Illus. : Wight, Icon. 6 : 27. 1853.

Distrib. : Rare at Patur; S. Y. Kamble 152804.

CHLOROTHYTUM Ker.-Gawl.

1. Flowers few forming lax racemes	..	<i>C. laxum</i>
1. Flowers many forming dense racemes :		
2. Scapes 25-60 cm tall; roots not tuberous	..	<i>C. glaucoides</i>
2. Scapes 3- 30 cm tall; roots tuberous :		
3. Root tubers sessile	..	<i>C. borivilianum</i>
3. Root tubers not sessile	..	<i>C. tuberosum</i>

Chlorophytum borivilliamum Sant. & Fernand. in Journ. Bombay Nat. Hist. Soc. 52 : 896-900. t. 1. 1955.

Herbs *ca.* 30 cm tall. Leaves oblanceolate with acuminate apex, 13—15 × 1.5—3 cm, membranous. Scapes terete. Flowers white; bracts lanceolate, acuminate; pedicels 0.6-1.2 cm long, jointed. Capsules 0.6-0.8 cm across, obovoid, emarginate, smooth. Seeds irregularly orbicular and black.

Fls. & Frts. : June - August.

Distrib. : Occasional; Narnala fort, Wanoja.

Chlorophytum glaucoides Blatt. Journ. Asiat. Soc. Bengal (n. s.) 26 : 361. 1930.

Tall herbs 60-75 cm high. Leaves 30—50 × 4—6 cm, glabrous, oblanceolate, acute, glabrous, attenuated to a short petiole. Scapes erect, covered with sheaths. Flowers white; bracts persistent, lanceolate, acuminate, the lower upto 2.5 cm long. Pedicels 0.6-1.2 cm long, jointed. Stamens 0.8-0.9 cm long. Capsules globose, emarginate; seeds 2, orbicular.

Fls. & Frts. : July - September.

Distrib. : Rare; S. Y. Kamble, 153856 At Narnala fort.

Chlorophytum laxum R. Br. Prodr. 277. 1810; Hook. f. Fl. Brit. India 6 : 336. 1892; Cooke, Fl. Pres. Bombay 3 : 282. 1958 (Repr. ed.).

Weak herbs with linear leaves *ca.* 30-45 cm long and 0.3-4 cm broad, spreading. Root fibers with oblong tubers. Scapes slender, flexuous, 2.5-7.5 cm long. Flowers greenish-white, very distant, pedicellate, bracteate; bracts scarious, ovate-lanceolate and acuminate. Fruits drooping, capsular, 1-4 seeded. Seeds minutely papillose, black.

Fls. & Frts. : July - September.

Illus. : Trim. F. Ceyl. 5 : 290. 1931.

Distrib. : Fairly common in plains and on hill slopes; Fetta, Kalamatha, Karla, Kashmar, Mahan, Manora, Narnala, Shahanur, Wanoja.

Chlorophytum tuberosum (Roxb.) Baker in Journ. Linn. Soc. 15 : 332. 1875; Hook. f. Fl. Brit. India 6 : 334. 1892; Cooke, Fl. Pres. Bombay 3 : 281. 1958 (Repr. ed.).

Herbs with roots bearing ellipsoid tubers at the tips. Leaves 15—20 × 0.6—2 cm, sessile, membranous, usually lanceolate. Scapes terete, 7-30 cm long. Flowers white, in 2.5-5 cm long racemes; bracts lanceolate, acuminate; anthers linear. Capsules ovoid, emarginate, seeds black.

Fls. & Frts. : June - August.

Distrib. : Frequent; Khaperdari, Karla, Narnala.

DIPCADI Medic.

Dipcadi ursulae Blatter, Journ. Bombay Nat. Hist. Soc. 32. 735. 1928.

Delicate, scapigerous herbs, 15-40 cm tall with tunicated bulbs ca. 2 cm across; fibers present at the base of the bulb. Leaves linear, acute; scapes 15-30 cm tall. Racemes 6-12-flowered becoming lax at maturity; bracts caducous, ovate, lanceolate, acuminate 1-2.5 cm long. Pedicels 0.6-0.8 cm long, stout. Flowers white tinged with green and pink; ovary stipitate, stalk 1 mm long; stigmas 3-lobed. Fruits capsular.

Fls. & Frts. : June - September.

Distrib. : Rare; S. Y. Kamble 153959, Khaperdari.

DRIMIA Jacq.

Drimia indica (Roxb.) Jessop in J. S. Afr. Bot. 43 (2) : 278. 1977; Ansari & Raghavan in J. Bombay nat. Hist Soc. 77 : 184. 198. *Scilla indica* Roxb. Fl. Ind. 2 : 147. 1832. *Urginia indica* (Roxb.) Kunth, Enum. 4 : 333. 1843; Hook. f. Fl. Brit. India 6 : 347. 1892; Cooke, Fl. Pres. Bombay 3 : 277. 1958 (Repr. ed.).

Mar. ; 'Jangali-kanda'.

Herbs with underground ovoid bulbs. Leaves 15—45 × 0.5—2.5 cm, linear, acute. Scapes erect upto 45 cm tall. Flowers brownish, very distant, in racemes 15-30 cm long; pedicels 2.5-3 cm long; bracts caducous. Perianth campanulate; anther filaments flat; styles oboconic. Capsules ellipsoid with tapering ends. Seeds elliptic, flattened, black.

Fls. & Frts. : May July

Distrib. : Rare; S. Y. Kamble, 153968 Khapardari.

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.).

Mar. : 'Kalalavi'.

Tall branching, weak herbs with solid fleshy cylindric, tubers, 15—30 × 2.5—3 cm. Stems 3-9 m tall. Leaves sessile, lanceolate, acuminate. Flowers showy, solitary, axillary or subcorymbose; pedicels 8-9 cm long; perianth segments 6, linear, lanceolate with waved margins, greenish below then yellow passing through orange to red. Anthers 0.7—0.8 cm long, versatile; filaments purple, 4 cm long. Capsules membranous.

Fls. & Frts. : July - October.

Illus. : Wight, Icon. t. 2047. 1853; Trim. Fl. Ceyl. 4 : 294. 1931.

Distrib. : Common in forest; Chikhawal, Karanja, Mahan.

IPHIGENIA Kunth

Iphigenia indica (L.) A. Gray in Kunth, Enum. 4 : 213. 1843; Hook. f. Fl. Brit. India 6 : 357. 1892; Cooke, Fl. Pres. Bombay 3 : 275. 1958 (Repr. ed.). *Melanthium indicum* L. Mant. 2 : 226. 1771.,

Herbs ca. 8-25 cm tall with underground subglobose corm which is sheathed with pale brown membrane. Leaves sessile, narrowly linear to linear-lanceolate, acuminate. Flowers purple, few in terminal racemes, bracteate, pedicellate; pedicels upto 2-5 cm long, perianth segments linear, clawed. Anther filaments flat; styles 3. Capsules oblong, ellipsoid, 3-grooved and rounded at the apex. Seeds subglobose.

Fls. & Frts. : June - July.

Illus. : Trim. Fl. Ceyl. 4 : 293. 1931.

Distrib. : Common at Mahan, Manora, Narnala fort, Patur, Pinjar, Wanaja.

Iphigenia magnifica Ansari et Rolla Rao, Bull. Bot. Surv. India 20 : (1-4). 1978.

Erect, tall, glabrous herbs ca. 50 cm high with underground tunicated corms; stems branching. Leaves grass like, linear to linear-lanceolate, 12—25 × 0.3—0.6 cm, sheathing. Inflorescence a simple raceme. Flowers dark brownish-purple, pedicellate; pedicels reaching 2-5 cm long. Perianth lobes linear, subulate or narrowly lanceolate. Capsules subglobose or elliptically oblong; seeds sub-globose.

Fls. & Frts. : June - September.

Distrib. : Frequent; Chikhawal, Manora, Wanoja.

Iphigenia pallida Baker in Journ. Linn. Soc. 17 : 451. 1879; Hook. f. Fl. Brit. India 6 : 357. 1892; Cooke, Fl. Pres. Bombay 3 : 276. 1958 (Repr. ed.).

Herbs with tunicated corms, stems erect 7-10 cm tall. Leaves linear, grass like $7-10 \times 0.2-0.3$ cm. Flowers white or tinged with purple, pedicellate, corymbose; bracts linear, foliaceous. Anthers versatile; styles 3. Capsules obovoid.

Fls. & Frts. : July - August.

Distrib. : Occasional; Khapordari, Mangarulpur.

SCILLA L.

Scilla hyacinthina (Roth) Macbr. in Contrib. Gray Herb. (n. c.) 56 : 14. 1918; *Lebedouria hyacinthina* Roth Nov. Pl. Sp. 195. 1821., *Scilla indica* Baker in Saund. Refug. Bot. 3. App. 12. 1870; Hook. f. Fl. Brit. India 6 : 348. 1892; Cooke, Fl. Pres. Bombay 3 : 276. 1958 (Repr. ed.). (nom. Roxb. 1832).

Herbs, 12-30 cm tall, with underground ovoid, globose bulbs 2.5-3 cm across. Leaves $6-2 \times 1-4$ cm, oblanceolate, lanceolate or oblong, obtuse or subacute, narrowed into a sheathing petiole, rather fleshy. Scapes 9-30 cm tall. Flowers greenish-purple, in 2.5-10 cm long racemes, bracteate, pedicellate. Capsules membranous.

Fls. & Frts. : June - September.

Illus. : Wight, Icon. t. 2040. 1853; Trim. F. Ceyl. 4 : 293. 1931.

Distrib. : Adan, Khaperdari, Mahan, Narnala fort.

COMMELINACEAE

1. Stamens 6, all perfect :
 2. Leaf sheaths covering the inflorescence, inflorescence sessile : ... *Amischophacelus*
 2. Leaf sheaths not covering the inflorescence; inflorescence sub-sessile or stalked .. *Cyanotis*
1. Perfect stamens 2-3 & staminodes 2-4 :
 3. Capsules hidden in foliaceous spathe .. *Commelin*
 3. Capsules not hidden in foliaceous spathe (spathe absent) .. *Murdannia*

AMISCHOPHACELUS R. Rao & Kammathy

- | | |
|---|---------------------|
| 1. Capsules beaked; seeds subquadrate; filaments bearded | <i>A. cucullata</i> |
| 1. Capsules three-horned at the summit; seeds cylindric; filaments glabrous | <i>A. axillaris</i> |

Amischophacelus axillaris (L.) Rolla Rao & Kammathy, Journ. Linn. Soc. Bot. 59. 306. 1966. *Tradescantia axillaris* L. Mant. 2 : 321. 1771. *Cyanotis axillaris* (L.) Schult. f. Syst. 7. 1154. 1830; Hook. f. Fl. Brit. India 6 : 388. 1892; Cooke, Fl. Pres. Bombay 3 : 305. 1958 (Repr. ed.).

Annual herbs, 20-40 cm tall, suberect or creeping below, rooting at the lower nodes. Leaves 5—12 × 0.3—0.6 cm, sessile, linear to linear-lanceolate, acuminate. Flowers violet-blue, in axillary clusters, solitary. Capsules 0.2—0.4 cm long, oblong, ellipsoid, beaked, glabrous except at the beak. Seeds oblong compressed, truncate at one end, rounded at apex, mottled, shining.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 4 : 315. 1931.

Distrib. : Occasional; Kashmar, Palodi.

Amischophacelus cucullata (Roth) R. Rao & Kammathy Journ. Linn. Soc. Bot. 59. 306. 1966. *Tradescantia cucullata* Roth, Nov. Pl. Sp. 189. 1821. *Cyanotis cucullata* (Roth) Kunth, Enum. Pl. 4 : 107. 1843; Hook. f. Fl. Brit. India 6 : 389. 1892.

Weak prostrate or suberect annual herbs. Leaves 5—8 × 0.5—1.5 cm, lanceolate to oblong-lanceolate. Flowers dark blue, in axillary fascicles. Capsules 0.4-0.5 cm long, oblong-ellipsoid, glabrous, straw-coloured. Seeds lead-coloured, subquadrate, smooth or faintly pitted.

Fls. & Frts : August - January.

Distrib. : Occasional; Chikhalwal and Karanja.

COMMELINA L.

- | | |
|---|----------------------|
| 1. Spathes distinctly peduncled; peduncles more than 0.6 cm, not covered by leafy sheaths : | |
| 2. Spathes caudate-acuminate; seeds appendaged | <i>C. attenuata</i> |
| 2. Spathes acute or acuminate; seeds not appendaged : | |
| 3. Spathes cucullate; seeds orange brown | <i>C. forskaelet</i> |
| 3. Spathes open, seeds coloured other than orange : | |
| 4. Capsules 3-celled; 5- seeded : | |

5. Seeds tubercled	..	<i>C. diffusa</i>
5. Seeds smooth	..	<i>C. hasskarilli</i>
4. Capsules 2- celled; 2-seeded	..	<i>C. suffruticosa</i>
I. Spathes sessile or sub-sessile; peduncles less than 0.5 cm and naked :		
6. Capsules 5- seeded	..	<i>C. benghalensis</i>
6. Capsules 3- seeded	..	<i>C. erecta</i>

Commelina attenuata Koen. ex Vahl, Enum. 2 : 168. 1806; Hook. f. Fl. Brit. India 6 : 372. 1892; Cooke, Fl. Pres. Bombay 3 : 293. 1958 (Repr. ed.).

Much branched annuals 20-60 cm tall, stems slender and weak. Leaves sessile, linear to linear-lanceolate, acute or acuminate. Spathes 1.5-4 cm long, cordate at the base, with large auricles, peduncles 1-2 cm long. Flowers blue. Capsules 0.3-0.4 cm long, subquadrate oblong, membranous, 1-2 seeded. Seeds ash-coloured.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 4 : 303. 1931.

Distrib. : Frequent; Karanja, Kashmar, Umberwadi.

Commelina benghalensis L. Sp. Pl. 41. 1753; Hook. f. Fl. Brit. India 6 : 370. 1892; Cooke, Fl. Pres. Bombay 3 : 291. 1958 (Repr. ed.).

Dichotomously branched, creeping annual herbs, glabrous or pubescent. Leaves 2.5—7 × 0.5—3.5 cm, ovate or oblong, obtuse, sessile or subsessile; spathes auricled on one side, pubescent. Flowers blue. Capsules 0.5-0.6 cm long, pyriform, membranous 5-celled. Seeds pitted, oblong.

Fls. & Frts. : August - December.

Illus. : Wight, Icon. t. 2065. 1853; Trim. Fl. Ceyl. 4 : 301. 1931.

Distrib. : Frequent in moist places; Medshi, Narnala fort.

Commelina diffusa Burm. f. Fl. Ind. 18. t. 7. f. 2. 1768; R. Rao Notes Roy. Bot. Gard. Edinburgh 25. 179. 1964; Sant. Fl. Khandala ed. 3. 284. 1967. **Commelina nudiflora** auct. non L. Hook. f. Fl. Brit. India 6 : 369. 1892; Cooke, Fl. Pres. Bombay 3 : 290. 1958 (Repr. ed.).

Diffuse, glabrous annuals, ascending, 20-40 cm long, rooting at lower nodes. Leaves 4—8 × 1—2 cm, lanceolate or ovate-lanceolate, acute or acuminate. Spathes ovate-lanceolate, cymes 1-3-flowered. Flowers dark blue. Capsules 0.4-0.5 cm long, broadly oblong, acuminate and coriaceous.

Fls. & Frts. : August - December.

Illus. : Trim. Fl. Ceyl. 4 : 300. 1931.

Distrib. : Occasional; Pinjar.

Commelina erecta L. Sp. Pl. 41. 1753. ***Commelina kurzii*** Clarke in Journ. Linn. Soc. Bot. 11 : 444. 1871; Hook. f. Fl. Brit. India 6 : 373. 1892.

Spreading, annual herbs, 30-60 cm long. Leaves 5—15 × 1.5—6 cm, elliptic to ovate-lanceolate or lanceolate, petiolate, sheathing, pubescent below. Spathes ovate, acute. Flowers blue. Capsules membranous, glabrous, ellipsoid and apiculate. Seeds blakish-brown, oblong.

Fls. & Frts. : August - December.

Distrib. : Common; Chikhalwal, Mahan, Medshi, Narnala, Palodi.

Commelina forskalaei Vahl, Enum. 2 : 172. 1806; Hook. f. Fl. Brit. India 6 : 371. 1892; Cooke, Fl. Pres. Bombay 3 : 292. 1958 (Repr. ed.).

Spreading annuals, much branched; rooting at nodes. Leaves 2—5 × 1—2 cm, oblong elliptic, obtuse, or subacute. Spathes ovate, hooked, acute, sparsely hairy; cymes 1—3-flowered; flowers blue. Capsules 3-celled, oblong 0.3.5 cm long, laterally compressed, slightly ribbed; seeds orbicular or oblong, compressed.

Fls. & Frts. : August - November.

Distrib. : Occasional; Chikhalwal, Mahan.

Commelina hasskarlii Cl. Comm. & Cyrt. Beng. 13. t. 3. 1874; Hook. f. Fl. Brit. India 6 : 370. 1892; Cooke, 3 : 291. 1958 (Repr. ed.).

Much branched, creeping or ascending annuals. Leaves 2.5—6 × 0.5—1 cm, narrowly lanceolate or oblong-lanceolate, subacute. Spathes 2—3 cm long. Flowers blue. Capsules 0.3—0.4 cm long, quadrate, membranous. Seeds truncate at one end, subacute or rounded at oth end.

Fls. & Frts. : August - March.

Distrib. : Occasional; Karanja, Medshi.

Commelina suffruticosa Bl. Enum. Pl. Java 1 : 3. 1827; Rolla Rao & Kamathy, Journ. Bombay Nat. Hist. Soc. 59(1) : 65. f. 3. 1966.

Glabrous annuals 30-60 cm tall, rooting at the lower nodes. Leaves 6—13 × 1—2 cm, oblong-lanceolate or lanceolate, base sheathing. Spikes 1.5—3 cm long, terminal or axillary, acuminate cordate. Capsules quadrate-oblong. Seeds smooth, bluish.

Fls. & Frts. : June - October.

Distrib. : Rare at Narnala fort, S. Y. Kamble, 153766.

CYANOTIS D. Don

- 1. Flaccidly silky herbs; flowers in simple cymes; bracteoles ovate lanceolate to lanceolate, acuminate ... *C. fasciculata*
- 1. Glabrous or sparsely hairy herbs flowers in scorpioid cymes; bracteoles ovate acute ... *C. cristata*

Cyanotis fasciculata (Heyne ex Roth) J. & J. Schultes in R. & S. Syst. 7 (2) : 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. 1821. *Cyanotis dichrotricha* Stocks in Wight, Icon. 1853.

Cottany annual herbs, pinkish purple in colour. Leaves 2—6.5 × 0.5—8 cm oblong, lanceolate and acute. Bracts slightly longer than the cymes; cymes axillary and terminal. Flowers pink. Anther filaments hairy. Capsules 0.2—0.4 cm long, oblong, pilose at the apex seeds oblong, faintly rugose.

Fls. & Frts. : August - September.

Illus. : Wight, Icon. t. 2086. 1853; Trim. Fl. Ceyl. 4 : 314. 1931.

Distrib. : Occasional; Chikhaliwal, Khadki.

Cyanotis cristata (L.) Don, Prodr. Fl. Nepal, 46. 1825. *Commelina cristata* L. Sp. Pl. 42 : 1753. *C. cristata* (L.) Schult. f. Syst. 7 : 1150. 1830; Hook. f. Fl. Brit. India 6 : 385. 1862; Cooke, Fl. Pres. Bombay 3 : 304. 1958 (Repr. ed.).

Diffuse or suberect annuals, rooting at lower nodes, 20—50 cm tall. Leaves 2—8 × 0.6—1.5 cm, ovate-oblong to oblong-elliptic, sessile, margins ciliate. Bracts ovate-lanceolate. Flowers in terminal and axillary cymes, violet-purple, bracteoles ovate, acute, glabrous or ciliate, 2-seriate. Capsules oblong, trigonous. 0.2—0.3 cm long, Seeds oblong, trigonous and black.

Fls. & Frts. : August - October.

Illus. : Wight, Icon. t. 2082. 1853; Trim. Fl. Ceyl. 4 : 311. 1931.

Distrib. : Occasional; Kashmar, Medshi.

MURDANNIA Royle

1. Perfect samens 2, sterile ones 2-4, filaments bearded	..	<i>M. nudiflora</i>
1. Perfect stamens 3, sterile ones 3, filaments glabrous	..	<i>M. semiteres</i>

Murdannia nudiflora (L.) Brenan, Kew Bull. 7 : 189. 1952; R. Rao in Bull. Bot. Surv. India 4 : 393. 1961. *Commelina nudiflora* L. Sp. Pl. 41. 1753; (p. p.). *Aneilema nudiflorum* R. Br. Prodr. 271. 1810 (in adnot.) Hook. f. Fl. Brit. India 6 : 378. 1892; Cooke, Fl. Pres. Bombay 3 : 298. 1958 (Repr. ed.).

Annual herbs, 10—40 cm tall, suberect or diffusely branched, often rooting at nodes. Leaves linear to linear-lanceolate, glabrous, alternate. Flowers in terminal panicles (rarely axillary) pale purple. Bracts caducous. Capsules 0.3—0.4 cm across, trigonously subglobose, mucronate, 2-seeded. Seeds angular, truncate at one end, tuberculate.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 4 : 308. 1931.

Distrib. : Occasional; Kashmar, Narnala fort.

Murdannia semiteres (Dal.) Santapau, Poona Agri. Coll. Mag. 41 (4) : 284. 1951. *Aneilema semiteres* Dalz. Hooker's J. Bot. Kew Gard. Misc. 3: 138. 1851. *Aneilema paniculatum* Wall. ex C. B. Cl. in A & C. DC. Mongr. Phan. 3 : 215. 1881; Hook. f. Fl. Brit. India 6 : 381. 1892; Cooke, Fl. Pres. Bombay 3 : 300. 1958 (Repr. ed.). *Dichaespermum juncoides* Wight, Icon. 1853.

Erect, caespitose, annual herbs 10-25 cm tall. Leaves, linear acuminate. Flowers in paniculate cymes. Bracts ochreate. Flowers blue, pedicellate; pedicels filiform, red. Capsules 0.2-0.3 cm across, subglobose, glabrous, 6—8-seeded. Seeds pale yellow, irregularly angular, glabrous.

Fls. & Frts. : August - September.

Illus. : Wight, Icon. p. 31. t. 2078. 1853.

Distrib. : Occasional; Karanja, Narnala fort.

TYPHACEAE**TYPHA L.**

Typha angustata Chaubard, Bory et al. Expend. Sci. Moree, Bot. 1 : 338. 1833; Hook. f. Fl. Brit. India 6 : 489. 1893; Cooke, Fl. Pres. Bombay 3 : 326. 1958 (Repr. ed.).

Mar. : *Pan-kanis* ' or '*Ram-ban*'.

Tall, marshy herbs 2—3 m high; leaves linear, semicylindric above the sheaths longer than stems, 2—2.5 cm broad. Flowering spikes cylindric, male and female spikes separated from each other by a distance. Male spikes on the top of the female spikes, yellow, loose, consisting of anthers. Female spikes thick, compact, brown, consisting of valvate tipped pistillodes; bracteoles sub spathulate.

Fls. & Frts. : June - November.

Distrib. : Frequent in dried nala; Karanja, Mahan, Morna.

ARACEAE

1. Male flowers stipitate	..	<i>Arisaema</i>
1. Male flowers sessile :		
2. Male and female flowers remote; neuters present	..	<i>Sauromatum</i>
2. Male and female flowers close; neuters 0	..	<i>Amorphophallus</i>

AMORPHOPHALLUS Bl. ex Deene. *nom. cons.*

Amorphophallus commutatus (Schott) Engler in DC. Mon. Phan. 2 : 319. 1879; Hook. f. Fl. Brit. India 6 : 515. 1893; Cooke, Fl. Pres. Bombay 3 : 337. 1958 (Repr. ed.).

Mar. : 'Shevala'.

Annual herbs with underground spherical tuberous root stock. Leaves solitary appearing after flowering, deeply variously lobed; lobes 4—15 × 3—6 cm, glabrous, elliptic-lanceolate; scapes 30—60 cm tall. Spathes 15—23 × 5—7 cm, ovate lanceolate; spadices sessile, columnar; appendages as long as or longer than the inflorescence. Male inflorescence placed above the female inflorescence. Ripe berries 0.8—1 cm long, dark orange.

Fls. & Frts. : May - July.

Distrib. : Frequent; Manora, Morna, Khapardrus.

ARISAEMA Mart.

Arisaema murrayi Hook. in Bot. Mag. t. 4388. 1848; Hook. f. Fl. Brit. India 6 : 502. 1893; Cooke, Fl. Pres. Bombay 3 : 332. 1958 (Repr. ed.).

Herbs with underground tubers 1.5—3 cm across with root fibres from the upper side. Leaves solitary, arising after the flowering, petiolate; divided

to the base into 5—10 ovate, lanceolate segments which are $7-10 \times 1.5-4$ cm; petioles upto 30 cm long. Peduncles upto 15—25 cm long, reddish, terete, spathes striate 8—13 cm long, purple. Inflorescence narrowed from below upwards; appendage narrow. Male flowers scattered, berries bright red when ripe.

Fls. & Frts. : May - July.

Distrib. : Occasional; Khadki, Khaperdari.

SAUROMATUM Schott.

Sauromatum pedatum (Willd.) Schott in Schott & Engl. Me'et. Bot. 17. 1832. *Arun pedatum* Willd. Enum. Suppl. 54. 1809. *Sauromatum guttatum* (Wall.) Schott in Schott & Engl. 1 : 17. 1832. Hook. f. Fl. Brit. India 6 : 508. 1893; Cooke, Fl. Pres. Bombay 2 : 335. 1958 (Repr. ed.). *Arum sessili-florum* Roxb. Fl. India 3 : 507. 1832.

Herbs with underground tubers 3—7 cm across; roots fibrous from above the tuber. Leaves solitary, pedatisect, 15—30 cm broad. Segments $7-10 \times 3-18 \times 1-8$ cm, petioles stout, green or spotted 15—30 cm long. Peduncles stout, short 5—8 cm long. Spathes purple with waved margins. Spadices with appendages 5—20 cm long. Male inflorescence about 1.2 cm long and about 8 cm above the female inflorescence. Neuters close above the female flowers.

Fls. & Frts. : June - April.

Illus. : Wight, Icon. t. 800. 1844.

Distrib. : Frequent; Kalamatha, Khaperdari, Manora.

POTAMOGETONACEAE

POTAMOGETON L.

Potamogeton nodosus Poir. in Lam. Encycl. Meth. Bot. Suppl. 4 : 535. 1816. *Potamogeton indicus* Roxb. Fl. Ind. 1 : 471. 1820, non Roth ex R. & S. 1818; Hook. f. Fl. Brit. India 6 : 565. 1893; Cooke, Fl. Pres. Bombay 3 : 349. 1958 (Repr. ed.).

Floating aquatic herbs; stems branched. Leaves $6-10 \times 2.5-4$ cm, oblong-elliptic or narrowly elliptic, obtuse to subacute, glossy, petiolate, petioles 5—9 cm long, stipules ovate-lanceolate 1—1.5 cm long, peduncles up-to 8 cm long, spikes 3—6 cm long. Flowers green, druplets 0.2—0.3 cm across, mucronate.

Fls. & Frts. : August December.

Illus. : Trim. Fl. Ceyl. 4 : 373. 1931.

Distrib. : Rare, S. Y. Kamble, 150427 Rhishi lake, Karanja.

ERIOCAULACEAE

ERIOCAULON L.

Eriocaulon cinereum R. Br. Prodr. 254. 1810; Fyson P. F. Journ. Indian Bot. 3 : 15. 1922; Sant. Fl. Khandala ed. 3 : 294. 1967. *Eriocaulon sieboldianum* Sieb. & Zucc. ex Steud. Syn. Pl. Glum. 2 : 272. 1855; Hook. f. Fl. Brit. India 6 : 577. 1893; Cooke, Fl. Pres. Bombay 3 : 357. 1958 (Repr. ed.).

Stemless tufted annuals, 8—15 cm tall. Leaves 2.5—4 × 0.1—0.3 cm, narrowly linear, subulate, glabrous. Heads 0.2—0.4 cm across, ovoid, whitish or purplish. Involucral bract oblong, obtuse and glabrous, shining, receptacle conical, glabrescent. Male flowers stipitate, bracteate; sepals 3, narrowly lanceolate or linear, membranous; stamens 6, white, globose. Female flowers bracteate, ovary stipitate, styles 3-fid filiform. Petals 3 narrowly lanceolate, membranous. Seeds oblong, rugulose.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 10. 1931.

Distrib. : Rare; S. Y. Kamble, 150264; Khinhiraja road, Mangarulpur

CYPERACEAE

1. Flowers unisexual		<i>Scleria</i>
1. Flowers bisexual :		
2. Inflorescence terminal :		
3. Rachilla deciduous (above the lowest two glumes) :		
4. Stamens 2, nuts laterally compressed ..		<i>Kyllinga</i>
4. Stamens 3, nuts trigonous ..		<i>Mariscus</i>
3. Rachilla persistent :		
5. Glumes distichously arranged on the rachilla; spikelets laterally compressed :		
6. Nuts radially compressed to the rachilla; styles 2-fid ..		<i>Pycnus</i>
6. Nuts trigonous, if not then tangentially compressed to the rachilla; styles 3-fid ..		<i>Cyperus</i>

5. Glumes all or upper ones spirally arranged on the rachilla; spikelets terete or angular :		
7. Hypogynous bristles present :		
8. Leaves reduced to the membranous sheath ..		<i>Eleocharis</i>
8. Leaves well developed :		
9. Hypogynous bristles shorter than the nuts; nuts longitudinally ribbed ..		<i>Fuirena</i>
9. Hypogynous bristles longer than the nuts; nuts smooth ..		<i>Eriophorum</i>
7. Hypogynous bristles absent :		
10. Nuts with a button on the top ..		<i>Bulbostylis</i>
10. Nuts without button on the top ..		<i>Flimbristylis</i>
2. Inflorescence pseudolateral :		
11. Hypogynous processes present ..		<i>Schoenoplectus</i>
11. Hypogynous processes absent ..		<i>Rikillella</i>

BULBOSTYLIS Kunth nom. cons.

***Bulbostylis barbata* (Rottb.) C. B. Clarke** in J. Hooker, Fl. Brit. India 6 : 651. 1893; Kern, Fl. Malesiana 7 (3) : 539. 1974. *Scirpus barbatus* Rottb. Descr. et. Icon. 52 t. 17. f. 4, 1773. *Stenophyllum barbata* Rottb. Descrip. et. Icon. 52. 1773. Cooke, Fl. Pres. Bombay 2 : 401. 1958 (Repr. ed.)

Annuals with tufted stems, 15—20 cm tall. Leaves glabrous except at the sheath mouth, much shorter than the stem, filiform. Inflorescence capitate, hemispherical. Involucral bracts 1—3, filiform. Glumes membranous, ovate, mucronulate, keeled. Stamen 1; stigmas 2. Nuts triquetrous, broadly ovate, finely reticulate.

Fls. & Frts. : July - August.

Illus. : *Stenophyllum barbata* Rottb; Trim. Fl. Cey. 5 : 66. 1931.

Distrb. : Occasional; Karla, Mahan.

CYPERUS L.

1. Spikelets in compact heads :		
2. Glumes obtuse; heads sessile or peduncled ..		<i>C. difformis</i>
2. Glumes cuspidate; heads sessile ..		<i>C. pygmaeus</i>
1. Spikelets loosely arranged, not compact into heads :		
3. Spikes cylindric :		

Spikelets subterete; glumes acute ..	<i>C. cyperoides</i>
4. Spikelets laterally compressed; glumes sharply apiculate or mucronate :	
5. Glumes incised at the tip; nuts triquetrous, oblong to oblong ovoid ..	<i>C. nutans</i> <i>Var. cleusinoides</i>
5. Glumes not incised at the tip, nuts trigonous, ellipsoid ..	<i>C. exaltatus</i>
3. Spikes not as above, umbellate :	
6. Glumes sharply mucronate ..	<i>C. compressus</i>
6. Glumes obtuse or acute :	
7. Rachilla distinctly winged :	
8. Stems spongy at the base, upto 1 cm thick; spikelets distant; glumes acute ..	<i>C. pangorri</i>
8. Stems not spongy, 2-3 mm thick spikelets closely overlapping; glumes obtuse ..	<i>C. rotundus</i>
7. Rachilla not winged or wings obscure :	
9. Glumes spinulose on the keels ..	<i>C. alulatus</i>
9. Glumes not spinulose on the keels ..	<i>C. flavidus</i>

***Cyperus alulatus* Kern in Reinwardtia 1 (4): 463—466. f. 1. 1952; Shah & Suryanarayana in Journ. Bombay Nat. Hist. Soc. 66 (2) : 412. 1969.**

Glabrous annuals *ca.* 30—40 cm tall. Leaves linear, acuminate; umbel decompound, primary rays 4—6. Bracts leafy, linear; spikelets rather distantly, arranged; glumes obovate, sharply keeled, 1.5 mm long. Nuts glabrous, triquetrous, obovoid, apiculate, *ca.* 1.5 cm long.

Fls. & Frts. : August.

Distrib. : Occasional on the way to Khadki, Mahan & Pinjar.

***Cyperus compressus* L. Sp. Pl. 46. 1753; Hook. f. Fl. Brit. India 6 : 805. 1893; Cooke, Fl. Pres. Bombay 3 : 379. 1958 (Repr. ed.). Kern. Fl. Malesiana 7 (3) : 617. 1974.**

Glabrous annuals with tufted stems 10—30 cm tall. Leaves linear finely acuminate. Umbels simple, rays 3—6. Spikelets sharply laterally compressed with green, red and yellow tinged, 20—40-flowered. Glumes 0.6—10 mm long, including the mucros, oblong-lanceolate. Stamens 3. stigmas 3. Nuts broadly ovoid, triquetrous 1.7—1.8mm long.

Fls. & Frts. : August.

Illus. : Trim. Fl. Ceyl. vol. 5, p. 33. 1931.

Distrib. : Frequent ; Kinhiraja, Medshi, Pinjar.

Cyperus cyperoides (L.) O. Ktze. Rev. Gen. Pl. 3, 2: 333. 1898. Kern. Fl. Malesiana 7 (3) : 642. 1974. *Mariscus sieberianus* Nees in Linnaea 9 : 289. 1835; Hook. f. Fl. Brit. India 6 : 622. 1893.

Rhizomatous perennials, 20-40 cm tall. Leaves linear, glabrous with scabrid margins. Involucral bracts 3—4. Flowers in terminal compound umbels. Rachilla broadly winged; glumes oblong to oblong lanceolate. Stamens 3; stigmas 3. Nuts trigonous, linear, slightly curved, apiculate and rugous.

Fls. & Frts. : July - January.

Distrib. : Rare Umerwady felling series, S. Y. Kamble 150152.

Cyperus difformis L. Cent. Pl. 2 : 6. 1756; Hook. f. Fl. Brit. Indi 6 : 598. 1893; Cooke, Fl. Pres. Bombay 3 : 376. 1958 (Repr. ed.). Kern, Fl. Malesiana 7 (3) : 629. 1974.

Annuals, stems tufted. Leaves slightly canaliculate, linear abruptly acuminate, scabrid on the margins. Inflorescence simple or compound. Involucral bracts 2—3; spikes globose; spikelets numerous; rachilla wingless. Stamens 1—2; stigmas 3. Nuts triquetrous, ellipsoid to obovate, apiculate.

Fls. & Frts. : September - June.

Illus. : Trim. Fl. Ceyl. 5 : 25. 1931.

Distrib. : Common; Adna Dam, Akot, Karla, Medshi.

Cyperus exaltatus Retz. Obs. 5 : 11. 1789; Hook. f. Fl. Brit. India 6 : 617. 1893; Cooke, Pres. Bombay 3 : 386. 1958 (Repr. ed.); Kern, Fl. Malesiana 7 (3) : 602. 1974.

Stout rhizomatous perennials, stems tall upto 1 m. Leaves flat with prominent midrib-beneath, scaberulous on the upper surface. Inflorescence compound or decompound. Involucral bracts 4—6; spikes digitate; rachilla with narrow caducous wings. Stamens 3; styles 3. Nuts shortly apiculate, yellow or yellowish brown.

Fls. & Frts. : September - December.

Illus. : Trim. Fl. Ceyl. 5 : 32. 1931.

Distrib. : Frequent (Adan Dam); Mahan, Pinjar.

Cyperus flavidus Retz. Obs. 5 : 13. 1789. *C. globosus* All. Fl. Pedem. 49. 1789. Auct. non Forsk. 1775; Cooke, Fl. Pres. Bombay 3 : 370. 1958 (Repr. ed.); Kern, Fl. Malesiana 7 (3) : 648. 1974; *Pycreus capillaris* Nees in Linnaea 9 : 283. 1834; Hook. f. Fl. Brit. India 6 : 591. 1893.

Tufted glabrous annuals ca. 6—60 cm tall. Leaves rigid, narrow, canaliculate and finely acuminate. Inflorescence, simple or subcompound. Involucral bracts 2—4; spikelets linear with parallel sides, strongly compressed, 20—40-flowered. Glumes brown or bluish, margins whitish hyaline. Stamens 2; stigmas 2. Nuts biconvex, laterally compressed, apiculate.

Fls. & Frts. : Almost throughout the year.

Distrib. : Common; Adnariver, Karanja, Karla, Mahan, Morna

Cyperus nutans Vahl var. *eleusinoides* (Kunth) Haines Bot. Bihar, Orissa 5 : 898. 1924; Kern, Fl. Malesiana 7 (3) : 610. 1974. *C. eleusinoides* Kunth, Enum. 2 : 39. 1837; Clarke in Hook. f. Fl. Brit. India 6 : 608. 1893; Cooke, Fl. Pres. Bombay 3 : 382. 1958. (Repr. ed.).

Perennials, 40—100 cm tall. Leaves upto 70 cm long, linear, glabrous, coriaceous; midrib prominent beneath, scabrous. Inflorescence compound or decompound. Involucral bracts 4—6 upto 75 cm primary rays 6—10. Spikelets compound 8—18-flowered, rachilla winged. Stamens 3; stigmas 3. Nuts triquetrous, oblong to oblong-ovoid, apiculate, brown.

Fls. & Frts. : August - March.

Illus. : Trim. Fl. Ceyl. 5 : 37. 1931.

Distrib. : Very common in nals. Adna dam side, Karla, Palodi, Patur, Pinjar.

Cyperus pangorei Rottb. Descr. et. Icon. t. 7. f. 3. 1773. *C. tegetum* Roxb. Fl. Ind. 1 : 208. 1832; C. B. Cl. in Hook. f. Fl. Brit. India 6 : 713. 1893; Cooke, Fl. Pres. Bombay 3 : 384. 1958 (Repr. ed.).

20—100 cm tall perennials herbs. Leaves linear, glabrous. Umbels compound or decompound. Spikelets 20-30-flowered, usually reddish brown; rachilla with dark brown or transparent wings. Glumes hardly keeled, margins scarious. Stamens 3; stigmas 3. Nuts narrowly obovoid-oblong, tapering towards the base, trigonous, minutely apiculate.

Fls. & Frts. : June - March.

Illus. : *C. dehiscens* Nees in Linnaea 9 : 286. 1835; Trim. Fl. Ceyl. 5 : 30. 1931.

Distrib. : Common; (Adna river) Chikhawal, Karla, Pinjar, Patur.

Cyperus pygmaeus Rottb. Descr. & Ic. 20, t. 14. f. 4, 5. 1773; Kern. Fl. Malesiana 7 (3) : 634. 1974; *Juncellus pygmaeus* Clarke in Hook. f. Fl. Brit. India 6 : 596-1893.

Tufted annuals, leaves canaliculate, finely acuminate, scabrid on the upper surface. Inflorescence triangular-ovoid to subglobose. Involucral bracts 2-5 over topping the inflorescence. Rachilla wingless. Stamens 1-2; stigmas 2-3. Nuts trigonous or planoconvex, oblong.

Fls. & Frts. : July—December.

Distrib. : Frequent; Akot, Kashmar, Mahan.

Cyperus rotundus L. Sp. Pl. 45. 1753; Hook. f. Fl. Brit. India 6 : 614. 1893; Cooke, Fl. Pres. Bombay 3 : 385. 1958 (Repr. ed.); Kern. Fl. Malesiana 7 (3) : 604. 1974.

Perennials with wiry stolons ending in blakish tubers. Leaves linear finely acuminate, scabrid above. Inflorescence simple or compound umbel. Involucral bracts 2-4. Spikelets compressed, 10—40-flowered. Glumes ovate, rubigious to brown. Stamens 3; stigmas 3. Nut trigonous, oblong-obvoid, apiculate, brown to black.

Fls. & Frts. : June - November.

Illus. : Trim. Fl. Ceyl. 5 : 35. 1931.

Distrib. : Very common occurring almost throughout the district.

ELEOCHARIS R. Br.

Eleocharis geniculata (L.) Roem. & Schult. Syst. 2 : 150. 1817; Kern. Fl. Malesiana 7 (3) : 536. 1974. *Scirpus geniculata* L. Sp. Pl. 48. 1753; *Eleocharis capitata* R. Br. Prodr. 225. 1810; Clarke in Hook. f. Fl. Brit. India 6 : 627. 1893; Cooke, Fl. Pres. Bombay 3 : 404. 1958 (Repr. ed.).

Annuals wih tufted erect stems, 10-30 cm tall. Sheaths appressed, purplish or brownish; spikelets oblong-ovoid, many-flowered. Glumes membranous, elliptic, keeled, obtuse; hypogynous bristles 3-4; minutely retrorsely scabrous, shorter than or as long as the nut. Stamens 1-2, stigmas 2. Nuts biconvex, obovate, smooth, black.

Fls. & Frts. : June - November.

Illus. : Trim. Fl. Ceyl 5 : 72. 1931.

Distrib. : Frequent in nala (Adna dam), Karanja, Mahan.

ERIOPHORUM L.

Eriophorum comosum Wall. ex Nees in Wt. Contrib. 110. 1834; Clarke in Hook. f. Fl. Brit. India 6 : 664. 1893; Cooke, Fl. Pres. Bombay 3 : 404. 1958 (Repr. ed.).

Glabrous herbs, rhizomes scarcely present, 50-70 cm tall. Leaves linear, exceeding the stem. Umbels decompound; bracts very long upto 35 cm, leafy. Spikelets elliptic-oblong, terete, reddish-brown, glumes oblanceolate, membranous. Anthers large, yellow with bright red crest; stamens 3; stigmas 3. Nuts linear oblong, trigonous, shining greyish-black.

Fls. & Frts. : June - September.

Distrib. : Rare; restricted to the Narnala fort (S. Y. Kamble 150446, 150445).

FIMBRISTYLIS L.

1. Spikelets solitary, terminal, rarely 2	..	<i>F. ovata</i>
1. Spikelets many to numerous in umbels :		
2. Nuts biconvex :		
3. Nuts smooth, distinctly margined	..	<i>F. ferruginea</i>
3. Nuts longitudinally ribbed not margined :		
4. Spikelets angular; glumes sharply keeled, nuts ca. 1 cm long	..	<i>F. bisumbellata</i>
4. Spikelets terete glumes obtusely keeled, nuts ca. 1 cm long	..	<i>F. dichotoma</i>
2. Nuts trigonous :		
5. Glumes acute; nuts tubercled	..	<i>F. tenera</i>
5. Glumes obtuse; nuts transversely striolate	..	<i>F. miliacea</i>

Fimbristylis bisumbellata (Forsk.) Bub. Dodec. 30. 1850; Kern, Fl. Malesiana 7 (3) : 579. 1974. *Scripus bisumbellatus* Forsk. Fl. Aeg.-Arab. 1 : 15. 1775. *Fimbristylis dichotoma* (non Vahl.) Kunth Enum. 2 : 225. 1837; Clarke in Hook. f. Fl. Brit. India 6 : 635. 1893; Cooke, Fl. Pres. Bom-bay 3 : 394. 1958 (Repr. ed.).

Annuals with densely tufted, slender stems. Leaves shorter or somewhat longer than the stem, flat, abruptly acuminate, margins 2-3. Rachilla narrowly winged. Glumes broadly ovate, acute, membranous. Stamens 1; stigmas 2. Nuts ovate or obovate, shortly stipitate, umbonate & trabeculate.

Fls. & Frts. : June - April

Illus. : Trim. Fl. Ceyl. 5 : 50. 1931.

Distrb. : Occasional; Akot (Narnala fort), Mahan.

Fimbristylis dichotoma (L.) Vahl, Enum. 2 : 287. 1806; Kern, Fl. Malesiana 7 (3) : 575. 1974. *Scirpus dichotomus* L. SP. Pl. 50. 1753. *F. diphylla* (Retz.) Vahl, Enum. 2 : 289. 1806; Hook. f. Fl. Brit. India 6 : 636. 1893; Cooke, Fl. Pres. Bombay 3 : 396. 1958 (Repr. ed.)

Annuals or perennials with short rhizomes & tufted stems *ca.* 20—60 cm. tall. Leaves shorter than or as long as the stem. Inflorescence simple or decompound. Involucral bracts 2-4 spikelets many-flowered, rufous, or castaneous, rachilla narrowly winged. Glumes chartaceous. Stamens 1-3; stigmas 2. Nuts obovate, shortly stipitate, umbonate, smooth or verrucose, white, stramoneous.

Fls. & Frts. : August.

Illus. : Trim. Fl. Ceyl. 5 : 53. 1931.

Distrib. : Frequent; Chikhalwal, Kinhiraja, Pinjar.

Fimbristylis ferruginea (L.) Vahl, Enum. 2 : 291. 1806; Clarke, in Hook. f. Fl. Brit. India 6 : 638. 1893; Cooke., Fl. Pres. Bombay 3 : 396. 1958 (Repr. ed.); Kern, Fl. Malesiana 7 (3) : 572. 1974.

Perennials with woody rhizomes, 20-80 cm tall. Leaves much shorter than the stem, inflorescence simple or subcompound. Involucral bracts 2-3.5 spikelets 5—20-flowered dull brown; glumes subchartaceous, stamens 3; stigmas 2. Nuts shortly stipitate, umbonate.

Fls. & Frts. : June - March.

Distrib. : Frequent; Karanja, Karla, Mahan.

Fimbristylis miliacea (L.) Vahl, Enum. 2 : 287. 1806; Kern, Fl. Malesiana 7 (3) : 552. 1974. *Scirpus miliaceus* L. Syst. (ed. 10) 868. 1756; *Fimbristylis quinquangularis* (Vahl) Kunth, Enum. 2 : 229. 1837; Hook. f. Fl. Brit. India 6 : 664. 1893; Cooke, Fl. Pres. Bombay 31 : 397. 1958 (Repr. ed.).

Glabrous annuals with tufted stems upto 40 cm tall. Leaves shorter or as long as the stem, finely acuminate. Inflorescence compound or decompound. Involucral bracts 4-5, much shorter than the inflorescence. Spikelets many-flowered. Rachilla narrowly winged. Glumes membranous brownish. Stamen 1. Stigmas 3. Nuts obtusely trigonous, ellipsoid to subglobose transversely lineolate stramoneous.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 55. 1931.

Distrib. : Rare; Kashmar, S. Y. Kamble, 150309.

Fimbristylis ovata (Burm. f.) Kern, Blumea 15 : 126. 1967; Fl. Malesiana 7 (3) : 565. 1974. *Carex ovata* Burm. f. Fl. Ind. 194. 1768. *F. monostachyos* Hassk. Pl. Jav. Rar. 61. 1848 (*monostachya*); Clarke in Hook. f. Fl. Brit. India 6 : 649. 1893; Cooke, Fl. Pres. Bombay 3 : 399. 1958 (Repr. ed.).

Perennials with short rhizomes; stems densely tufted, 15-30 cm tall. Leaves basal shorter than the stem, abruptly acuminate. Inflorescence simple, spikelets shining stramoneous or yellowish rachilla broadly winged. Glumes, sub-coriaceous, distichous, lowest 1-2, empty glumes awned. Stamens 2-3 stigmas 3. Nuts obtusely trigonous, coarsely tubercled or muricate.

Fls. & Frts. : July - September.

Illus. : Trim. Fl. Ceyl. 5 : 59. 1931.

Distrib. : Rare, S. Y. Kamble, 150409, Karanja.

Fimbristylis tenera R. & S. Syst. Veg. 2 (Mant.) 57. 1824; Hook. f. Fl. Brit. India 6 : 642. 1893. *F. tenera* R. & S. var. *oxylepis* (Steud.) Cl. in Hook. f. Fl. Brit. India 6 : 642. 1893. *F. monticola* Hochst. ex Steud. Syn. Pl. 3 : Syn. Pl. 3 : 111. 1855; Cooke, Fl. Pres. Bombay 3 : 399. 1958 (Repr. ed.).

Annuals, stems slender, filiform, 12-35 cm tall. Leaves shorter or nearly equalling the stem, filiform, acute with scabrid margins. Umbels sub-simple or subcompound. Bracts short, setiform. Spikelets lax on filiform peduncles. Rachilla narrowly winged. Glumes coriaceous, triangularly ovate, keeled. Stamens 3. Stigmas 3. Nuts stipitate, globosely ovoid, obtusely trigonous, minutely tuberculate.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 63. 1931.

Distrib. : Common; Chikhaliwal, Mahan, Kashmar, Kinhiraja, Pinjar.

FUIRENA Rottb.

Fuirena wallichiana Kunth, Enum. 2 : 182. 1837; Clarke in Hook. f. Fl. Brit. India 6 : 587. 1893; Cooke, Fl. Pres. Bombay 3 : 412. 1958 (Repr. ed.).

Perennials with creeping rhizomes, 50-60 cm tall. Leaves linear, lanceolate, acute with strong mid-nerve and recurved margins. Inflorescence corymbose, terminal clusters of spikelets. Involucral bracts usually 1, short. Spikelets terete, many-flowered. Glumes broadly oblong, strongly mucronate, coriaceous, hairy. Anthers not crested. Stigmas 3, Nuts trigonous, longitudinally ribbed, tuberculate.

Fls. & Frts. : June - February.

Distrib. : Common; Adna dam, Karanja, Mahan.

KYLLINGA Rottb. nom. cons.

Kyllinga tenuifolia Steud. Syn. Pl. Glum. 2 : 69. 1855. *Kyllinga triceps* Rottb. Descrip. et. Icon. 14, t. 4, fig. 6. 1773; Clarke in Hook. f. Fl. Brit. India 6 : 587. 1893; Cooke, Fl. Pres. Bombay 3 : 391. 1958 (Repr. ed.).

Glabrous herbs, stems tufted, 10, 25 cm tall. Leaves usually shorter than but may be as long as or sometimes longer than the stem, linear, acute involucral bracts 3—4, leafy. Glumes lanceolate acuminate to suborbicular, Stamens 2; stigmas 2. Nuts oblong or ellipsoid oblong.

Fls. & Frts. : June - September.

Illus. : Trim. Fl. Ceyl. 5 : 45. 1931.

Distrib. : Common; Khadki, Mahan, Narnala, Palodi.

MARISCUS Vahl nom. cons.

1. Glumes with recurved awista	..	<i>M. squarrosus</i>
1. Glumes acute	..	<i>M. paniceus</i>

Mariscus paniceus (Rottb.) Vahl, Enum. Pl. 2 : 373. 1806; C. B. Cl. Clarke in Hook. f. Fl. Brit. India 6 : 620. 1893. *Kyllinga panicea* Rottb. Descrip. Icon. Pl. 15, 5 t. 4, f. 1. 1773. *Cyperus paniceus* (Rottb.) Boeck. in Linnaea 36 : 381. 1870. P. P. Kuekenth, Pfl. R. Hett. 101. 526. 1936; Kern, Fl. Malesiana 7 (3) : 643. 1874.

Perennials with 1 mm thick stolons; stems slender 15-25 cm tall. Leaves narrowly linear. Inflorescence simple, spikes shortly cylindrical, spikelets finally horizontally spreading, always with one nut. Glumes 4, ovate, lanceolate, the third nut bearing, 4th much reduced. Stigmas 3. Nuts trigonous, oblong, apiculate, rugous to castaneus.

Fls. & Frts. : August.

Distrib. : Rare; Medshi, S. Y. Kamble 150103.

Mariscus squarrosus (L.) C. B. Clarke in Hook. f. Fl. Brit. India 6 : 623. 1893; *Cyperus squarrosus* L. in Torner, Cent. Pl. 2 : 6. 1756; Kern, Fl. Malesiana 7 (3) : 631. 1974. *C. aristatus* Rottb. Descrip. Pl. rat. Progr. 22. 1772; Cooke, Fl. Pres. Bombay 3 : 380. 1958 (Repr. ed.).

Annuals, stems tufted, triquetrous to almost 3-winged, smooth 8-20 cm tall. Leaves linear to gradually acuminate. Inflorescence simple sometimes rayed. Involucral bracts 2-4. Spikelets 6-20-flowered, compressed; rachilla wingless. Glumes membranous, ferruginous. Stamen 1. Stigmas 3. Nuts variable, trigonous, oblong-ovoid or almost linear, obtuse or shortly apiculate greyish-brown.

Fls. & Frts. : August-September.

Distrib. : Common; Khadki, Kashmar, Mahan, Wanoja.

PYCREUS P. Beauv.

Pycreus pumilus (L.) Nees, Linnaea 9 : 283. 1834. *C. pumilus* L. in Torner, Cent. Pl. 2 : 6. 1756; Cooke, Fl. Pres. Bombay 3 : 370. 1958 (Repr. ed.); Kern, Fl. Malesiana 7 (3) : 650. 1974. *Pycreus nitens* Nees in Nov. Act. Acad. Curr. 19. Suppl. 53. 1843. Hook. f. Fl. Brit. India 6 : 591. 1893.

Annuals about 5-20 cm high; stems, slender, filiform, tufted. Leaves linear, finely acuminate, scabrid in upper part. Inflorescence simple or subcompound; spikes subglobose. Rachilla wingless. Glumes membranous, sharply keeled, ovate, sharply mucronate. Stamens 3. Stigmas 2. Nuts biconvex, laterally compressed, oblong, obovate obtuse or spiculate, shining brown to castaneus.

Fls. & Frts. : August - September.

Illus. : Trim, Fl. Ceyl. 5 : 19. 1931.

Distrib. : Rare; Kashmar, S. Y. Kamble 150305.

RIKIELLA J. Raynal

RikIELLA squarrosa (L.) J. Raynal, Adansonia ser. 2, 13 : 154. 1973. *Scirpus squarrosus* L. Mant. Alt. 2 : 181. 1771; Clarke in Hook. f. Fl. Brit. India 6 : 563. 1893. Cooke, Fl. Pres. Bombay 3 : 410. 1958 (Repr. ed.); Kern, Fl. Malesiana 7 (3) : 516. 1974.

Annuals, stems erect, slender tufted, 10-20 cm tall. Leaves filiform, shorter than the stem. Inflorescence capitate consisting of 2-4 spikelets. Involucral bracts 1-3, lowest usually erect & similar to and continuous with the stem. Spikelets terete, many-flowered. Glumes membranous, ovate, rhomboid with recurved muero. Stamens 1. Stigmas 3. Nuts trigonous, obovate or oblong-ovate shortly apiculate.

Fls. & Frts. : August - December.

Illus. : Trim. Fl. Ceyl. 5 : 74. 1931.

Distrib. : Rare; Kashmar, S. Y. Kamble, 150307.

SCHOENOPLECTUS (Reich.) Palla

1. Inflorescence near the base; stems fleshy	..	<i>S. articulatus</i>
1. Inflorescence near the top; stems not fleshy	..	<i>S. lateriflorus</i>

Schoenoplectus articulatus (L.) Palla, Bot. Jahrb. Syst. 10 : 299. 1888.
Scirpus articulatus L. Sp. Pl. 47. 1753; Clarke in Hook. f. Fl. Brit. India 6 : 656. 1893; Cooke, Fl. Pres. Bombay 3 : 408. 1958 (Repr. ed.); Kern. Fl. Malesiana 7 (3) : 513. 1974.

Robust annuals or perennials; stems erect, densely tufted, terete, transversely septate, 10-30 cm long. Leaves reduced to blade less scarious sheaths. Inflorescence capitate, consisting of numerous spikelets. Bracts erect, same as the stem and continuous with it. Glumes rufous. Stamens 3. Stigmas 3. Nuts triquetrous, obovate shortly apiculate and narrowed towards the base transversely ridged, black.

Fls. & Frts. : September - November.

Illus. : Trim. Fl. Ceyl. 5 : 75. 1931.

Distrib. : Rare; Karanja (Rhisil lake), S. Y. Kamble 160828.

Schoenoplectus lateriflorus (J. F. Gmelin) Lye., Bot. Not. 124. 290. 1971.
Scirpus lateriflorus J. F. Gmelin, Syst. Nat. 2, 1 : 127. 1791; Kern. Fl. Malesiana 7 (3) : 514. 1974. *Scirpus supinus* L. var. *uninodis* C. B. Clarke in Hook. f. Fl. Brit. India 6 : 656. 1893; Cooke, Fl. Pres. Bombay 3 : 406. 1958 (Repr. ed.) (non *Isolepis uninodis* Delile 1813).

Annuals; stems tufted, slender 15-20 cm high. Leaves reduced to 2-3 sheaths or with rudimentary blades. Inflorescence capitate or usually rayed. Involucral bracts 1-2 lower erect similar to and continuous with the stem. Spikelets many-flowered, oblong-ovoid. Glumes membranous, stramineous to ferruginous, keeled. Stamens 3. Stigmas 3. Nuts trigonous, compressed, obovate, shortly apiculate, transversely wavy, ridged and black.

Fls. & Frts. : September - December.

Illus. : Trim. Fl. Ceyl. 5 : 74. 1931.

Distrib. : Rare; Karanja (Rishi lake) S. Y. Kamble 160827.

SCLERIA BERG.

Scleria parvula Steud. Syn. Pl. Glum. 2 : 174. 1855; Kern, Fl. Malesiana, 7 (3) : 746. 1974. *S. tessellata* auct. non Willd. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 686. 1893; Cooke, Fl. Pres. Bombay 3 : 418. 1958 (Repr. ed.).

Annuals, stems slender 20-60 cm tall. Leaves linear, glabrous and scabrid on the margins. Inflorescence narrow, elongate, the terminal panicle and 1-3 distant lateral fascicles. Glumes ovate, acute, mucronate. Nuts sub-globose, tessellately cancellate, absolutely trigonous, glabrous or ferruginous pubescent on the ridges, shining white, mucronate, disc lobes triangular acute.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 5 : 98. 1931.

Distrib. : Occasional, Karanja, Palodi.

POACEAE (GRAMINEAE)

Key to the groups (vide Bor 1960)

1. Spikelets 2- flowered, falling entire at maturity usually with the upper hermaphrodite and the lower male or barren and if the latter, often reduced to the lemma or rarely the lemma entirely absent, all alike or more often differing in size, shape and structure frequently dorsally compressed. ..

Panicoideae

1. Spikelets 1-10 many flowered, breaking up at maturity above the more or less persistent glumes or if falling entire then not 2- flowered with the lower floret male or barren and the hermaphrodite, usually more or less laterally compressed or terete,

Pooideae

Key to the tribes of Panicoideae

1. Male and female spikelets in separate inflorescence or in different parts of the same inflorescence and of different appearances; lemmas hyaline or membranous and thinner than the glumes ..

Maydeae

1. Spikelets all hermaphrodite or with male or barren and hermaphrodite spikelets mixed in the same inflorescence and so arranged that a male or barren spikelet is near a hermaphrodite spikelet, or if unisexual then the lemma of the fertile floret indurated :

2. Spikelets often paired with one sessile and other pedicelled, those of each pair similar more often dissimilar, rarely solitary or all alike; glumes as long as the spikelets and enclosing the florets, more or less rigid and firmer than the lemmas which are both hyaline or membranous; upper lemma usually awned

Andropogoneae

2. Spikelets solitary or paired more or less similar; glumes usually membranous, the lower usually smaller or sometimes suppressed; lower lemma mostly resembling the upper glume in texture, upper lemma papery to very tough and rigid usually awnless

Paniceae

Key to the genera of Andropogoneae

1. Spikelets of each pair similar, the sessile and the pedicelled hermaphrodite; rarely the sessile spikelet male and the pedicelled spikelet hermaphrodite (*Lophopogon*) : joints of the panicle thin, linear or some what expanded at the top :
 2. Spikelets arranged in more or less ample panicles or compound racemes arranged along the central axis .. *Saccharum*
 2. Spikelets arranged in two or in several racemes, the later being digitate or arranged along a very short main axis .. *Lophopogon*
1. Spikelets in each pair dissimilar, the sessile hermaphrodite, the pedicelled male or sterile or completely absent or if more or less similar then the joints of the racemes and the pedicels thick and swollen :
 3. Joints of the rachis and pedicel of the pedicelled spikelet (if not much reduced) swollen, 3-angled, rounded, or flattened :
 4. Sessile spikelet with a male and a hermaphrodite floret; upper lemma awned :
 5. Racemes many-noded not contained in a spathe like sheath :
 6. Raceme solitary, terminal; lower glume of the sessile spikelet not transversely grooved .. *Sehima*
 6. Racemes two to many; lower glume of the sessile spikelet often with nodules on the margins or transversely furrowed :
 5. Racemes 1-noded, reduced to three, heteromorphous spikelets enclosed in a boat shaped spathe .. *Apluda*
 7. Pedicelled spikelet developed; lower glume usually coriaceous below, often transversely wrinkled furrowed or with nodules on the margins .. *Ischaemum*
 7. Pedicelled spikelet reduced to a linear curved pedicel; lower glume coriaceous, convex, covered all over with transverse ridges which are often broken up in to warty, teeth, not keeled .. *Thelepogon*
 4. Sessile spikelet with a hermaphrodite floret only or occasionally with a male floret below; upper lemma unawned :
 8. Sessile spikelet spherical in shape .. *Hackelochloa*
 8. Sessile spikelet not spherical in shape :
 9. Spikelets similar; rachis very tough, joints and pedicels fused .. *Hemarthria*
 9. Spikelets more or less dissimilar (spikelets solitary, *Ophiuros*); rachis usually breaking up; joints or pedicel fused or free
 10. Axis of the spikelets tough not breaking up spikelets paired.. *Hemarthria*
 10. Axis of the spikelets fragile :
 11. Spikelets paired, one sessile the other pedicelled .. *Rottboellia*
 11. Spikelets solitary, sessile, the pedicelled suppressed or rudimentary; pedicels fused into the internode (joint) .. *Ophiuros*

3. Joints of the rachis and the pedicel narrow, rarely thickened upwards:
12. Inflorescence a terminal racemes .. *Sehima*
12. Inflorescence a panicle :
13. Spikelets in racemes not interrupted by spathes; joints and pedicels not furrowed :
14. Spikelets dorsally compressed .. *Sorghum*
14. Spikelets laterally compressed .. *Chrysopogon*
13. Panicles of racemes interrupted by spathes sometimes joints and/or pedicels with a translucent median furrow :
15. Upper lemma of the sessile spikelet with a basal awn; pedicelled spikelet reduced .. *Aristraxon*
15. Upper lemma of the sessile spikelet awned from the tip or from the cleft or upper lemma reduced to the hyaline base of the awn, very rarely unawned; Pedicelled spikelet well developed :
16. Margins of the lower glume of the sessile spikelet sharply infolded, 2- keeled; awns glabrous :
17. Upper lemma of the sessile spikelet not cleft, often stipitate passing into the awn :
18. Spikelets arranged in false racemes terminating the branches and branchlets of a true panicle (pedicel with a medium translucent furrow) .. *Capillipedium*
18. Spikelets arranged in false racemes which are either solitary and terminal or subsessile, arranged along a central axis but not at the tips of capillary branches :
19. Racemes solitary at the end of the branches; sessile spikelets not overlapping .. *Eremopogon*
19. Racemes several to many :
20. Joints and pedicels with a translucent longitudinal furrow .. *Bothriochloa*
20. Joints and pedicels without a translucent mediao furrow .. *Dichanthium*
17. Upper lemma of the sessile spikelet 2- lobed or 2- cleft, awned in the sinus :
21. Aromatic grasses; racemes in pairs often collected into huge panicles; one pair of spikelets in each racemes homogamous .. *Cymbopogon*
21. Grasses not aromatic racemes in pairs, of spikelets heterogamous .. *Andropogon*

16. Margins of the lower glume of the sessile spikelets incurved and rounded at the sides, at the most keeled upwards; awns usually hairy : ..
22. Racemes solitary at the ends of the branches surrounded at the base by an involucre of homogamous spikelets ..
23. Involucral spikelets pedicellate deciduous, callus of fertile spikelets very short truncate or obtuse .. *Iseilema*
23. Involucral spikelet sessile; not deciduous; callus of the fertile spikelet pointed .. *Themeda*
22. Racemes without an involucre .. *Heteropogon*

Key to the genera of Maydeae

1. Female spikelets completely enclosed in a metamorphosed leaf sheath which takes the form of a spherical or cylindrical, osseous or ivory bead like structure .. *Coix*
1. Female spikelet not enclosed in a false involucre as above; female spikelet enclosed in a structure partly derived from the hardened lower glume and partly from the thickened axis-joint or internode .. *Chionachne*

Key to the genera of Paniceae

1. Spikelets falling singly not subtended by bristles, or if so, the bristles persisting after the spikelets have fallen (*Setaria*) :
2. Spikelets arranged in more or less open panicles or with the panicles contracted and spike-like :
3. Spikelets not subtended by bristles .. *Panicum*
3. Spikelets subtended by persistent bristles .. *Setaria*
2. Spikelets arranged in one sided spikes or spikelike racemes; spikes or racemes digitate or scattered :
4. Lemmas of the upper floret more or less crustaceous or coriaceous, usually with narrow inrolled margins, exposing much of the palea :
5. Lower glume (when present) turned away from the rachis of the raceme or spike, the back of the upper lemma facing it, i.e. spikelets abaxial :
6. Glumes acuminate or awned, rarely, only acute; upper lemma not mucronate :
7. Leaf blades linear, racemes dense; culms erect or suberect .. *Echinochloa*
7. Leaf blades lanceolate to ovate; racemes loose or moderately dense; culms creeping .. *Oplismenus*
6. Glumes awnless, if acuminate then with the upper lemma mucronate :

8. Upper lemma acute not mucronate ..	<i>Paspalidium</i>
8. Upper lemma obtuse, mucronate or very short-awned ..	<i>Urochloa</i>
5. Lower glumes turned towards the rachis, back of the upper lemmas turned away from it, i.e. spikelet adaxial ..	<i>Brachiaria</i>
4. Lemma of the upper floret thinly cartilaginous usually with flat hyaline margins :	
9. Spikelets awnless ..	<i>Digitaria</i>
9. Spikelets awned ..	<i>Alloteropsis</i>
1. Spikelets with an involucre of bristles falling with the bristles at maturity, in clusters ..	<i>Pennisetum</i>

Key to the tribes of Pooideae

1. Spikelets usually with two or more fertile florets, or if with one fertile floret then with sterile reduced floret above it :	
2. Inflorescence of panicles, if racemes or spikes then the spikelets not secund ..	<i>Eragrostieae</i>
2. Inflorescence of racemes or panicle of racemes the spikelets secund ..	<i>Chlorideae</i>
1. Spikelets with one fertile floret (male or female in unisexual 1-flowered spikelet) with or without one or two male or barren florets below it; the later often much reduced :	
3. Spikelet very rarely falling entire and then with firmly membranous to coriaceous 3-nerved lemma :	
4. Lemmas hyaline or membranous at maturity ..	<i>Sporoboleae</i>
4. Lemmas indurated or rigid at maturity ..	<i>Aristideae</i>
3. Spikelets falling entire at maturity lemmas delicate, 1-3 nerved ..	<i>Zoysiaeae</i>

Key to the genera of Chlorideae

1. Inflorescence terminal, spicate, not digitate or racemose spikes; lemmas not obovate :	
2. Inflorescence of spaced clusters of awned spikelet on a simple rachis ..	<i>Melanocenchrus</i>
2. Inflorescence a simple spikelet or spikes of awnless spikelets; rachis thick and tough ..	<i>Oropetium</i>
1. Inflorescence of digitate spike or spikes racemose, very rarely solitary, but if so the lemmas obovate :	

3. Spikelets with one fertile floret and one or more imperfect florets above it, lemmas usually widened upwards spikelets awned .. *Chloris*
3. Spikelets with one fertile floret and no imperfect floret; lemmas not widened upwards; spikelets unawned .. *Cynodon*

Key to the genera of Eragrostaceae

1. Lemmas usually entire at the apex, obtuse, acute or acuminate or if toothed (*Acachne*) then glabrous near the margins and along the side nerves :
2. Glumes aristate-acuminate or aristate .. *Dinebra*
2. Glumes obtuse acute or acuminate, rarely the upper awned and the spikelets then in digitate spikes or a short raceme of spikes (*Dactyloctenium*) :
3. Spikelets in open, contracted or spike-like panicles : ..
4. Inflorescence a panicle some times spike-like .. *Eragrostis*
4. Inflorescence a solitary secund spike .. *Eragrosticella*
3. Spikelets sessile or very short-pedicelled, loosely to densely in digitate or racemose arranged spikes or spike-like racemes :
5. Axis and the branches of the inflorescence ending in spikelets :
6. Spikes digitate or sub-digitate, spikelets 3-6-flowered; glumes 1-5 nerved; grains oblong to globose, grooved with a loose conspicuous pericarp .. *Eleusine*
6. Spikes usually in pseudo-whorls or scattered, spikelets 8-20-flowered; grains coarsely rugose; grooved or hollowed on one face with an early deciduous pericarp .. *Acachne*
5. Axis of spikes terminating in a sharp point .. *Dactyloctenium*
1. Lemmas usually emarginate or 2-4 lobed or toothed at the apex rarely entire and then hairy along the nerves .. *Tripogon*
- Tribe-Sporoboleae .. *Sporobolus*
- Tribe-Zoysieae .. *Traus*
- Tribe-Aristideae .. *Aristida*

ACACHNE Wt. & Arn.

Acachne racemosa (Heyne ex R. & S.) Ohwi in Bull. Tokyo Sci. mus. n. 18. 1. 1947; Bor. Grass. of Burma, Ceylon, India & Pakistan, 487. 1960. *Eleusine racemosa* Heyne ex Roem. et. Schult. Syst. Veg. 2 : 583. 1817. *Eleusine verticillata* Roxb. Fl. Ind. 1 : 1820; Hook. f. Fl. Brit. India 7 : 295. 1896; Blatt- & McC- Bombay Grass- 260. t. 174. 1935.

Erect annuals, glabrous. Leaves linear, spikes 3-5 cm, long, alternate or whorled, or sub-digitate, spikelets 0.4—1 cm long, glabrous, straw-coloured to pale green.

Fls. & Frts. : December - March.

Distrib. : Rare in cultivated fields, S. Y. Kamble 152802, Patur.

ANDROPOGON L.

Andropogon pumilus Roxb. Fl. Ind. 1 : 277. 1820; Hook. f. Fl. Brit India 7 : 170. 1896; Blatt. & McC. 99. 65. 1935; Cooke, Fl. Pres. Bombay 3 : 495. 1958 (Repr. ed.). Bor, Grass. Burma, Ceylon, India & Pakistan, 93 : 1960.

Annuals, tufted, 15-60 cm tall. Leaves linear, glabrous. Racemes binate 0.8-1.2 cm long, lower glume of sessile spikelets deeply grooved, spikelets awned, peduncles slender with cup-shaped structure with 2-3 toothed tips.

Fls. & Frts. : August - January.

Distrib. : Very common throughout; Karla, Mahan, Palodi, Patur.

ALLOTEROPSIS J. Presl ex C. Presl

Alloteropsis cimicina (L.) Stapf in Prain, Fl. Trop. Afr. 9 : 487. 1919; Blatt. & McC. 129. t. 63. 1935; Bor, Grass. of Burma, Ceylon, India & Pakistan 276. 1960. *Milium cimicinum* L. Mant. Alt. 184. 1771. *Axonopus cimicinus* (L.) P. Beauv. Agros. 121. 812; Hook. f. Fl. Brit. India 7 : 64. 1896; Cooke, Fl. Pres. Bombay 3 : 441. 1958 (Repr. ed.).

Annuals 30-60 cm tall. Culms hairy. Leaf blades ovate-lanceolate to lanceolate with bulbous based hairs along margins. Spikelets aristate deciduous, hairs violet, spikelets in spike like racemes; peduncles 5-15 cm long.

Fls. & Frts. : July - September.

Illus. : Trim, Fl. Ceyl. 5 : 166. 1931.

Distrib. : Very common grass on plains as well as in ghats; Khadki, Mahan, Palodi.

APLUADA L.

Apluda mutica L. Sp. Pl. 82. 1753; Bor, Grass. Burma, Ceylon, India & Pakistan 93. 1960. *Aphuda varia* Hack. in DC. Mon. Phan. 6 : 196. 1889; Hook. f. Fl. Brit. India 7 : 150. 1896; Cooke, Fl. Pres. Bombay 3 : 474. 1958 (Repr. ed.). *Apluda varia* Hack. subsp. *aristata* (L.) Hack. Monogr. Androp. in DC. Mon. Phan. 6 : 196. 1889; Blatt. & McC. 29. t. 20. 1935.

Perennial herbs upto 1.5 cm tall; stems tufted. Panicles 5-15 cm long terminal; racemes, simple subtended by a boat shaped aristate spathe, spikelets awned, glabrous.

Fls. & Frts. : August - February.

Illus. : Trim, Fl. Ceyl. 5 : 226. 1931.

Distrib. : Throughout, gregarious, every where, common.

ARISTIDA L.

1. Articulation between lemma and awn absent :

2. Lateral awns of the lemma very much reduced .. *A. redacta*

2. Lateral awns of the lemma well developed :

3. Lemmas much longer than the upper glume; upper glumes 8 cm long; lemmas 12 mm long .. *A. adscensionis*
var. *pumila*

3. Lemmas not much longer than the upper and glume; upper glumes 6-9 mm long; lemmas upto 10 mm long .. *A. adscensionis*

1. Articulation between lemma and awn present :

4. Glumes extra ordinarily unequal; lower glume 25-28 mm long, upper glume 6 mm long .. *A. stockssii*

4. Glumes not so unequal, lower glume 20 mm long, upper glume 15-19 mm long .. *A. funiculata*

Aristida adscensionis L. Sp. Pl. 82. 1753; Hook. f. Fl. Brit. India 7 : 224. 1896; Blatt. & McC. t. 138. 109. 1935; Cooke, Fl. Pres. Bombay 2 : 529. 1958 (Repr. ed.). Bor, Grass, Burma, Ceylon, India & Pakistan 407 1960.

Annuals or perennials 30-50 cm tall; tufted weak erect grass. Leaves narrowly linear, margins convolute; scaberulous. Panicles 8-20 cm long; awns 3, per spikelet; spikelets-linear lanceolate. Lemms 3-awned; awn-scabrid; articulated. Callus pointed and hairy.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 252. 1931.

Distrib. : Throughout, every where, common and abundant. Karla, Palodi, Washim.

Aristida adscensionis L. var. *pumila* (DCNE.) COSS. ET DUR., Fl. d'Alger Glum. 84. 1855; Bor, Grass. Burma, Ceylon, India and Pakistan 409. 1960.
Aristida pumila DCNE in Ann. Sci. Nat. Ser. 2 : 4 : 85. 1855.

This variety is characterised by its lemmas which are considerably longer than the upper glume.

Fls. & Frts. : August - December.

Distrib. : Rare on the hill slopes; Patur, S. Y. Kamble, 150. 173.

Aristida funiculata Trim. et. Rpr. in Mem. Acad. Sci. Petersb. Ser. 6, 7 : 159. 1843; Hook. f. Fl. Brit. India 7 : 226. 1896; Blatt. & McC. 214. t. 142. 1935; Cooke, Fl. Pres. Bombay 3 : 53. 1958 (Repr. ed.), Bor, Grass. Burma, Ceylon, India & Pakistan 410. 1960.

Annuals, slender, 20-45 cm tall, geniculate. Culms. Leaves linear, margins convolute or flat & ciliate. Panicles lax, 5-25 cm long. Glumes aristate, awns 3-4.5 cm long, articulated.

Fls. & Frts. : August - February.

Distrib. : Common on dry grounds; Karla, Mahan, Manora.

Aristida reducta Stapf in Kew Bull. 85. 1892; Hook. f. Fl. Brit. India 7 : 227. 1896; Blatt. & McC. 215. 1935; Cooke, Fl. Pres. Bombay 3 : 531. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 412. 1960.

Annuals or sometimes perennials, tufted, upto 15-50 cm tall. Leaves slender, linear, convolute. Panicles lax 20-25 cm long. Spikelets on capillary pedicels; lower glumes upto 1.3 cm long, floral glume with a hairy callus, 3-awned not truly articulated.

Fls. & Frts. : September - February.

Distrib. : Common on dry grounds and hill slopes; Karanja, Karla, Patur, Wanoja.

Aristida stocksii (Hook. f.) Domin in Bibl. Bot. Hett. 85 : 338. 1915. Bor, Grass. Burma, Ceylon, India & Pakistan 412. 1960. *Aristida funiculata* var. *stocksii* Hook. f. Fl. Brit. India 7 : 277. 1896.

15-20 cm tall tufted annuals. Leaves linear, margins convolute or flat. Panicles densely tufted, awns 5-6 cm long; callus pointed, long unequal.

Fls. & Frts. : August - December.

Distrib. : Occasional not common; Mahan, Narnala fort.

ARTHRAXON P. Beauv.

- | | |
|---|------------------------|
| 1. Lower glume of the sessile spikelets pectinate & muricate on ribs .. | <i>A. lanceifolius</i> |
| 1. Lower glume of the sessile spikelets neither pectinate nor muricate on ribs .. | <i>A. hispidus</i> |

Arthraxon hispidus (Thunb.) Makino var. *hispidus* Welzen, Blumea 27 (1) : 266. 1981. *Arthraxon quartianus* (A. Rich.) Nash in N. Amer. Flora 17 : 99. 1912; Blatt. & McC. 78. t. 49. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 102. 1960.

Annuals, rooting at base, prostrate to ascending, 20-40 cm long. Leaves ovate-lanceolate, acuminate. Racemes 1-6 in fascicle; spikelets solitary, sessile, curved or scanty.

Fls. & Frts. : September - October.

Distrib. : Not common.

Arthraxon lancifolius (Trin.) Hochst. in Flora 39 : 188. 1856; Bor, Grass. Burma, Ceylon, India & Pakistan 100. 1960; Sant. Fl. Khandala ed. 3.304. 1967; Jain in J. Ind. Bot. Soc. 51 : 176. 1972; Welzen in Blumea 27 : 288. 1981. *Arthraxon prionodes* (Steud.) Dandy in Andrews, Fl. Sudan 3 : 399. 1956; Bor, Grass. Burma, Ceylon, India & Pakistan 101. 1960. *Andropogon prionodes* Steud. Syn. Pl. Glum. 1 : 383. 1854. *Arthraxon serrulatus* Hochst. in Fl. 39. 1856; Blatt, & McC. 75. t. 46. 1935. *Arthraxon lanceolatus* auct. non (Roxb.) Hochst. 29 : 186. 1856; Cooke, Fl. Pres. Bombay 3 : 487. 1958 (Repr. ed.).

Tufted, straggling or suberect, glabrous annuals, 30-60 cm long. Leaves ovate-lanceolate, compressed, awned; lower glume pectinate.

Fls. & Frts. : August - February.

Distrib. : Throughout common in grasslands, forest under growth, on hillslopes & plains; Karla, Narnala.

BRACHIARIA Griseb.

1. Panicles erect with linear racemes; spikelets hairy; lower glume scaly upto 0.3 mm long .. *B. cruciformis*
1. Panicles not as above, but oblong-lanceolate or spreading, glumes well developed upto half as long as the spikelet
 2. Spikelets 1.25-2.5 cm long .. *B. reptans*
 2. Spikelets 2. - 4 cm long :
 3. Spikelets turgid; rachis triquetrous loosely arranged .. *B. ramosa*
 3. Spikelets not turgid, if turgid then rachis triquetrous; very loosely arranged .. *B. remota*

Brachiaria eruciformis (J. E. Sm.) Griseb. in Ledeb. Fl. Ross. 4 : 469. 1853; Bot. Grass. Burma, Ceylon, India & Pakistan 283. 1960. *Panicum cruciforme* J. E. Sm. in Sibth et J. E. Sm. Fl. Graeca 1:44. t. 59. 1806 *Panicum isachne* Roth ex R. & S. Syst. Veg. 2 : 458. 1817; Hook. f. Fl. Brit. India 7 : 328. 1896; Cooke, Fl. Pres. Bombay 3 : 418. 1958 (Repr. ed.); *Brachiaria isachne* Stapf in Fl. Trop. Afr. 9 : 552. 1919; Blatt. & McC. 133. t. 85. 1935.

Annuals, tufted, suberect or geniculately ascending, 15-50 cm tall. Leaves lanceolate, appressedly hairy. Panicles 3-9 cm long. Inflorescence secund or subsecund, racemosely arranged; spikelets in two series, unawned.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 133. 1931.

Distrib. : Common. Throughout in grassland and on hill slopes; Karanja, Mahan, Patur, Shelubudruk.

Brachiaria ramosa (L.) Stapf in Prain, Fl. Trop. Afr. 9 : 542. 1919. Blatt. & McC. 134. t. 86. 1935; Bot. Grass. Burma, Ceylon, India & Pakistan 284. 1960. *Panicum ramosum* L. Mant. Pl. 1 : 29. 1767; Hook. f. Fl. Brit. India 7 : 3 (p.p.); Cooke, 3 : 449. 1958 (Repr. ed.).

Annuals 30-45 cm tall tufted. Leaves linear-lanceolate, glabrous or sparsely hairy, spikelets in pairs or solitary, close to one another, unawned, ovoid, acute, pubescent, turgid, upper lemma coriaceous.

Fls. & Frts. : August - November.

Distrib. : Throughout. Common; Alegaon, Karanja, Mahan.

Brachiaria remota (Retz.) Haines, Bot. Bihar & Orissa, 1005. 1924. *Panicum remotum* Retz. Obs. Bot. 4 : 17. 1786.

Weak annuals, suberect. Leaves linear-lanceolate. Inflorescence lax; pedicels very long; glabrous, hairs present on the pedicels and rachis. Spikelets unawned, turgid, acute and ovoid.

Fls. & Frts. : August - November.

Distrib. : Rare, Umberwadi felling series S. Y. Kamble 150163.

Brachiaria reptans (L.) Gard. et C. E. Hubb. in Hook. Icones Pl. Sub. Tab. 3363. 1938; Bot. Grass. Burma, Ceylon, India & Pakistan 285. 1960. *Panicum prostratum* Lam. Tab. Encycl. Medth. Bot. 1 : 171. 1791 & Encycl. Meth. Bot. 4 : 730. 1797; Hook. f. Fl. Brit. India 7: 33. 1896; Cooke, Fl. Pres. Bombay 3 : 448. 1958 (Repr. ed.). *Urochloa reptans* (L.) Stapf in Prain, Fl. Trop. Afr. 9 : 601. 1920; Blatt. & McC. 144. t. 92. 1935.

Annuals, creeping and rooting at nodes 10-45 cm long. Leaves ovate-lanceolate or lanceolate, flat, glabrous. Panicles of short racemes 5-8, alternate, secund, 1.5-3 cm long. Spikelets solitary or binate, ellipsoid, turgid, glabrous or hairy.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 5 : 138. 1931.

Distrib. : Common; Alegaon, Karanja, Karla, Mahan, Palodi.

BOTHRIOCLOA O. Ktze.

- | | |
|---|---------------------|
| 1. Racemes 9-15 in number, upto 8 cm long densely covered with silky hairs .. | <i>B. kuntzeana</i> |
| 1. Racemes 2-8 n number, upto 5 cm long .. | <i>B. pertusa</i> |

Bothriochloa kuntzeana (Hack.) Henr. in Blumea 3 : 456. 1940; Bor, Grass. Burma, Ceylon, India & Pakistan 108. 1960. *Andropogon kuntzedna* Hack. in DC. Monogr. Phan. 6 : 478. 1889.

Tall grasses upto 1-1.2 m high with long digitate racemes. Spikelets dark violet, shining, awned, silky hairy; lower glume of the sessile spikelets pitted; callus hairy.

Fls. & Frts. : August - February.

Distrib. : Occasional; Chikhaldar, Karla.

Bothriochloa pertusa (Linn.) A. Camus in Ann. Soc. Linn. Lyon, (n. s.) 76. 164. 1930 (1931); Bor, Grass. Burma, Ceylon, India & Pakistan 109. 1880. *Holcus pertusus* L. Mant. Ait. 2 : 301. 1771. *Andropogon pertusus* Willd. Sp. Pl. 4 : 922. 1806; Hook. f. Fl. Brit. India 7 : 173. 1896; Cooke, Fl. Pres. Bombay 3 : 497. 1958 (Repr. ed.). *Amphilophis pertusa* Nash ex Stapf in Agri. News, W. Ind. 15 : 179. 1916 & in Fl. Trop. Afr. 9 : 175. 1917; Blatt. & McC. Bombay Grass. 84. t. 86. 1935.

Perennials, 30-45 cm tall, stems tufted, erect or ascending. Leaves narrowly linear. Panicles subdigitate racemes; spikelets awned, hairy, pitted; pedicels, glabrous, sessiles spikelets oblong-lanceolate, awned; pedicellate spikelets narrow and awnless.

Fls. & Frts. : June - August.

Illus. : Trim. Fl. Ceyl. 5 : 230. 1931.

Distrib. : Very common, everywhere; Alegaon, Karla, Chikhaldar, Mahan, Morna, Shelubudruk.

CAPILLIPEDIUM Stapf

Capillipedium huegelii (Hack.) Stapf in Hook. Icon Pl. Sub. tab. 3085. 1922; Blatt. & McC. Bombay Grass. 81. t. 52. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan Ill. 1960. *Andropogon huegelii* Hack. in DC. Monogr. Phan. 6 : 492. 1889; Hook. f. Fl. Brit. India 7 : 180. 1896; Cooke, Fl. Pres. Bombay 3 : 501. 1958 (Repr. ed.).

20-50 cm tall glabrous annuals. Leaves linear-lanceolate, shortly ciliate on the margins, flat. Panicles terminal, spikelets awned on filiform pedicels, hairy in the lower half.

Fls. & Frts. : August - March.

Distrib. : Common in forests & ghats; Kalakamtha, Narnala fort, Palodi & Patur.

CHIONACHNE R. Br.

Chionachne koenigii (Spreng.) Thw. Enum. Pl. Zeyl. 357. 1864; Bor, Grass. Burma, Ceylon, India & Pakistan 262. 1960. *Coix koenigii* Spreng. Syst. 1 : 239. 1825. *Polytoca barbata* (Roxb.) Stapf ex Hook. f. Fl. Brit. India 7 : 102. 1896; Blatt. & McC. Bombay Grass. 6. t. 3. 1935; Cooke, Fl. Pres. Bombay 3 : 519. 1958 (Repr. ed.).

Mar. : 'Kanta-Karvel'.

Perennials, monoecious, leaves linear-lanceolate upto 2 cm broad. Male inflorescence at top and female inflorescence below it. Nuts white, shining, closely wrapped round the rachis of the spike.

Fls. & Frts. : September - November.

Illus. : Trim. Fl. Ceyl. 5 : 194. 1931.

Distrib. : Occasional not common; Narnala fort, Palodi.

CHLORIS Sw.

- | | |
|--|--------------------------|
| 1. Herbs erect from the base, spikes long upto 25 cm in length; empty lemmas represented by a fine awns .. | <i>C. dolichostachya</i> |
| 1. Herbs prostrate, rooting at nodes sending up flowering culms, spikes not more than 6.5 in length; empty lemmas oblanceolate, truncate & aristate .. | <i>C. virgata</i> |

Chloris dolichostachya Lagasca, Gen. et Sp. Pl. 5 : 1816; Bor, Grass. Burma, Ceylon, India & Pakistan 466. 1960. *Chloris incompleta* Roth, Nov.

Pl. Sp. 60. 1821; Hook. f. Fl. Brit. India 7 : 290. 1896; Blatt. & McC. Bombay Grass. 253. t. 168. 1935; Cooke, Fl. Pres. Bombay 3 : 556. 1958 (Repr. ed.).

Stems procumbent or erect, perennials upto 65 cm tall. Leaves linear, flat. Inflorescence of 4-5 cm long spreading; spikes digitately arranged; spikelets awned, oblanceolate, imbricated or closely appressed. Callus bearded.

Fls. & Frts. : September - February.

Illus. : Trim. Fl. Ceyl. 5 : 275. 1931.

Distrib. : Rare on the fort Narnala.

Chloris virgata Sw. 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.

Erect or ascending herbs, creeping and rooting at nodes. 20-25 cm tall, Leaves linear. Spikes 5-15 cm long digitate.

Fls. & Frts. : August - December.

Distrib. : Rare in moist places of the dam; Mahan.

CHRYSTOPOGON Trim. *nom. cons.*

Chrysopogon fulvus (Spreng.) Chiov. Fl. Somal. 1 : 327. 1929; Bor, Grass. Burma, Ceylon, India & Pakistan 116. 1960. ***Andropogon monticola*** R. & S. Syst. Veg. 2. Mant. 665. 1827; Hook. f. Fl. Brit. India 7 : 192. 1896; Cooke, Fl. Pres. Bombay 3 : 505. 1958 (Repr. ed.). ***Chrysopogon montanus*** Trim. ex Spreng. Neve Entdeck. 2 : 93. 1821; Blatt. & McC. Bombay Grass. 70. t. 42. 1935.

Tall perennials upto 50 cm high. Leaves narrowly linear with scabrous margins. Panicles lax, 5-10 cm long, terminal; spikelets awned racemes reduced to a single sessile female and 2 pedicellate spikelets; sessile spikelet with rufous hairs, pedicels ciliate.

Fls. & Frts. : July - February.

Illus. : Trim. Fl. Ceyl. 5 : 236. 1931.

Distrib. : Common on plains, grass lands, ghats and in cultivated fields; Alegaon, Chikhaldara, Karla, Mahan.

COIX L.

Coix lacryma-jobi L. Sp. Pl. 972. 1753; Hook. f. Fl. Brit. India 7 : 100. 1896; Blatt. & McC. Bombay Grass. 3. t. 1. 1935; Cooke, Fl. Pres. Bombay 3 : 517. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 264. 1960.

Mar. : 'Ranjondhala'.

30-120 cm tall, stout herbs. Leaves linear-lanceolate, flat; glabrous or sparsely hairy. Inflorescence spike-like racemes, axillary and terminal. Male spikelets above the female ones. Nuts ovoid or globose, greyish-white, shining.

Fls. & Frts. : August - March.

Illus. : Trim. Fl. Ceyl. 5 : 192. 1931.

Distrib. : Common in moist places mostly near nadas and dried pools Chikhralal, Mahan, Palodi.

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. *Andropogon schoenanthus* L. var. *martinii*, (Roxb.) Hook. f. Fl. Brit. India 7 : 204. 1896.

Scented perennials, 90-120 cm tall. Leaves linear-lanceolate, glabrous, flat. Spikes about 2-5 cm long, spathaceous, in terminal 10-30 cm long interrupted racemes.

Fls. & Frts. : July - February.

Distrib. : Common in hilly areas and on plains; gregarious, Karla, Narnala.

CYNODON A. Rich. NOM. CONS.

Cynodon dactylon (L.) Pers. Syn. Pl. 1 : 85. 1805; Hook. f. Fl. Brit. India 7 : 288. 1896; Blatt. & McC. Bombay Grass. 250. t. 166. 1935; Cooke, Fl. Pres. Bombay 3 : 554. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 169. 1960. *Panicum dactylon* L. Sp. Pl. 58. 1753.

Mar. : 'Harali'.

Perennials creepers; culms, erect 10-35 cm tall. Leaves narrowly linear. Spikes $3-5 \times 1.5-4$ cm long, digitate; rachilla produced; spikelets laterally compressed; glumes lanceolates, lemmas oblong to semi-ovate.

Fls. & Frts. : August - February.

Illus. : Trm. Fl. Ceyl. 3 : 274. 1931.

Distrib. : Not very common; Patur, Pinjar.

DACTYLOCTENIUM Willd.

Dactyloctenium aegyptium (L.) P. Beauv. Ess. Agrost. Expl. 15. 1812; Blatt. & McC. Bombay Grass. 262. t. 176. 1935; Bor, Grass. Burma Ceylon, India & Pakistan 489. fig. 54. 1960. *Cynosurus aegyptius* L. Sp. Pl. 72. 1753. *Eleusine aegyptiaca* (L.) Desf. Fl. Atlant. 1 : 85. 1798; Hook. f. Fl. Brit. India 7 : 295. 1896; Cooke, Fl. Pres. Bombay 3 : 560. 1958 (Repr. ed.).

Annuals erect or ascending, 10-35 cm tall. Leaves linear, glabrous or sparsely ciliate on margins. Spikes $3-7 \times 2-3.5$ cm long, stiff, digitate, sharply mucronate. Spikelets laterally compressed. Grains subglobose reddish, very rugose.

Fls. & Frts. : August - February.

Illus. : Trm. Fl. Ceyl. 5 : 279. 1931.

Distrib. : Rare S. Y. Kamble 149447, Mahan.

DICHANTHIUM Willem.

1. Peduncles hairy below the racemes	..	<i>D. aristatum</i>
1. Peduncles glabrous	..	<i>D. annulatum</i>

Dichanthium annulatum (Forsk.) Stapf in Prain, Fl. Trp. Afr. 9 : 178. 1917; Blatt. & McC. Bombay Grass. 94. t. 72. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan, 133. 1960. *Andropogon annulatus* Forsk. Fl. Aegpt.-Arab. 173. 1775; Hk. f. Fl. Brit. India 7 : 196. 1896; Cooke, Fl. Pres. Bombay 3 : 508. 1958 (Repr. ed.).

Perennials, tufted, erect or suberect 20-90 cm tall. Leaves linear, flat, glabrous. Inflorescence terminal 2-13 cm, subracemosely digitate; racemes 2.5-6 cm long, violet, purple and straw-coloured. Spikelets awned; sessile spikelets elliptic-oblong & bisexual; pedicellate spikelets male or neuter.

Fls. & Frts. : August - February.

Distrib. : Very common; Abundant everywhere; Chikhalwal, Karla Mahan, Narnala, Shelubudruk.

Dichanthium aristatum (Poir.) C. E. Hubb. in Kew. Bull. 1939 654. 1939; Bor, Grass. Burma, Ceylon, India & Pakistan 134. 1960. *Andropogon aristatus* Poir. in Lam. Encycl. Meth. Bot. Suppl. 1 : 585. 1810.

Erect or suberect herbs with linear leaves. Spikes 2-4 upto 5 cm long digitate; spikelets awned, sessile, elliptic oblong, bisexual, pedicelled spikelets ones male or nucifer.

Fls. & Frts. : February.

Distrib. : Occasional; Chikhalwal, Patur.

DIGITARIA Haller

1. Lower lemmas of the pedicelled spikelets or those of both the spikelets with bulbous based hairs	..	<i>D. bicornis</i>
1. Lower lemmas without any such bulbous based hairs,		
2 Hairs on the spikelets clavate :		
3. Pedicels with long hairs at the tip :		
4. Spikelets elliptic-oblong, elliptic, 2.5 cm long	..	<i>D. ternata</i>
4. Spikelets elliptic- obovate, 1.25 mm long	..	<i>D. stricta</i>
3. Pedicels without long hairs at the tip	..	<i>D. abrudens</i>
2. Hairs on the spikelets simple :		
5. Upper glumes more than half the length of the spikelets ..		<i>D. ciliaris</i>
5. Upper glumes less than half the length of the spikelet, usually scale .2 - 0.3 mm long	..	<i>D. setigera</i>

Digitaria abrudens (R. & S.) Veldk. in Blumea 21 : 53. 1973. *Panicum abrudens* R. & S. Syst. Veg. 2 : 457. 1817. *Paspalum pedicellaris* Trin. ex Steud. Nom. ed. 2, 272. 1841; Hook. f. Fl. Brit. India 7 : 19. 1896. *Digitaria pedicellaris* (Trin. ex Steud.) Prain, Bengal Pl. 1182. 1903; Blatt. & McC. Bombay Grass. 126. t. 18. 1935; Cooke, Fl. Pres. Bombay 3 : 458. 1958 (Repr. ed.). *Digitaria granularis* (Trin.) Henr. Monogr. *Digitaria* 302, fig. 891. 1950. Bor, Grass. Burma, Ceylon, India & Pakistan, 302. 1960.

Erect, slender annuals or perennials 15-40 cm tall. Leaves linear-lanceolate flat. Spikes 2-5 cm, racemously arranged on glabrous peduncles; spikelets turgid, loosely arranged.

Fls. & Frts. : July - October.

Distrib. : Common in open grass lands near the dam; Alegaon, Mahan, Patur.

Digitaria bicornis (Lamk.) R. & S. Syst. 2 : 470. 1817; Veldk. in Blumea 21 : 30. 1973. *Paspalum bicorne* Lamk. Encycl. 1 : 176. 1791. *Digitaria adscendens* Henr. ssp. *chrysoblehara* Henr. Monogr. *Digitaria* 125, fig. 988. 1950; Bor, Grass. Burma, Ceylon India & Pakistan 299. 1960.

Annuals, tufted, rooting at nodes; culms upto 60 cm. Leaves glabrous with scabrous margins, few bulbous based hairs at the base, linear-lanceolate. Racemes 2-5 cm, digitate 5-12 cm long, spikelets heteromorphous.

Fls. & Frts. : August.

Distrib. : Rare; S. Y. Kamble 150030A; Alegaon.

Digitaria ciliaris (Retz.) Koel. Descr. Gram. 27. 1802, Pro. comb., Veldk. in Blumea 21 : 32. 1973. *Panicum ciliare* Retz. Obs. 4 : 16. 1786. pro. specim. Chin. *Paspalum sanguinale* L. var. *ciliare* Hk. f. in Hook. f. Fl. Brit. India 7 : 15. 1896. *Digitaria sanguinalis* Scop. var. *ciliaris* Prain, Bengal Pl. 1181. 1903; Cooke, Fl. Pres. Bombay 3 : 457. 1958 (Repr. ed.). *D. marginata* Link var. *fimbriata* (Link) Stapf, in Prain, Fl. Trop. Afr. 9 : 440. 1919; Blatt. & McC. Bombay Grasses 125. t. 78. 1935. *D. adscendens* (H. B. K.) Henr. in Blumea 1 : 92. 1934; Monogr. *Digitaria* 9, fig. 998. 1950; Bor, Grass. Burma, Ceylon, India & Pakistan 298. 1960.

Decumbent tufted herbs rooting at nodes; culms upto 60 cm high. Leaves linear, glabrous or scabrous. Racemes, digitate, 3-7 in number, 3-15 cm long; spikelets binate, variously pubescent to glabrous, homemorphous upto 30 mm long lanceolate.

Fls. & Frts. : August - February.

Distrib. : Very common, throughout; Alegaon, Chikhaldar, Kalakamta, Karla, Mahan, Narnala.

Digitaria setigera Roth ex R. & S. Syst. Veg. 2 : 474. 1817; Henr. Monogr. *Digitaria* 684. 1950, in obs; Bor, Grass. Burma, Ceylon, India & Pakistan 305 1960; Veldk. in Blumea 21 : 37. 1973. *Paspalum sanguinale* Lamk. var. *extensum* Hook. f. India Fl. Brit. India 7 : 16. 1896.

30—80 cm tall, glabrous herbs with leaves linear to linear lanceolate, scabrid. Racemes subdigitate upto 10 cm long, 4—6 cm in number; spikelets elliptic-lanceolate, lower glume a triangular Scale.

Fls. & Frts. : August - September.

Distrib. : Occasional; Alegaon, Narnala fort.

Digitaria stricta Roth ex R. & S. Syst. Veg. 2 : 474. 1817; var. *stricta* Bor, Grass. Burma, Ceylon, India & Pakistan 305. 1960. *Paspalum royleanum* Nees ex Thw. Enum. Pl. Zeyl. 358. 1864; Hook. f. Fl. Brit. India 7 : 18. 1896; *Digitaria royleana* (Nees ex Thw.) Prain, Bengal Pl. 1182. 1903; Blatt. & McC. Bombay Grass. 127. t. 82. 1935; Cooke, Fl. Pres. Bombay 3 : 459. 1958 (Repr. ed.).

15—35 cm tall, slender, tufted erect annuals. Leaves linear-lanceolate flat, glabrous. Racemes 4—6×5—8 cm long terminal, subdigitate.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 5 : 125. 1931.

Distrib. : Common; Kalakamta, Mahan, Palodi.

Digitaria ternata (A. Rich.) Stapf, Fl. Cap. 7 : 376. 1898; Henr. Monogr. *Digitaria* 737. fig. 888. 1950; Cooke, Fl. Pres. Bombay 3 : 457. 1958 (Repr. ed.); Bor. Grass. Burma, Ceylon, India & Pakistan 306. 1960; Veldk. in Blumea 21 : 59. 1973; *Paspalum ternatum* Hook. f. Fl. Brit. India 7 : 117. 1896; *Cynodon ternatus* A. Rich. Tent. Fl. Adyss 2: 405, 1853,

Tufted annuals 20—35 cm tall. Leaves narrowly linear, glabrous. or pilose. Racemes 2—10×2—6 cm long; spikelets ternate, villous with hairs, oblong, elliptic, unawned. Lower glume absent; upper glume as long as lower lemma. Grains oblong.

Fls. & Frts. : August - November.

Distrib. : Rare, S. Y. Kamble 149436. Mahan.

DINEBRA Jacq.

Dinebra retroflexa (Vahl) Panz. in Denskschr. Acad. Willd. Munch. 270. t. 12. 1814; Blatt. & McC. Bombay Grass. 284. t. 177. 1935 Bor, Grass. Burma, Ceylon, India & Pakistan, 491. 1960. *Cynosurus retroflexus* Vahl, Symb. Bot. 2 : 20. 1791. *Dinebra arabica* Jacq. Fragm. 77. t. 121. f. 1. 1807; Hook. f. Fl. Brit. India; 7 : 297. 1896; Cooke, Fl. Pres. Bombay 3 : 562. 1958 (Repr. ed.).

15—70 cm tall, tufted, erect or geniculately ascending herbs. Leaves linear flat, glabrous. Panicles 5—25 cm long; spikes racemously arranged. Glumes

keeled, lanceolate; lemmas ovate-oblong, subacute, white. Grains ellipsoid-oblong-trigonous.

Fls. & Frts. : August - February

Illus. : Trim. Fl. Ceyl. 5 : 280. 1931.

Distrib. : Common; Alegaon, Karla, Patur,

ECHINOCHOLA P. Beauv.

- | | |
|--|-----------------------|
| 1. Spikelets 2.5 - 3 mm long, not crowded in spike; grains not deciduous | <i>E. colonum</i> |
| 1. Spikelets 3-4 mm long, densely crowded; grains not deciduous | <i>E. frumentacea</i> |

***Echinochloa colona* (L.) Link, Hort. Berol. 2 : 209. 1833; Blatt. & McC. Bombay Grass. 148. t. 94. 1935.; 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.).**

Slender diffuse herbs, 15—50 cm tall. Leaves linear, glabrous or sparsely hairy, flat. Panicles 5—12 cm long. Spikes thin, 1—1.5 cm long; spikelets acuminate, cuspidate; glumes broadly ovate or suborbicular, upper lemma coriaceous, ovate, turgid, polished and yellowish-white.

Fls. & Frts. : August - March.

Illus. : Trim. Fl. Ceyl. 5 : 136. 1931.

Distrib. : Very common in marshy places near the nadas, drying pools in fields; Adna dam, Akot, Karla, Mahan, Narnala, Palodi.

***Echinochloa frumentacea* Link, Hort. Berol 1 : 204. 1827; Bor, Grass. Burma, Ceylon, India & Pakistan, 311. 1960. *Panicum stagnuum* Retz. var. *frumentacea* (Link) Trim. Cat. Ceyl. Pl. 104. 1885; Hook. f. Fl. Brit. India 7 : 31. 1896; Cooke, Fl. Pres. Bombay 3 : 146. 1958 (Repr. ed.). *Echinochloa colonum* (L.) Link var. *frumentacea* (Link) Ridley, Fl. Malay. Penin. 5 : 223. 1925; Blatt. & McC. Bombay Grass. 149. 1935.**

Tall robust annuals. Stems prostrate. Leaves linear, glabrous, flat. Panicles pyramidal, 10—12 cm long, spikes thickened; spikelets ovoid. Lower glume half as long as the spikelets, broadly ovate, cuspidate; upper glume ovate, upper lemma coriaceous, mucronate, ovate-lanceolate.

Fls. & Frts. : October - March.

Illus. : Trim. Fl. Ceyl. 5 : 136. 1931.

Distrib. : Rare; Mahan, S. Y. Kamble 152954, near the lake.

ELEUSINE Gaertn.

Eleusine indica (L.) Gaertn. Fruct. 1 : 8. 1789; Hook. f. Fl. Brit. India 7 : 293. 1896; Blatt. & McC. Bombay Grass. 259. t. 172. 1935; Cooke, Fl. Pres. Bombay 3 : 360. 1958 (Repr. ed.); Bor, Grass. Burma. Ceylon, India & Pakistan 493. 1960.

15—30 cm tall tufted annuals. Leaves linear flat, glabrous or sparsely hairy. Spikes 3—6 × 2—4 cm long, digitate or subdigitate, spikelets biseriate, secund; glumes membranous; lower glume ovate, oblong acute, upper glume-ovate, oblong, obtuse. Grains oblong, obtusely trigonous.

Fls. & Frts. : July - January.

Illus. : Trim. Fl. Ceyl. 5 : 277. 1931.

Distrib. : Common; Kinhiraja.

ERAGROSTIELLA Bor

Keels of the palea broadly winged; leaves narrowly linear, almost filiform when rolled .. *E. bifaria*

Keels of the palea not broadly winged; leaves convolute, filiform or broader and shorter, complicate .. *E. brachyphyla*

Eragrostiella bifaria (Vahl) Bor, in Indian For. 66 : 270. 1940; Grass. Burma, Ceylon, India & Pakistan 494. 1960. *Poa bifaria* Vahl, Symb. Bot. 2 : 19. 1791. *Eragrostis bifaria* Wt. ex Steud. Nom. Bot. ed. 2. I : 562. 1840; nomen et Syn. Pl. Glum. 1 : 264. 1854; Hook. f. Fl. Brit. India 7 : 325. 1896; Blatt. & McC. Bombay Grass. 241. 1935; Cooke, Fl. Pres. Bombay 3 : 550. 1958 (Repr. ed.).

Perennials tufted, glabrous, weak and erect. Leaves filiform. Inflorescence. long. Spikelets in terminal panicles, laterally compressed, secund, olive green in colour; glumes keeled on the back, lemmas broadly ovate, subacute.

Fls. & Frts. : August - September.

Distrib. : Rare; S. Y. Kamble 149986, Akola (Khadki).

Eragrostiella brachyphyla (Stapf) Bor, in Indian For. 66 : 270. 1940 Grass. Burma, Ceylon, India & Pakistan 494. 1960. *Eragrostis brachyphyla* Stapf apud. Hook. f. Fl. Brit. India 7 : 327. 1896; Blatt. & McC. Bombay Grass. 242, 1935.

Tufted perennials 30—50 cm tall. Leaves mostly radical, linear, flat. Spikelets laterally compressed, olive-green, ovoid to oblong, 15-20-flowered. Glumes strongly keeled on the back. Upper lemma broadly ovate, subacute.

Fls. & Frts. August - September.

Distrib. : Occasional; Khadki, Pinjar.

ERAGROSTIS P. Beauv.

1. Spikelets breaking up from above downwards :

2. Keels of the palea more or less ciliate .. *E. tenella*

2. Keels of the palea glabrous or scabrid, not ciliate :

3. Stout, tall perennials with woody solid basal branches and stems; branches of the inflorescence solitary or in whorls of 2-3, more than 5 cm long .. *E. numaguensis*
var. *diploachnoides*

3. Slender, tufted annuals; branches of the inflorescence solitary, less than 5 cm long .. *E. diarrhena*

1. Spikelets breaking up from below upwards :

4. Plants glandular; grains less than 1 mm :
5. Spikelets lax on long capillary pedicels; paleas deciduous .. *E. pilosa*

5. Spikelets on rather stiff pedicels; paleas persistent .. *E. minor*

4. Plants eglandular; grains 1.3 - 2 mm .. *E. ciliianensis*

Eragrostis ciliianensis (All.). Link ex Vignolo-lutaeti in Malpighia 18 : 386. 1904; Blatt. & McC. Bombay Grass. 237. t. 157. 1935; Bor. Grass. Burma, Ceylon, India & Pakistan 503. 1960. *Poa ciliianensis* All. Fl. Peden 2 : 246, t. 91. 1785. *Eragrostis major* Hochst. Gram. Austr. 4 : 14. t. 24. 1809; Hk. f. Fl. Brit. India 7 : 320. 1896; Cooke, Fl. Pres. Bombay 3 : 548. 1958 (Repr. ed.).

Annuals, 30—50 cm tall, erect or suberect, geniculate at the base. Leaves linear to linear-lanceolate, glabrous. Panicles terminal, 9—18 cm long, oblong. Spikelets compressed laterally, ovate-lanceolate, upto 3 mm broad. Nuts ovoid, light brown.

Fls. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 297. 1931.

Distrib. : Less common in ghats; Narnala, Patur.

Eragrostis diarrhena (Schult.) Steud. Syn. Pl. Glum. 266. 1854; Bor. Grass. Burma, Ceylon, India & Pakistan 507. 1960. *Poa diarrhena* Schult. Mant.

2 : 615. 1827. *Eragrostis interrupta* (R. Br.) P. Beauv. var. *koenigii* Stapf ex Hook. f. in Hook. f. Fl. Brit. India 7 : 816. 1896; Cooke, Fl. Pres. Bombay 3 : 546. 1958 (Repr. ed.). *Eragrostis interrupta* auct. non (R. Br.) P. Beauv.; Blatt. & McC. Bombay Grass. 233 (p. p.) 1935.

Tufted slender, 30—50 cm tall annuals, geniculate at the base. Leaves linear, flat, glabrous. Panicles 15—35 cm long, contracted, or appressed or spreading with numerous fascicled branches bearing spikelets. Spikelets laterally compressed, ovate to linear.

Fls. & Frts. : November - February.

Illus. : Trim. Fl. Ceyl. 5 : 292. 1931.

Distrib. : Rare, S. Y. Kamble 152922., in moist places along nala; Kashmar.

Eragrostis minor Host. Gram. Austr. 4 : 15. 1809; Hook. f. Fl. Brit. India 7 : 321. 1896; Blatt. & McC. Bombay Grass. 238. t. 158. 1935; Cooke, Fl. Pres. Bombay 3 : 548. 1958 (Repr. ed.). W. D. Clayton et al Fl. Trp Afr. Graminae Part 2 : 234. 1974; U. Shukla & S. K. Jain, Bull. Bot Surv. India 20 (1.4) : 67. 1978; *Eragrostis pooides* P. Beauv. Ess. Agrost. 162. 1882; Bor, Grass. Burma, Ceylon, India & Pakistan 512. 1960.

15—45 cm tall, erect or geniculate annuals. Leaves linear, glabrous, flat or involute. Panicles 7—25 cm long, oblong, Spikelets 0.3—1 cm long, laterally compressed. Pale green ladden with dark colour. Grains globose, rugulose.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 279. 1931.

Distrib. : Common; Karla, Khadki, Kinbiraja, Patur.

Eragrostis numquamensis Schrad. var. *diplochmoides* (Steud.) W. D. Clayton; Kew Bull 25 (2) : 251. 1971. *Eragrostis diplochmoides* Steud. Syn. Pl. Glum. 1 : 268. 1854. ; Bor, Grass. Burma, Ceylon, India Pakistan 503. 1960. *E. interrupta* P. Beauv. var. *diplochmoides* (Steud.) Stapf in Hook. f. Fl. Brit. India 7 : 316. 1896.

Stout, perennials upto 75 cm tall. Leaves linear, panicles 25-45 cm long; branches subwhorled or solitary, long. Spikelets laterally compressed, unawned 10 - 15-flowered. Grains oblong, minute.

Fls. & Frts. : February.

Distrib. : Less common; Karla.

Eragrostis pilosa (L.) P. Beauv. Ess. Agrost. 7 : 162. 175. 1812. Hook. f. Fl. Brit. India 7 : 323. 1896; Cooke, Fl. Pres. Bombay 3 : 550. 1958 (Repr. ed.).

Slender annuals 15—50 cm tall. Leaves linear. Panicles 10—15 cm to 25 cm long, oblong, rachis filiform, branches capillary, fascicled or whorled; spikelets 5—12-flowered; pedicels much longer. Grains discoid, apiculate.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 296. 1935.

Distrib. : Common; Karla, Khadki, Khinhiraja, Mahan, Medshi.

Eragrostis tenella (L.) P. Beauv. ex R. & S. Syst. Veg. 2 : 576. 1817; Hook. f. Fl. Brit. India 7 : 315. 1896; Cooke, Fl. Pres. Bombay 3 : 545. 1958 (Repr. ed. Bor. Grass. Burma, Ceylon, India & Pakistan 513. 1960. *Poa tenella* L. Sp. Pl. 69. 1753. *Eragrostis tenella* (L.) P. Beauv. var. *plumosa* (Retz.) Stapf. ex Hook. f. in Hook. f. Fl. Brit. India 7 : 315. 1896; Blatt. & McC. Bombay Grass 232, t. 155. 1935; Cooke, Fl. Pres. Bombay 3 : 545. 1958 (Repr. ed.).

Erect or suberect 15-35 cm tall geniculate annuals. Leaves narrowly linear, flat or convolute, glabrous. Panicles convolute, 5—15 cm pyramidal or ovate-oblong; spikelets oblong, laterally compressed. Pale green 3—9-flowered. Grains ovoid.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 5 : 291. 1931.

Distrib. : Common; Khadki, Mahan, Medshi.

EREMOPOGON (Hack.) Stapf

Eremopogon foveolatus (Del.) Stapf in Prain, Fl. Trop. Afr. 9 : 183. 1917; Blatt. & McC. Bombay Grass. 96, t. 64. 1935; Bor. Grass. Burma, Ceylon, Indian, Pakistan 148. 1960. *Andropogon foveolatus* Del. Fl. d'Egypte 16. t. 8. f 2. 1812; Hook. f. Fl. Brit. India 7 : 168. 1896; Cooke, Fl. Pres. Bombay 3 : 496. 1958n (Repr. ed.).

Mar. : 'Ghamdel'.

30—50 cm tall tufted erect glabrous herbs. Cataphylls silky. Leaves narrowly linear-lanceolate or flat. Racemes solitary, terminal 2.5—3 cm long; spikelets awned, purplish, with pits on them, oblong-lanceolate, glabrous

Fls. & Frts. : August - February.

Distrib. : Common, in open areas & ghats; Alegaon, Chikhaldar, Karla, Mahan.

HACKELOCHLOA O. Ktze.

Hackelochloa granularis (L.) O. Ktze. Rev. Gen. Pl. 776. 1891; Bor, Grass. Burma, Ceylon, India & Pakistan 159. 1960. *Manisurus granularis* L. f. Nov. Gram. Gen. 40. 1779; Hook. f. Fl. Brit. India 7 : 159. 1896; Blatt. & McC. Bombay Grass. 32, t. 22. 1935; Cooke, Fl. Pres. Bombay 3 : 473. 1958 (Repr. ed.).

20—60 cm tall tufted erect annuals. Leaves linear to linear lanceolate, hairy, flat. Racemes 0.7—1.2 cm long, solitary or apparently fascicled in axils of leaves. Spikelets globose, pale brown, 0.1 cm across.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 209. 1931.

Distrib. : Common throughout, gregarious; Alegaon, Karanja, Mahan, Pinjar.

HEMARTHRIA R. Br.

Hemarthria compressa (L. f.) R. Br. Prodr. 207. 1810; Blatt. & McC. Bombay Grass. 31, t. 21. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 161. 1960. *Rottboellia compressa* L. f., Suppl. 114. 1781; Hook. f. Fl. Brit. India 7 : 153. 896; Cooke, Fl. Pres. Bombay 3 : 470. 1958 (Repr. ed.).

Trailing perennials, 50—70 cm long with decumbent base. Leaves linear, flat, glabrous. Racemes 5—8 cm long, 2-3 or more fascicled, axillary and terminal, slightly falcate; joints of the rachis thickened, glumes notched at the apex in to a bifid point.

Fls. & Frts. : June - December.

Illus. : Trim. Fl. Ceyl. 5 : 206. 1931.

Distrib. : Occasional in moist places; Karanja, Mahan.

HETEROPOGON Pers.

- | | |
|--|----------------------|
| 1. Stout & tall grasses; racemes glabrous 10-15 cm long; lower glume of the sessile fertile spikelet 8-9 mm long | <i>H. triticinus</i> |
| 1. Weak and slender grasses; racemes bristly hairy; lower glume of the sessile fertile spikelets 6-5 mm long | <i>H. contortus</i> |

Heteropogon contortus (L.) P. Beauv. ex R. & S. Syst. Veg. 2 : 836. 1817; Blatt & McC. Bombay Grass. 109, t. 71. 1935, Bor, Grass. Burma, Ceylon, India & Pakistan 163. 1960. *Andropogon contortus* L. Sp. Pl. 045. 1753; Hook. f. Fl. Brit. India 7 : 199. 1896; Cooke, Fl. Pres. Bombay 3 : 510. 1958 (Repr. ed.).

30—60 cm tall, tufted, erect or basally geniculate perennials. Leaves linear, flat or folded. Racemes 2—5 cm long, terminal, solitary. Spikelets imbricate, pubescent and sessile. Upper female spikelets awned, lower male or neuter awnless; awns upto 8 cm long, stout, brown.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 238. 1931.

Distrib. : Throughout, in grass lands on hillslopes, gregarious or scattered, common; Karanja, Karla, Mahan, Narnala.

Heteropogon triticeus (R. Br.) Stapf ex Craib in Kew Bull. 412. 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. 1958n (Repr. ed.). *Heteropogon insignis* Thw. Enum. 437. 1864; Blatt. & McC. Bombay Grass. 108. t. 69. 1935.

Stout and tall perennials 1.2—2 meters in height. Leaves narrowly linear glabrous, sparsely hairy with scabrous margins. Racemes large; spikelets awned, lanceolate & coriaceous; awns ciliate on the spirals, stout.

Fls. & Frts. : October - November.

Illus. : Trim. Fl. Ceyl. 5 : 239. 1931.

Distrib. : Rare, S. Y. Kamble 160859; Karanja.

ISCHAEMUM L.

- | | |
|--|-------------------|
| 1. Stout perennials; lower glume of sessile spikelets not rugose; spikelets pilose .. | <i>I. pilosum</i> |
| 1. Slender annuals; lower glume of the sessile spikelets rugose; spikelets glabrous .. | <i>I. rugosum</i> |

Ischaemum pilosum (Klein. ex Willd.) Wt. in Madras Lit. Sci. Journ. 138. 1835; Hook. f. Fl. Brit. India 7 : 130. 1896; Blatt. & McC. Bombay Grass. 14, t. 9. 1935; Cooke, Fl. Pres. Bombay 3 : 479. 1958 (Repr. ed.). Bor. Grass. Burma, Ceylon, India & Pakistan 183. 1960. *Andropogon pilosus* Klein. ex Willd. Sp. Pl. 4 : 920. 1806.

Mar. : 'Kurda'.

60—120 cm tall, stout erect perennials. Leaves flat, glabrous, linear, finely acuminate. Racemes 2—3-fascicled, 9—15 cm long, yellowish, brown, pilose, joints and pedicels thickened. Spikelets awned; awns 0.6—1 cm long.

Fls. & Frts. : August - February.

Distrib. : Common in cultivated fields, along roadside. Alegaon, Khadki, Mangarulpur, Patur, Shelubudruk.

Ischaemum rugosum Salisb. Icon. Strip. 1. t. 1. 1791; Hook. f. Fl. Brit. India 7 : 127. 1896; Blatt. & McC. Bombay Grass. 12, t. 7. 1935; Cooke, Fl. Pres. Bombay 3 : 477. 1958 (Repr. ed.) Bor, Grass. Burma, Ceylon, India & Pakistan 184. 1960.

Tufted annuals 15—30 cm tall. Leaves linear to linear lanceolate, flat. Racemes 2.5—4 cm long, terminal, solitary in pairs, yellowish-green. Spikelets glabrous, shining, linear-oblong, sessile, awned and 12-13 cm long.

Fls. & Frts. : October - March.

Illus. : Trim. Fl. Ceyl. 5 : 212. 1931.

District. : Rare; in wet place Morna river bank, S. Y. Kamble 152783.

ISEILEMA Anders.

1. Pedicels of involucral spikelets as broad as long; lower glume of hermaphrodite spikelet apparently hairy below; beak of the hermaphrodite spikelet as long as the lower elliptic portion .. *I. antephorooides*
1. Pedicels of the involucral spikelets longer than they are, as broad at apex; lower glume of hermaphrodite spikelets glabrous at the base; beak shorter than the lower elliptic portion .. *I. laxum*

Iseilema antephorooides Hack. in DC. Mon. Phan. 6 : 683. 1889; Hook. f. Fl. Brit. India 7 : 219. 1896; Blatt. & McC. Bombay Flora 112, t. 72. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan, 187. 1960.

Tufted annuals, weak, spreading with leafy branches. Leaves scabrid on the margins, ciliate at the tips. Panicles interrupted by spatheoles. Involucral spikelets oblong-broad, sparsely hairy, shortly pedicellate, surrounding the awned hermaphrodite spikelet.

Fls. & Frts. : August - October.

Distrib. : Common in grasslands and cultivated fields; Alegaon, Karanja, Mahan.

Iseilema laxum Hack. in DC. Mon. Phan. 6 : 682. 1889; Hook. f. Fl. Brit. India 7 : 218. 1896; Blatt. & McC. Bombay Grass. 173. 1935; Cooke, 3 : 517. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 188. 1960.

15—60 cm tall, suberect or trailing, much branched, slender perennials. Leaves linear, flat. Racemes lax, axillary, pedunculate, subtended by spatheoles; spikelets 4-whorled, pedicelled and hermaphrodite, sessile ones awned.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 251. 1931.

Distrib. : Common in grass lands, cultivated fields & hillslopes. Alegaon, Chickalwal, Karla, Palodi, Patur.

LOPHOPOGON Hackel

Lophopogon tridentatus (Roxb.) Hack. in Engl. & Prantl. Pfam. (II) 2 : 26. 1887; Hook. f. Fl. Brit. India 7 : 149. 1896; Blatt. & McC. Bombay Grass. 28, t. 19. 1935; Cooke, Fl. Pres. Bombay 3 : 484. 1958 (Repr. ed.). *Andropogon tridentatus* Roxb. Fl. Ind. 1 : 257. 1820.

Densely tufted perennials, 10—20 cm tall. Leaves very narrowly linear rigid, stiff. Racemes on erect peduncles, ovoid, 1—3—2 cm long, closely appressed; spikelets closely imbricate, awned, truncate, lower or sessile spikelets obovate-oblong, awned, hairy, upper spikelets shortly pedicellate with awn.

Fls. & Frts. : August - November.

Distrib. : Common in moist places; Khadki, Mahan, Washim.

MELANOCENCHRIS Beauv.

Melanocenchris jacquemontii Jaub. et Spach. Ill. Pl. Or. 4 : 36, 5t. 325. 1851; Bor. Grass. Burma, Ceylon, India & Pakistan 473. 1960. *Gracilea royleana* Hook. f. Fl. Brit. India 7 : 284. 1896; Blatt. & McC. Bombay Grass. 248, t. 165. 1935; Cooke, Fl. Pres. Bombay 3 : 553. 1958 (Repr. ed.).

10—15 cm tall, tufted, slender annuals. Leaves narrowly linear or ensiform, flat or convolute. Racemes 3—5 cm long, filiform, flexuous, spikelets in clusters, 0.4—0.6 cm long, (including awns) tinged with violet at length silvery-white.

Fls. & Frts. : August - October.

Distrib. : Common in rocky areas, on plains in grasslands & ghats; Khadki, Mahan, Shelubudruk.

OPHIUROS Gaertn. f.

Ophiuros exaltatus (L.) O. Ktze. Rev. Gen. Pl. 2 : 780. 1891; Bor, Grass. Burma, Ceylon, India & Pakistan 199. 1960. *Aegilops exaltatus* L. Mant. 2 : 575. 1771; *Ophiuros corymbosus* (L. f.) Gaertn. f. Fruct. 3 : 4. t. 181. 3b. 1805; Hook. f. Fl. Brit. India 7 : 160. 1896; Blatt. & McC. Bombay Grass. 40, t. 28. 1935; Cooke, Fl. Pres. Bombay 3 : 468. 1958 (Repr. ed.).

About 2 meters tall rhizomatous herbs. Leaves flat linear. Racemes cylindrical, 6—12 cm long, solitary or 3—5 fascicled; spikelets sunken in the cavities of the raceme, 2-nate, placed anticously on nodes; lower glume thickly coriaceous, oblong-obtuse, convex, upper glume membranous; lower lemma elliptic, obtuse, upper lemma elliptic-oblong, obtuse.

Fls. & Frts. : August - December.

Distrib. : Common on roadside, in waste places, grasslands & onghats slopes; Chikhawal, Karanja, Mangrulpur, Pinjar, Shelubudruk.

OPLISMENUS P. Beauv.

Oplismenus burmanii (Retz.) P. Beauv. Ess. Agrost. 54 & 168—169. 1812; Hook. f. Fl. Brit. India 7 : 68. 1896; Blatt. M & McC. Bombay Grass. 154. t. 97. 1935; Cooke, Fl. Pres. Bombay 3 : 443. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan, 317. 1960. *Panicum burmanii* Retz. Obs. Bot. 3 : 10. 1783.

Slender branched, weak annuals about 30-50 cm tall. Leaves ovate lanceolate, to lanceolate, glabrous or sparsely hairy. Racemes in terminal panicles 1—2 cm long, spikelets awned.

Fls. & Frts. : August - December.

Distrib. : Not common, in shaded parts as an undergrowth, in forest & open places.

OROPETIUM Trin.

- | | | |
|----------------------|----|----------------------|
| 1. Lemmas villous | .. | <i>O. villosulum</i> |
| 1. Lemmas glabrous : | .. | |

2. Spikelets lanceolate, sharply acuminate, 1.5 - 1.8 mm long; spikes upto 3.5 cm .. *O. thomaeum*
2. Spikelets oblong, acute, 2.5 mm long; spikes long upto 15 cm .. *O. roxburghianum*

Oropetium roxburghianum (Steud.) S. M. Phillips in Kew Bull. 30 : 469 1975. *Lepturus roxburghianum* Steud. Syn. Pl. Glum. 1 : 357. 1854. *Tripogon roxburghianum* (Steud.) Bhide in Journ. Proc. Asiat. Soc. Beng. 1911. 7 - 515. 1912; Bor, Grass. Burma, Ceylon, India & Pakistan, 524. 1960.

Tiny densely tufted herbs 5-20 cm tall. Leaves filiform shorter than the spikes, cylindric. Rachis thick or trigonous, spikelets sunk in the cavities of the rachis. Roots fibrous.

Fls. & Frts. : July - August.

Distrib. : Occasional in moist places; Chikhawal, Khadki.

Oropetium thomaeum (L. f.) Trin. Fund. Agros. 98. t. 3. 1820; Hook. f. Fl. Brit. India 7 : 366. 1896; Blatt. & McC. Bombay Grass. 247. 1935; Cooke, Fl. Pres. Bombay 3 : 568. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 474. 1960. *Nardus thomaea* L. f. Suppl. 105. 1781.

Tiny herbs 5-8 cm tall, densely tufted. Leaves equal to or shorter than the stem, filiform. Spikes 2.5-3.5 cm long, straight or curved. Rachis with distinct zig-zag midrib. Spikelets sunk in the cavities of thick rachis. Roots fibrous.

Fls. & Frts. : June - September.

Illus. : Trim. Fl. Ceyl. 5 : 271. 1931.

Distrib. : Common near the moist places; Alegaon, Chikhawal, Karanja, Mahan, Wanoja.

Oropetium villosulum Stapf ex Bor in Kew Bull. 1949 : 571. 1950; Grass. Burma, Ceylon, India & Pakistan 474. 1960.

Tiny herbs forming dense tufts 4-8 cm tall. Leaves filiform or narrowly linear, as long as stem or little longer or shorter. Spikes short, 1.5 cm long; rachis longitudinally ribbed, spikelets sunk in the cavities of thick rachis. Root fibrous.

Fls. & Frts. : June - September.

Distrib. : Not common, near the moist places and dried ponds; Khadki, Mahan, Wanoja.

PANICUM L.

1. Spikelets 4-5 mm long; upper lemma 2 mm wide .. *P. miliaceum*
1. Spikelets 2-3 mm long; 1 mm wide :
2. Spikelets gaping at maturity; persistent; lower glume, more than 1/2 the length of the spikelets, cuspidate .. *P. trypheron*
 2. Spikelets not gaping at maturity, deciduous; lower glume less than 1/2 the length of the spikelet, acute .. *P. psilopodium*

Panicum miliaceum L. Sp. Pl. 58, 1753; Blatt. & McC. Bombay Grass. 159. t, 100. 1935; Cooke, Fl. Pres. Bombay 3 : 456. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 327. 1960.

Tufted, stout annuals upto 60-70 cm tall, erect more or less softly hirsute below the nodes. Leaves linear, glabrous, flat; lower margins ciliate. Panicles open, upto 20 cm long; spikelets ovate-oblong turgid, acuminate.

Fls. & Frts. : August - October.

Illus. : Trim. Fl. Ceyl. 5 : 150. 1931.

Distrib. : Cultivated, S. Y. Kamble 150322, Kasmar.

Panicum psilopodium Trin. Gram. Panic. 217. 1826; Hook. f. Fl. Brit. India 7 : 46. 1896; Blatt. & McC. Bombay Grass. 159. 1935; var. **psilopodium** Bor, Grass. Burma, Ceylon, India & Pakistan 329. 1960.

60-90 cm tall, slender, erect or basally geniculate herbs. Leaves flat, linear, glabrous. Panicles 10-20 cm long, open, branches capillary. Spikelets geminate on slender pedicels.

Fls. & Frts. : August - October.

Distrib. : Not very common, in grass lands and ghats and roadsides; Kinhiraja, Narnala.

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.

20-45 cm tall, tufted, erect or basally geniculate herbs. Leaves flat, linear, more or less hairy. Panicles 10-15 cm long, obtuse; branches filiform; spikelets distant, sharply acuminate, glabrous.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 152. 1931.

Distrib. : Rare in grassland S. Y. Kamble 150396, Karanja.

PASPALIDIUM Stapf

1. Internodes longer than the spikes	..	<i>P. flavidum</i>
1. Internodes shorter than the spikes	..	<i>P. geminatum</i>

Paspalidium flavidum (Retz.) A. Camus in Lecomte, Fl. Gen. Del Indo-Chine 7 : 419. 1922; Blatt. & McC. Bombay Grass. 141. t. 90. 1935; 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.).

15-45 cm tall, erect, slender and tufted perennials with decumbent base. Leaves linear, flat, glabrous. Racemes 10-30 cm long with spikes distant by long internodes 1-3.5 cm long, spikes 1-1.3 cm long, spikelets glabrous, biseriate.

Fls. & Frts. : August - October.

Illus. : Trim. Fl. Ceyl. 5 : 133. 1931.

Distrib. : Common near moist places and ponds; Kashmar, Mahan.

Paspalidium geminatum (Forsk.) Stapf in Prain, Fl. Trop. Afr. 9 : 583. 1920; Blatt. & McC. 142. 1935. Bor, Grass. Burma, Ceylon, India & Pakistan 333. 1960. *Panicum geminatum* Forsk. Fl. Aegpt.-Arab. 18. 1775; *Panicum 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.

30-60 cm tall, erect tufted perennials with creeping base. Leaves stiff, flat glabrous, linear. Spikes 1-2.3 cm, long, dense, sessile. Panicles 1.5-2. cm long; spikelets ovoid, acute, glabrous, 2-seriate imbricate.

Fls. & Frts. : August - November.

Illus. : Trim. Fl. Ceyl. 5 : 135. 1931.

Distrib. : Rare in lake; Karanja.

PENNISETUM Rich.

Pennisetum pedicellatum Trin. in Mem. Acad. Sci. Petersb. Ser. VI, 3 : 184. 1834; Hook. f. Fl. Brit. India 7 : 86. 1896; Blatt. & McC. Bombay Grass. 180, t. 115. 1935; Cooke, Fl. Pres. Bombay 3 : 431. 1958 (Repr. ed.), Bor, Grass. Burma, Ceylon, India & Pakistan 346. 1960.

30-90 cm tall annuals, Leaves flat, linear or linear-lanceolate, flaccid. Racemes, 4-12 cm long, cylindric, involucre sessile, bristly, bristles woolly. Inflorescence pinkish-violet. Spikelets within the involucre, usually solitary.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 171. 1931.

Distrib. : Common in drying pools and in moist areas.

ROTTBOELLIA L. f.

Rottboellia exaltata L. f., Nov. Gram. Gen. 40, t. 1, 1779 & Suppl. Pl. 114. 1781; Hook. f. Brit. India 7 : 156. 196. Blatt. & McC. Bombay Grass. 38, t. 27. 1935; Cooke, Fl. Pres. Bombay 3 : 473. 1958 (Repr. ed.), Bor, Grass. Burma, Ceylon, India & Pakistan 206. 1960.

Perennials 90-150 cm tall. Leaves linear-lanceolate. Racemes cylindrical, swollen, 8-12 cm long glabrous, spikelets sunk in the cavity of the rachis, lower glume of the sessile spikelet coriaceous with truncate base, pedicelled spikelets imperfect with lower glume narrowly winged.

Fls. & Frts. : October - February.

Illus. : Trim. Fl. Ceyl. 5 : 207. 1931.

Distrib. : Rare, S. Y. Kamble 152818, Patur.

SACCHARUM L.

Saccharum spontaneum L. Mant. Alt. 183. 1771; Hook. f. Fl. Brit. India 7 : 118. 1896; Blatt. & McC. Bombay Grass. 45. t. 31. 1935; Cooke, Fl. Pres. Bombay 3 : 465. 1958 (Repr. ed.) Bor, Grass. Burma, Ceylon, India & Pakistan 214. 1960.

Rhizomatous stout perennials, 60-100 cm tall. Leaves linear, stiff, glabrous with scabrid margins. Panicles 20-30 cm long, ovate-lanceolate; spikelets with silvery silky hairs, awnless, in pairs.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 201. 1931.

Distrib. : Occasional in patches in marshes and nalas; Pinjar, Mangarulpur.

SEHIMA Forsk.

1. Lower glume of the sessile spikelets rounded on the back with a deep longitudinal slit like groove .. *S. sulcatum*
1. Lower glume without a slit but deeply grooved :
2. Sessile spikelets 0.8-1 mm long; awns minutely ciliate on the spirals .. *S. nervosum*
 2. Sessile spikelets 0.9 mm long, awns distinctly ciliate on the spirals .. *S. ischaemoides*

Sehima ischaemoides Forsk. Fl. Aegpt-Arab. 178. 1775; Blatt. & McC. Bombay Grass. 22. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 218. 1960; *Ischaemum laxum* auct. non R. Br. Prodr. 205. 1810; Hook. f. Fl. Brit. India 7 : 136. 1896; Cooke, Fl. Pres. Bombay 3 : 482. (p. p.) 1958 (Repr. ed.).

Annuals, 30-40 cm tall, leaves linear lanceolate, scabrous. Racemes solitary or 2-3 × 3-7 cm long, spikelets awned.

Fls. & Frts. : September - February.

Distrib. : Rare, S. Y. Kamble 152823, Patur.

Sehima nervosum (Rottl.) Forsk. Fl. Aegyp-Arab. 178. 1775; Blatt. & McC. Bombay Grass. 21. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 218. 1960. *Ischaemum laxum* R. Br. Prodr. 205. 1810; Hook. f. Fl. Brit. India 7 : 135. p. p., Cooke, Fl. Pres. Bombay 1958 (Repr. ed.).

Tufted herbs, 60-90 cm tall, leaves linear more or less scabrid. Racemes, solitary, hairy, 5-9 cm long, spikelets lanceolate, awned.

Fls. & Frts. : August - February.

Distrib. : Common; Karanja, Karla, Mahan, Narnala fort (Akot), Pinjar.

Sehima sulcatum (Hack.) A. Camus, Bull. Mus. Hist. Nat. Paris 27 : 373. 1921; Blatt. & McC. Bombay Grass. 23, t. 15. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 219. 1960. *Ischaemum sulcatum* Hack. in DC. Mon. Phan. 6 : 248. 1889; Hook. f. Fl. Brit. India 7 : 137. 1896; Cooke, Fl. Pres. Bombay 3 : 483. 1958 (Repr. ed.).

Geniculately ascending, weak, glabrous herbs 20-30 cm tall. Leaves linear or lanceolate, setaceous acuminate. Racemes solitary, 5-7 cm long; sessile spikelets awned; lower glume lanceolate, scabro-punctate; pedicelled spikelet awnless, smaller than the sessile ones.

Fls. & Frts. : October - February.

Distrib. : Rare, Patur S. Y. Kamble 152823.

SETARIA P. Beauv. *nom. cons.*

1. Bristles retrorsely barbed ..	<i>S. verticillata</i>
1. Bristles antroserely barbed :	
2. Upper glume as long as the upper lemma, the latter quite smooth or minutely rugose ..	<i>S. italica</i>
2. Upper glume shorter than the upper lemma the latter rugose :	
3. Inflorescence dense, cylindric false spikes; spikelets 3 mm long ..	<i>S. glauca</i>
3. Inflorescence loosely lobed, tapering panicles; spikelets 2 mm long ..	<i>S. tomentosa</i>

Setaria glauca (L.) P. Beauv. Ess. Agrost. 51. 1812; Hook. f. Fl. Brit. India 7 : 78. 1896 (p. p.); Blatt. & McC. Bombay Grass. 172. 1935; Cooke, Fl. Pres. Bombay 3 : 435. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 360. 1960. *Panicum glaucum* L. Sp. Pl. 56. 1753.

30-60 cm tall annuals, tufted. Leaves linear, flat. Racemes 2-4 cm long bristly, fulvous. Spikelets ellipsoid, glabrous; upper lemma coriaceous, transversely rugose and broadly elliptic, dorsally convex.

Fls. & Frts. : July - September.

Illus. : Trim. Fl. Ceyl. 5 : 163. 1932.

Distrib. : Common; Karla, Mahan, Shelubudruk.

Setaria italica (L.) P. Beauv. Ess. Agrost. 51, 170 & 178. 1812; Blatt. & McC. Bombay Grass. 175. 1935; Cooke, Fl. Pres. Bombay 3 : 437. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 362. 1960. *Panicum italicum* L. Sp. Pl. 56. 1753.

Herbs 60-100 cm tall, slender. Leaves linear to linear-lanceolate, flat, glabrous, with scabrous margins. Panicles cylindric, often lobed at base, purplish, 10-15 cm long.

Fls. & Frts. : August - October.

Distrib. : Rare, S. Y. Kamble, 150290, Kinhiraja.

Setaria tomentosa (Roxb.) Kunth, Rev. Gram. 1 : 47. 1829; Bor, Grass. Burma, Ceylon, India & Pakistan 365. 1960. *Setaria intermedia* (Roxb.) R. & S. Syst. Veg. 2 : 489. 1817; Hook. f. Fl. Brit. India 7 : 79. 1896; Blatt. & McC. Bombay Grass. 174. 1935; Cooke, Fl. Pres. Bombay 3 : 436. 1958 (Repr. ed.).

Slender, erect or ascending, tufted, glabrous annuals 60-90 cm tall. Leaves linear-lanceolate, flat, glabrous or hairy, margins scabrous. Panicles 5-8 cm long; spikelets ovoid, sub-acute.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 163. 1931.

Distrib. : Common; Karla, Patur.

Setaria verticillata (L.) P. Beauv. Ess. Agrost. 51 & 178. 1812; Hook. f. Fl. Brit. India 7 : 80. 1896; Blatt. & McC. Bombay Grass. 174. 1935; 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.

Erect or ascending, glabrous and tufted grasses 60-90 cm tall, with linear lanceolate, leaves. Panicles tapering, cylindric 5-15 cm long, oblong; spikelets mixed with bristles, ellipsoid, obtuse, glabrous.

Fls. & Frts. : August - February.

Illus. : Trim. Fl. Ceyl. 5 : 163. 1931.

Distrib. : Common in forest undergrowth and hedges in open; Akot, Kinhiraja, Narnala fort.

SORGHUM Moench.

1. Leaf blades 0.5-2 cm wide; culms upto 0.5 cm wide; panicles upto 25 cm long and 5 cm wide .. *S. halepense*

Leaf blades 2-4 cm wide; culms upto 1 cm wide; panicles 25-55 cm long and 10-25 cm broad .. *S. millaceum*..

Sorghum halepense (L.) Pers. Syn. Pl. 1 : 101. 1805; Blatt. & McC. Bombay Grass. 55. t. 37. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 222. 1960. *Holcus halepensis* L. Sp. Pl. 1047. 1753. *Andropogon halepensis* (L.) Brot. Fl. Lus. 189. 1804; Hook. f. Fl. Brit. India 7 : 182. 1896; Cook Fl. Pres. Bombay 3 : 502. 1958 (Repr. ed.).

Mar. : 'Boru'.

Tall grasses 1.5-2.5 m high, perennial in habit with solid culms. Inflorescence pyramidal, straw-coloured; lower branches 5-8 cm long. Sessile spikelets ciliate, awned, dorsally compressed, ovoid-lanceolate; pedicellate spikelet much narrower and unawned.

Fls. & Frts. : June - February.

Illus. : Trim. Fl. Ceyl. 5 : 231. 1931.

Distrib. : Akot, Chikhaval, Narnala fort.

Sorghum miliaceum (Roxb.) Snowden in Journ. Linn. Soc. (Bot.) 55. 207. 1955; Bor, Grass. Burma, Ceylon, India & Pakistan 223. 1960. *Andropogon miliaceus* Roxb. Fl. India 1 : 276. 1820.

Much robust perennial grasses; culms tall 2-3 cm high. Panicles large, lax, spreading; sessile spikelets shining, awned, dorsally compressed; pedicellate spikes unawned, much narrower.

Fls. & Frts. : August - October.

Distrib. : Rare; S. Y. Kamble, 150447, Narnala fort.

SPOROBOLUS R. Br.

- | | |
|---|---------------------------|
| 1. Upper glume shorter than the lemmas, less than 3/4 of the length of the lemmas; panicles upto 20 cm long; stamens 2 .. | <i>S. diander</i> |
| 1. Upper glume as long, nearly as long or longer than the lemmas; panicles upto 6.5 cm long, pyramidal; stamens 3 .. | <i>S. coromandelianus</i> |

Sporobolus coromandelianus (Retz.) Kunth, Rev. Gram. 1 : 68. 1829; Hook. f. Fl. Brit. India 7 : 252. 1896; Blatt. & McC. Bombay Grass. 228. t. 153. 1935; Cooke, Fl. Pres. Bombay 3 : 542. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 629. 1960. *Agrostis coromandeliana* Retz. Obs. Bot. 4 : 19. 1786.

Tufted annuals 8-20 cm tall. Leaves linear, glabrous. Panicles 3-6 cm long, pyramidal; spikelets lanceolate, shortly pedicillate, lower glumes suborbicular; upper glumes ovate-oblong, sub-acute; lemmas oblong obtuse. Grains broadly ellipsoid, compressed, smooth enclosed in pericarp.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 264. 1931.

Distrib. : Common in moist and shady places; Chikhawal, Kinhiraja.

Sporobolus diander (Retz.) P. B. Beauv. Ess. Agrost. 26. 147 & 178. 1812; Hook. f. Fl. Brit. India 7 : 247. 1896; Blatt. & McC. Bombay Grass. 221. t. 148. 1935; Cooke, Fl. Pres. Bombay 3 : 539. 1958 (Repr. ed.), Bor, Grass. Burma, Ceylon, India & Pakistan 629. 1960. *Agrostis diandra* Retz. Obs. Bot. 5 : 19. 1789.

Annuals or perennials 30-45 cm tall. Leaves narrowly linear, convolute. Panicles 10-15 cm long; branches 2-4.5 cm long, almost capillary. Spikelets ovate, shortly pedicelled.

Fls. & Frts. : August - September.

Illus. : Trim. Fl. Ceyl. 5 : 260. 1931.

Distrib. : Not common; Khadki, Kinhiraja.

THELEPOGON Roth ex R. & S.

Thelepogon elegans Roth ex R. & S. Syst. Veg. 2 : 788. 1817; Hook. f. Fl. Brit. India 7 : 148. 1896; Blatt. & McC. Bombay Grass. 27, t. 18. 1935; Cooke, Fl. Pres. Bombay 3 : 490. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 247. 1960.

30-80 cm tall grasses, erect or geniculate at the base, glabrous. Leaves linear with bulbous based hairs. Racemes 2.5-10 cm long, 1-5, spikelets leathery, yellowish, rugose with warty spines, elliptic and awned.

Fls. & Frts. : August - November.

Distrib. : Common in plains and ghats; Chikhalwal, Karanja. Narnala fort.

THEMEDA Forsk.

1. Panicles very loose and leafy	..	<i>T. laxa</i>
1. Panicles densely congested, not leafy	..	<i>T. quadrivalvis</i>

Themeda laxa (Anders.) A. Camus in Bull. Mus. Hist. Nat. Paris 26 : 423. 1920; Bor, Grass. Burma, Ceylon, India & Pakistan 251. 1960. *Anthistiria laxa* Anders. in Nov. Act. Sci. Upsal. Ser. 3, 2 : 243. 1856; Hook. f. Fl. Brit. India 7 : 213. 1896.

Leafy grasses, 60-90 cm tall, erect. Leaves linear to linear-lanceolate. Panicles of few small heads in verticillate clusters. Involucral spikelets unawned, hermaphrodite; spikelets awned, appressedly and shortly ciliate. Callus bearded; pedicellate spikelets glabrous.

Fls. & Frts. : August - October.

Distrib. : Rare; Chikhalwal, S. Y. Kamble 150133.

Themeda quadrivalvis (L.) O. Ktze. Rev. Gen. Pl. 2 : 794. 1891; Blatt. & McC. Bombay Grass. 118. 1935; Bor, Grass. Burma, Ceylon, India & Pakistan 252. 1960. *Andropogon quadrivalvis* L. in Merv. 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.).

60-90 cm tall, simple or sparingly branched, erect or basally geniculate herbs. Leaves flat, linear, glabrous. Panicles 30-40 cm long. Racemes 0.8-1.5 cm long; bracts spiciform. Spikelets narrowly lanceolate.

Fls. & Frts. : August - February.

Distrib. : Common. Gregarious.

TRAGUS A. Hall. NOM. CONS.

Tragus roxburghii Panigr. in Kew Bull. 29 : 495. 1974. *Tragus biflorus* (Roxb.) Schult. Syst. Veg. 2, Mant. 205. 1824; Bor, Grass. Burma, Ceylon, India & Pakistan 682. 1960. *Tragus racemosus* Hook. f. Fl. Brit. India 7 : 97. 1896; Cooke, Fl. Pres. Bombay 3 : 535. 1958 (Repr. ed.). *Nazia racemosa* O. Kuntze, Rev. Gen. Pl. 3 : 357. 1891; Blatt. & McC. Bombay Grass. 217. t. 144. 1935.

10-20 cm tall, tufted, erect, diffuse herbs. Leaves linear-lanceolate, short, upto 3 cm long. Inflorescence cylindric, linear; spikelets acute, usually two, facing each other; lemmas echinate, 5-ribbed; pedicels stout or very short.

Fls. & Frts. : July - October.

Illus. : Trim. Fl. Ceyl. 5 : 187. 1931.

Distrib. : Uncommon; Khadki, Mahan.

TRIPOGON Roth ex R. & S.

Tripogon jacquemontii Stapf in Kew Bull. 1892 : 85. 1892; Hook. f. Fl. Brit. India 7 : 286. 1896; Blatt. & McC. Bombay Grass. 268. t. 181. 1935; Cooke, Fl. Pres. Bombay 3 : 559. 1958 (Repr. ed.); Bor, Grass. Burma, Ceylon, India & Pakistan 522. 1960.

Perennials, tufted. Leaves filiform, shorter than the inflorescence with convolute margins. Racemes 10—20 cm long, spikelets many-flowered, about 3 cm long. Laterally compressed. Lemmas shortly awned.

Fls. & Frts. : August - January.

Distrib. : Khadki, Narnala fort.

UROCHLOA P. Beauv.

Urochloa panicoides P. Beauv. var. *pubescens* (Kunth) Bor, Grass. Burma, Ceylon, India & Pakistan 372. 1960. *Urochloa pubescens* Kunth, Rev. Gen. Gram. 1 : 31. 1829 & Enum. Pl. 1 : 74. 1838. *Urochloa helopus* (Trin.) Staps in Prain, Fl. Trop. Afr. 9 : 595. 1920; Blatt. & McC. Bombay Grass. 146. t. 93. 1935. *Panicum javanicum* Poir. Encycl. Suppl. 4 : 274. 1816; Hook. f. Fl. Brit. India 7 : 35. 1896; Cooke, Fl. Press. Bombay 3 : 450. 1958 (Repr. ed.).

30—45 cm tall, erect or basally geniculate herbs. Leaves lanceolate, glabrous or sparsely hairy. Panicles of 2—7 racemes, 1—2 cm long. Spikelets elliptic-lanceolate, finely pubescent.

Fls. & Frts. : August - October.

Illus. : Trim. Fl. Ceyl. 5 : 142. 1931.

Distrib. : Fairly common near wet places; Alegaon, Mahan, Sheldubruk.

MARSILIACEAE

MARSILEA L.

Marsilea minuta L. Mant. Pl. II. 308. 1771; Gupta, Marsilea, Bot. Mon. 23. 1962.

Small herbs in the wet places. Sporocarps with broad base, rounded in front and are distinctly ribbed and bordered. The leaflets entire, crenate or serrate.

Sporocarps : August - December.

Illus. : Gupta *Marsilea* Bot. Mon. 24. 1962.

Distrib. : Common at wet places; Akot, Fatra, Shahanur etc.

OPHIOGLOSSACEAE

OPHIOGLOSSUM L.

1. Rhizomes globose, cormlike, tuberous with many fibrous roots; tropophylls with distinct midrib, areoles broad, often hexagonal including in it numerous veinlets forming secondary areoles .. *O. costatum*
1. Rhizomes not globose, elongate, cylindric bearing few to many roots, tropophylls without distinct midrib, free vein endings occasionally form secondary areoles :

2. Tropophylls linear or linear-lanceolate, elliptic-lanceolate or rarely oblanceolate :
3. Tropophylls linear, narrow, more than six times as long as broad, width upto 3 mm .. *O. gramineum*
 3. Tropophylls fleshy in texture, elliptic-lanceolate or oblanceolate, 2-3 times as long as broad, width upto 7 mm .. *O. lucitanicum*
2. Tropophylls not linear :
4. Rhizomes subglobose, tropophylls ovate, suborbicular or elliptic; apex acute or sometimes apiculate .. *O. nudicaule*
 4. Rhizomes erect, cylindrical :
 5. Rhizomes with persistent, brown-black, scalelike sheaths formed by the stalk of the old sterile leaf; tropophylls lanceolate or obliquely lanceolate .. *O. polyphyllum*
 5. Rhizomes without persistent scalelike sheaths, tropophylls cordate, ovate, ovate-lanceolate or obovate :
 6. Tropophylls cordate or variable at base, usually coriaceous but rarely thin in texture, veins not numerous .. *O. reticulatum*
 6. Tropophylls lanceolate or ovate, distinctly membranous in texture, venation lax, veins not numerous .. *O. petiolatum*

***Ophioglossum costatum* R. Br. Prodr. Fl. Nov. Holl. 163. 1810. *O. pedunculosum* Desv. Mag. Ges. Nat. Br. Berlin 5 : 306. 1811. *O. fibrosum* Schum, Beskr. Guin. Pl. 452. 1827; Bedd. Handb. Ferns. Brit. India 465. f. 289. 1883.**

Small herbs, 5—20 cm high; rhizomes round with numerous fibrous roots, with one to many fronds common stalk, 0.8—3 cm long; tropophylls 2.5—8 × 0.9—2 cm, usually elliptic-lanceolate or ovate-lanceolate, obtuse or apiculate at apex and leathery in texture; spikes 1.5—4 cm long on a stalk 3.5—13.8 cm long.

Sporophylls : August.

Illus. : Pichi - Sermanni, Webbia 9 (2) : 626 f. 1. 1954.

Distrib. : Occasional after rains; Narnala fort.

***Ophioglossum gramineum* Willd. Nov. Act. Acad. Erf. 2 : 18. t. 1. f. 1802; Bedd. Handb. Fern. Brit. India in Suppl. 108. 1892. *O. vulgatum* var. *gramineum* (Willd.) Hook. f. Fl. Nov. 2 ed. 2 : 50. 1854. *O. costatum* R. Br. sensu Clausen, Mem. Torrey bot. Club. 19 (2) : 161. 1938.**

Plants slender, 3.5—9.5 cm long; rhizomes cylindric with 1-2 fronds; common stalk 1—2 cm long. Tropophylls narrow-linear with acuminate apex, upto 3 cm long and 0.2 cm broad, spikes upto 1.6 cm long on a stalk 1.5—3.0 cm long, sporangia upto 12 per spike.

Sporophylls : August.

Illus. : Willd. (*I.c.*).

Distrib. : Occasional in the plains on the way to Kashmar.

Ophioglossum lucitanicum L. Sp. Pl. 2 : 1063. 1753; Mahabale, Bull. bot. Surv. India 4 : 71. 1962. *Ophioglossum loureirianum* Presl. Suppl. Tent. Pterid. 55. 1845.

Plants 2.5—4.8 cm high with erect, tuberous rhizome bearing many roots. Tropophylls 1—1.5 × 0.3—0.7 cm, elliptic-lanceolate, acute or acuminate at apex, cuneate at base. spikes 0.6—1.1 cm on a stalk 2—3 cm long.

Sporophylls August - September.

Illus. : Mahabale (*I. c.*).

Distrib. : Rare in the plains near Medshi S. Y. Kamble, 154048, (BSI).

Ophioglossum nudicaule L. f. Suppl. Syst. Pl. 443. 1781; Clausen, Mem. Torrey Bot. Club. 19 (2) : 143, 146, 147, 150, 151. incl. var. *tenerum* (Mett.) Clausen et var. *macrorrhizum* (Ktze.) Clausen, excl. var. *grandifolium* Clausen; Bedd., Handb. Ferns. Brit. India 464. t. 288. 1833. and in Suppl. 109 1892; Wief., Blumea 12 (2) : 324. 1964.

Plants 3—6.8 cm high; rhizomes subglobose, sometimes cylindrical; tropophylls 0.7—1.1 × 0.4—0.6 cm, placed at the base, ovate, sometimes elliptic-lanceolate in shape, slightly attenuate at base, acute or sometimes apiculate at apex. Spikes 0.5—0.7 cm long on a stalk 2.3—4.5 cm long.

Sporophylls : August.

Illus. : Mahabale, Bull. Bot. Surv. India 4 : 79. 1962.

Distrib. : Occasional in moist plains; Patar.

Ophioglossum petiolatum Hook., Exotic Flora 1. t. 56. 1823. *O. pedunculosum* sensu Prantl (non Desv.) in Jahrb. K. Bot. Gard. Berlin 3 : 328. 1884; Mahabale, Bull. Bot. Surv. India 4 : 71. 1962. *O. reticulatum* (non L.) sensu Hosokawa, J. Jap. Bot. 13 : 608. 1937. *O. vulgatum* (non L.) sensu Hosokawa, occasional paper Bishop Museum 13 : 608. 1937.

Plants upto 8.5 cm tall, rhizomes slender, sometimes tuberous. Tropophylls 1.5—2 × 0.5—1.0 cm, lanceolate or ovate, acute or mucronate at apex, truncate or broadly cuneate at base without midrib; areoles broad with free ending veinlets. Strobili 1.1—1.5 cm long on a 2—4.5 cm long stalk.

Sporophylls : August - September.

Illus. : Mahabale (*I. c.*).

Distrib. : Occasional; way to Morna, Adan dam etc.

Ophioglossum polyphyllum A. Braun apud Seubert, Fl. Azor. 17. 1844; Richi-Sermolli, Webbia 9 (2) ; 632. 1954. *O. aitchisoni* (Clarke) d'Almeida J. Indian Bot. Soc. 3 : 63. f. 12—13. 1922; Mahabale, Bull. Bot. Surv. India 4 : 71. 1962. *O. capense* Sw. sensu Chakravarty Bull. Bot. Soc. Bengal 5 (1) : 5. 1951.

Plants upto 10 cm tall; rhizomes vertically long with persistent brown-black scale like sheaths, bearing 2—3 fronds; common stalks upto 3.5 cm long; tropophylls 3.2—5.1 × 0.6—0.9 cm, attenuate at base, acute or mucronate at apex. Spikes upto 2 cm long on a stalk upto 6.5 cm long.

Sporophylls : July - August.

Illus. : Mahabale (*I. c.*).

Distrib. : Occasional on rocky soil; Kinhiraja, Morna etc.

Ophioglossum reticulatum L. Sp. Pl. 2 : 1063. 1753; Bedd. Handb. Ferns Brit. India 165. t. 291. 1883 et in Suppl. 109. 1892; Mahabale, Bull. Bot. Surv. India 1 : 71. 1962. *O. petiolatum* sensu Wiefferding, Blumea 12 : 327. 1964.

Plants 10.5—29.3 cm high; rhizomes cylindric elongate, sometimes stoloniferous; tropophylls 1.6—4.6 cm long and 2.2—3.6 cm broad, ovate, ovate-lanceolate or ovate-orbicular, cordate at base and acute, acuminate or obtuse at apex; strobili 1—4.5 cm long; stalks 4.5—15.6 cm long.

Sporophylls : August - October.

Illus. : Mahabale (*I. c.*).

Distrib. : Occasional in gravelly soil; Narla.

ADIANTACEAE

- | | |
|---|--------------------|
| 1. Indusium globose to linear, usually many and distinct, sometimes confluent and continuous bearing the capsules on its under side;
veins free .. | <i>Adiantum</i> |
| 1. Indusium roundish and distinct or more or less confluent but not continuous; capsules on the frond .. | <i>Cheilanthes</i> |

ADIANTUM L.

1. Pinnae on slender stalks; stalks upto 1 cm or more long; texture herbaceous; half moon shaped .. *A. philipense*
1. Pinnae almost sessile, texture leathery, wedge shaped at base .. *A. incisum*

Adiantum incisum Forssk. Fl. Aeg.-Arab. 187. 1775. *A. caudatum* L. Mant. 308. 1771; Bedd. Handb. Ferns. Brit. India 83. fig. 44. 1883.

Stipes and rachis brown, polished, hairy. Fronds 15—25 cm long, often rooting at the tip, pinnae nearly sessile 1.5—0.3 cm, nearly round.

Sori. : August - October.

Illus. : Bedd. (*I. c.*).

Distrib. : Common at dry places and in crevices; Narnala, Palodi, Chikhalwal etc.

Adiantum philipense L. Sp. Pl. 1094. 1753. *Adiantum lunulatum* Burm. Fl. Ind. 235. 1768; Bedd. Handb. Ferns. Brit. India 82. fig. 43. 1883.

Stalks short, erect or suberect. Scales about 0.3 cm long, stipes nearly black, polished, grooved, glabrous, 6—16 cm long. Fronds about 20 cm long, simply pinnate; leaflets on 1—1.5 cm long black, stalks linear, frequently becoming confluent.

Sori. : August - October.

Illus. : Bedd. (*I. c.*).

Distrib. : Common in wet places near the nals. Narnala, Khaperdari etc.

CHEILANTHES Swartz

Cheilanthes farinosa (Forssk.) Kaulf. Enum. Fil. 202. 1824; Blatt. & d'Almeida, Ferns of Bombay 77. 1922. *Pteris farinosa* Forssk., Fl. Aegypt-Arab. 187. 1775. *Aleuritopteris farinosa* Fee Gen. Fil. 153. 1850—52; Ching, Hong Kong Nat. 10 : 202. 1941.

Rhizomes creeping, stout, scaly. Stipes reddish-brown to black. Fronds triangular or lanceolate-triangular in outline; bipinnatifid, varying in size; basal pinnae auricled below; underside thinly or thickly coated with white upper side naked. Indusium entire, even or toothed.

Sori. : August - October.

Distrib. : Occasional along roadside in ghats; Narnala.

PTERIDACEAE

ACTINIOPTERIS Link

Actiniopteris radiata (Swartz.) Link, Fil. Sp. Hort. Veg. bot. Berol Cult. 80. 1841. *Actiniopteris dichotoma* Bedd., Blatt. & d'Almeida, Ferns of Bombay 122. 1922.

Stipes densely tufted arising from oblique caudex. Fronds like leaves of a miniature palm; segments dichotomously radiating, narrow, linear, those of the fertile fronds larger than those of the barren one.

Sori. : September - November.

Illus. : Blatt. & d'Almeida (l. c.).

Distrib. : Occasional on rocks and old walls; Narnala.

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