

FLORA OF INDIA

Series 4

FLORA OF  
**CORBETT**  
NATIONAL PARK

P.C. Pant

**BOTANICAL SURVEY OF INDIA**

# **FLORA OF INDIA**

**SERIES-4**

## **FLORA OF CORBETT NATIONAL PARK**

**P.C. PANT**



**BOTANICAL SURVEY OF INDIA**

© Government of India, 1986.

Date of Publication : 21 May 1986.

Price :

Published by the Director Botanical Survey of India,  
Howrah-711 103 and printed at Shiva Printers,  
318, Chukhuwala, Dehra Dun—248 001

## FOREWORD

The Corbett National Park, situated at the foot hills of the Western Himalayas, is one of the first National Parks started during mid thirties and it is spread over an area of 520 sq. km. and with a core area of 335 sq. km.. The majestic snow-clad Himalayan ranges, mid Siwaliks and Ramganga Valley with sal forests, riverain forests of sissoo and reeds in the riverain areas are quite characteristic. The Botanical Survey of India as a part of our national endeavour to preserve the biological spectrum of Corbett National Park, have been undertaking floristic surveys of our National Parks, Game Sanctuaries. The Corbett National Park is also declared as a Tiger Reserve and the inauguration of the successful Project Tiger took place at the Corbett National Park in April 1973.

The Corbett National Park has a great variety of flora and this is due to different terrains. The forest reserves of this park is chiefly divided into five distinct region: (i) Terai belt of Garhwal Himalayas having ravines and marshy depressions, (ii) The hilly regions of Siwaliks, (iii) Ramganga Basin having rich alluvial soil, (iv) Kalagarh dry lands and (v) North west Kalagarh constituting subtropical floristic components.

The vegetation is botanically interesting having pockets of rich floristic diversity at Dhikala, Panod Nallah, Kanda, Domunda, Riparian tracts. *Shorea robusta* is the main forest constituent and the other dominant species in the forests are *Bombax ceiba*, *Butea monosperma*, *Adina cordifolia*.

Shri P.C. Pant, Botanist, Northern Circle, Botanical Survey of India has done a very exhaustive work on the flora of the Corbett National Park and this is now published in the form of a book. I hope the flora would be useful to botanists, conservationists and research students.

Calcutta  
24.3.86

M. P. NAYAR  
DIRECTOR  
BOTANICAL SURVEY OF INDIA

## PREFACE

Parks and sanctuaries are the *sanctum sanctorum* and the best, representative areas of plant and animal life of the terrain in which such biosphere reserves are located.

In recent years the area under study of this publication, "Corbett National Park, Uttar Pradesh" has been increasingly attracting the visitors of varied interests. Apart from professional botanists and students of plant sciences, a large number of inquisitive mass interested on plant life visit this park.

Plants are the basic components for sheltering the total animal life and a source of food to herbivorous, these in turn constitute the food of all carnivorous animals in a biosphere reserve like park and sanctuary. Thus in food chain as well the role of plants is of primary importance. In order to formulate various parameteres for ecosystem studies and wildlife management of parks and sanctuaries, an analysis of its plant life with local distribution data, informations on flowering and fruiting periods etc. are very essential.

Keeping in view the significant role of plant life, an attempt has been made in this publication to acquaint the varied class of visitors in the park to the glimpses of the vegetation observed, with a key to work out various species of plants gathered between intervals of 1970-72 and 1980-83 by the Northern Circle, Botanical Survey of India, Dehra Dun.

I am indebted and express my gratitude to Dr. M.P. Nayar, Director, Botanical Survey of India, for facilities, valuable guidance and early publication of this work.

I am grateful to Dr. S.K. Jain, Ex Director, Botanical Survey of India for assigning and encouraging me to work on the flora of Corbett National Park and to Dr. U.C. Bhattacharyya, Deputy Director, Central National Herbarium, Howrah (formerly Deputy Director in Northern Circle, Dehra Dun) for guidance in field exploration works and finalisation of the draft manuscript of this flora.

I express my gratefulness to Dr. R.R. Rao, Deputy Director, Northern Circle, Botanical Survey of India, Dehra Dun for modifying the introductory

chapter and some taxonomic portions of the text and facilities given to me from time to time.

I am thankful to Dr. V.S. Agarwal, Editor of Publication Botanical Survey of India, Calcutta for help and to Shri B.M. Wadhwa, Scientist C, Dr. J.N. Vohra, Scientist C and Dr. C.L. Maihotra, Scientist C in Northern Circle, Botanical Survey of India, Dehra Dun for easing some procedural stages involved during the printing process of the manuscript.

Further the final accomplishment of this publication has been possible with a composite team of scientific and technical personnel of the Northern Circle, Dehra Dun, whom I like to acknowledge and express my thankfulness viz. Shri B.P. Uniyal, Botanist, for the very valuable suggestions and maximum help at all stages; Dr. P.K. Hajra, Scientist B for useful suggestions and help in the manuscript finalisation; Dr. H.J. Chowdhery, Scientist B for designing the sketch of the map included; Shri B.D. Naithani, Botanist & Dr. (Mrs.) Neelam Ghildiyal, former Research Fellow for their varied help and useful suggestions in progressive development and finalisation of my tasks of this work.

I am also obliged to Dr. S.S. Bir, Department of Botany, Punjabi University, Patiala, for providing me the identity of some of the vascular cryptogams enumerated in this flora.

Thanks are also due to Shri Dev Raj Photographer, Shri Bholu Ram Artist and the team of paratechnical personnel of Northern Circle, Dehra Dun who have assisted in various ways for the materials included in this work.

The authorities of Project Tiger Corbett National Park, Ramnagar Forest Division & Kalagarh Forest Division were always helpful in field exploration works to all of them, I express my thanks.

Last but not the least, thanks are due to M/S Shiva Printers, Dehra Dun for nice processing of the materials and release of this finished job.

Northern Circle,  
Botanical Survey of India,  
Dehra Dun.  
17.3.1986.

P.C. PANT

## CONTENTS

Introduction	7
Location and topography	8
Climate	8
Geology	9
Methodology and format	9
Map, drawings & photographs	10
Vegetation types.	10
General aspects of flora	10
Statistical analysis.	20
Biotic factors	22
Analytical catalogue to families	23
Enumeration of the species	35
Selected bibliography	193
Index to local names	197
Index to popular english names of plants and families	198
Index to botanical names	200
Errata	224

## INTRODUCTION

Exploring new horizon in the field of science and art is an inborn urge of mankind. Ever since the stone age to the present era of atomics and space advancement, human being has been responsible in altering his immediate environment. In other words environmental changes are intimately related with the existence and development of a society.

In order to minimise damages to the habitat, as well as for preservation and protection of wildlife, various scientific and research agencies with multidisciplinary programmes are working in our country. One of such programmes is the establishment of protected areas.

National parks and sanctuaries are protected areas, where indigenous species of plants and animals can safely thrive under protection through legislation. Therefore, establishment of more and more national parks and sanctuaries in our country will go a long way in the task of environmental conservation on the one hand and preservation of indigenous wildlife on the other.

It is relevant to quote here J. Juan Spillet (1966) who wrote 'A nation which has preserved such renowned relics from the past as the Taj Mahal and the ruins of Khajuraho should also demonstrate to the world that it has the foresight to preserve and protect its invaluable wildlife resources for the enjoyment of the people of both present and the future'.

Engaged in several programmes on floristic and vegetational studies, the Botanical Survey of India has also been conducting studies on the vegetation of many National Parks and Sanctuaries.

Some accounts of vegetation of National Parks and Sanctuaries have been published in the past, e.g. Botanical Exploration of Krishnagiri National Park, Borivili near Bombay (Santapau, 1955); Flora of Kanha National Park, Madhya Pradesh (Maheshwari, 1963); Flora of Bandipur Reserve Forest in Mysore State (Naithani, 1967); Flora of Jalpaiguri District of West Bengal (Mukherjee, 1967); Wildlife Biology of the Sunderban Forest (Chakraborty, 1972); Botany of Manas Wildlife Sanctuary in Assam (Jain *et al.*, 1975); Plants of Corbett National Park, Uttar Pradesh (Pant, 1976 and *et. al.*, 1981); Flora of Mudumalai Wildlife Sanctuary, Tamil Nadu (Sharma *et al.*, 1977);



Vegetation of National Park and Sanctuaries of Assam (Hajra, 1980); National Parks and Biosphere Reserves in India (Jain *et al.*, 1981); Botany of Nanda Devi National Park (Hajra, 1982) Botany of some Tiger Habitats in India (Jain *et al.*, 1983) and Flora of Pachmarhi & Bori Reserves (Mukherjee, 1984).

The present work on plants of Corbett National Park, Uttar Pradesh (CNP) is based on plants collected during 1970-72 and 1980-83 (now housed in the herbarium of Botanical Survey of India, Dehra Dun; BSD).

Corbett National Park established in the year 1935 and has the distinction of being the first national park of India. It was named, first as Hailey National Park and later as Ramganga National Park and finally Corbett National Park; it is one of the twentyfive Tiger Reserves of India.

#### LOCATION AND TOPOGRAPHY

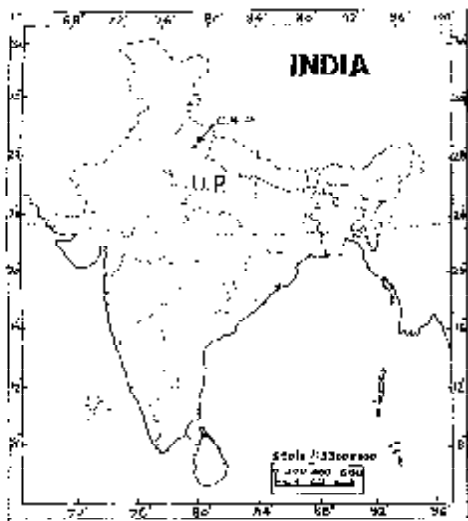
Located between 29° 13' 30" and 29° 35' 15" N latitude and 78° 46' and 79° 33' E longitude, CNP has an area of varied topography from precipitous hills of Siwalik formation with many interspersed seasonal streams and nullahs, to broad flat valley of south Patli Dun, Patches of Savanna land (CHAURS), north westerly flowing Ramganga river with its large basin and an appreciably large area of submerged zones of forested blocks from Paterpani, Dhikala and Gaujpani.

In recent years, consequent to the completion of Ramganga multipurpose hydel project dam at Kalagarh, there has been a considerably change in the westward boundary of the park area. Today, the park spreads in an area of 520 sq. km in altitudinal range varying between 350 m - 1050 m above sea level.

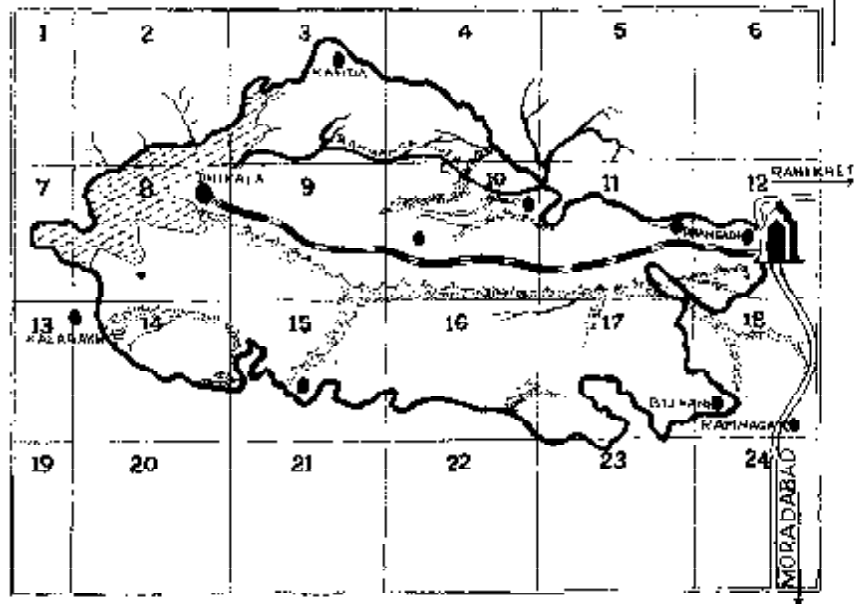
One of the largest ridges of Siwalik hills runs through the park from Dhangadi (Ramnagar) to the vicinity of Kalagarh, dividing the park area almost into two halves. The northern half is formed of south Patli Dun, Savanna land of Dhikala, Kanda the highest ridge of park, vast riparian tract of Ramganga river (Plate I.); Sarpaduli, Gairal and Dhulwa block. The southern half comprises of Bijrani, Mailani, Dhara, Dhela block, submerged zones of Boxar and Kalagarh area. Situated in the foot hills of western Himalayas, the Corbett National Park partly forms the forest reserves of Ramnagar and Kalagarh forest divisions within the boundaries of Nainital and Pauri districts of Uttar Pradesh.

#### CLIMATE

Climatically December to February are the colder months with chilly and



## CORBETT NATIONAL PARK, UTTAR PRADESH.



-  PARK ENTRANCE.
-  METALLED PARK ROAD.
-  CAMPING SITES.
-  RIDGES OF SIWALIK.
-  SUBMERGED ZONE.
-  RAMGANGA RIVER.
-  STREAMS.



**Plate 1. Riparian tract at Dhikala with "SAL" dominated Siwalik hills on background.**



**Plate 2.** *Shorea robusta* Gaertn. forest around Sultan.

often frosty nights. The summer season extends from May to June and at times with thunder showers and hail storms. Wet, warm and humid condition prevails during July to September with heavy monsoon rains. During October to November with the retreat of south-west monsoon, autumn sets in with clear days and moderate temperature. Spring is ushered in March-April, the period being quite pleasant supports fast growing vegetation all round.

#### GEOLOGY

The area under study lies in the outer foot hill terrain of the Himalaya known as the Siwalik range which is composed of alluvial detritus material derived mainly from the subaerial waste of the Himalayan mountain ranges and from the Siwalik system. Siwalik Group has been divided into three recognisable lithounits: Lower, Middle and Upper Siwalik.

#### METHODOLOGY AND FORMAT

Regular field surveys in all seasons were made for collection and study of flora of the park. Detailed field observations were recorded in the field note book. Routine herbarium practices (Jain & Rao, 1977) were followed for preserving the specimens in the BSD herbarium.

In order to collect plants from different habitats, the park was divided under the following topographic zones, (a) Submontane tract of Siwalik hills with intervening plateau lands (b) Vast dry nallahs of rocky boulders (c) Savanna land or 'Chauris' (d) Riparian tract of Ramganga river.

In the taxonomic treatment families are arranged according to Bentham and Hooker's system of classification (1862-1883) with modifications as formulated by Hutchinson (1959).

The nomenclature is up-dated with the help of latest literature available on the subject. Citation of the species is kept to the minimum so as to include the original citation and Duthie's flora (Reprinted Edition, 1960).

For species which are not mentioned in Duthie's flora a reference to other important regional floristic works e.g. Osmaston (1927), Raizada (1976) has been given. For grasses Bor (1960) and for Pteridophytes Chowdhury (1973) or Dhir (1979) is cited. Species not mentioned in any of the above works are marked with an asterisk and relevant reference to, Hooker's. The Flora of British India (Vol. 1 to 7, 1872-97) is made. Local names where available are also provided at the end of citations. A Synoptic key for various families dealt in this work has been provided. Keys to the genera and species and descriptions of the species are in general based on specimens collected from park. Description of species is followed by notes on distribution and abundance, flowering and fruiting times and specimens examined.

### MAP, DRAWINGS AND PHOTOGRAPHS

An outline grid map showing prominent physical features of park is given and it has been divided into 24 grids for convenience (Map.). Line drawings for few economically important or plants of botanical interest have been provided. To depict the vegetational features of some areas of park, few colour or black and white photographs have also been included.

### VEGETATION TYPES

Vegetation in the major area of the National Park consists of mixed deciduous tropical and sub-tropical forests, which are further grouped into following forest types.

(i) Moist Siwalik 'SAL' forests, (ii) High Alluvium 'SAL' forests, (iii) Dry Siwalik 'SAL' forest, (iv) Northern Tropical Dry Mixed Deciduous forests, (v) Moist Savanna forests, (vi) North Indian moist deciduous forests, (vii) Khair-Sissoo forests, (viii) Dry Bamboo brakes, (ix) Himalayan Sub-tropical forests.

### GENERAL ASPECTS OF FLORA

Dhangadi is the entrance gate for the park area. One develops some mixed feelings of elation and awe in the park due to its rich and varied floristic composition, which also shelter rich faunal wealth. Forest cover of the park comprises of numerous species of trees, shrubs, climbers, interspersed grass lands and herbaceous ground cover in varying colours of flowers.

*Shorea robusta* is the most dominant tree gregariously growing in the park area, as it could be observed around Panod nallaha, Amgadi sot, Sajgadi sot, Gajar sot, and Sultan environs (Plate 2.). An elegant patch of "SAL" exhibiting magnificent dense growth with its tall straight bole and vertically fissured reddish-brown or grey bark is in section of Dhikala to Khinanauli. Patches are also seen towards Mailani Tal around Bijrani and Kanda environs.

Some striking common associates of *Shorea robusta* are the evergreen species like *Mallotus philippensis* and *Syzygium cumini*. Other evergreen small to medium sized trees are *Phoebe lanceolata*, *Litsea glutinosa*, *L. monopetala*, *Drypetes roxburghii* and *Boehmeria rugulosa*. Handsome, *Murraya paniculata*—"Chinese box" or "Orange Jasmine" with fragrant white flowers during March-September and *Wendlandia exserta* are noticeable near Dhikala and Phulai Beat respectively. The popular *Mangifera indica* and *Citrus medica* can hardly remain unnoticed while moving around Bijrani and Dhikala environs.

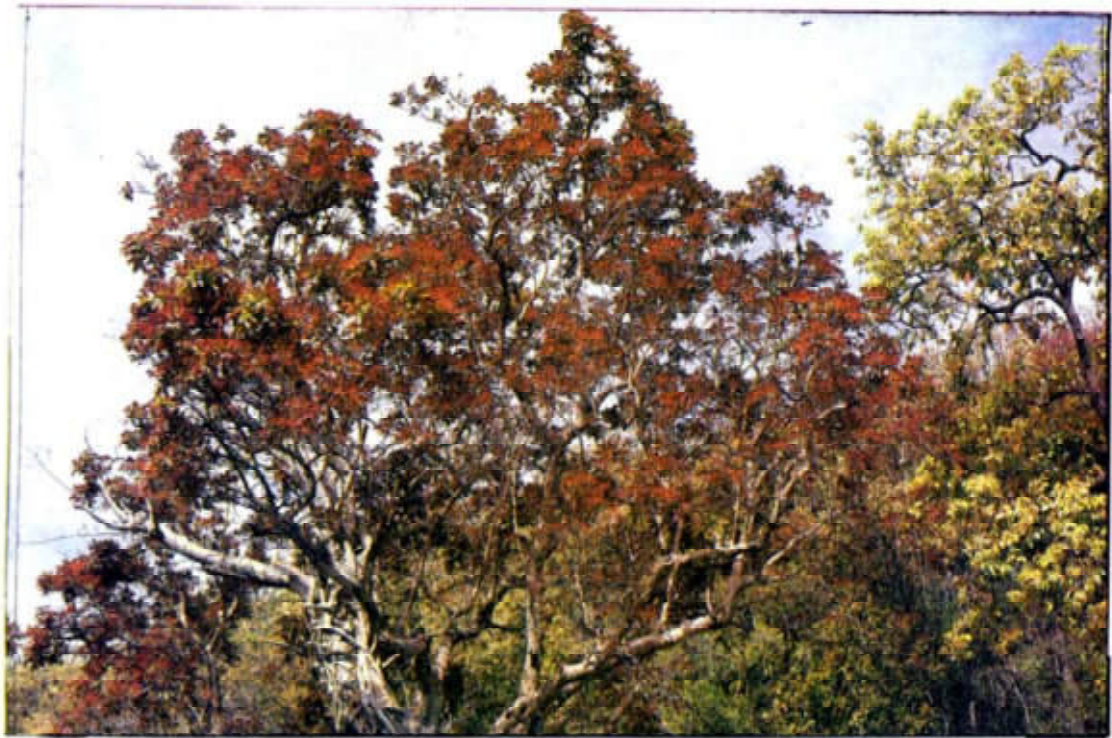


Plate 3. *Schleichera oleosa* (Lour.) Oken, with flowers and young foliage.

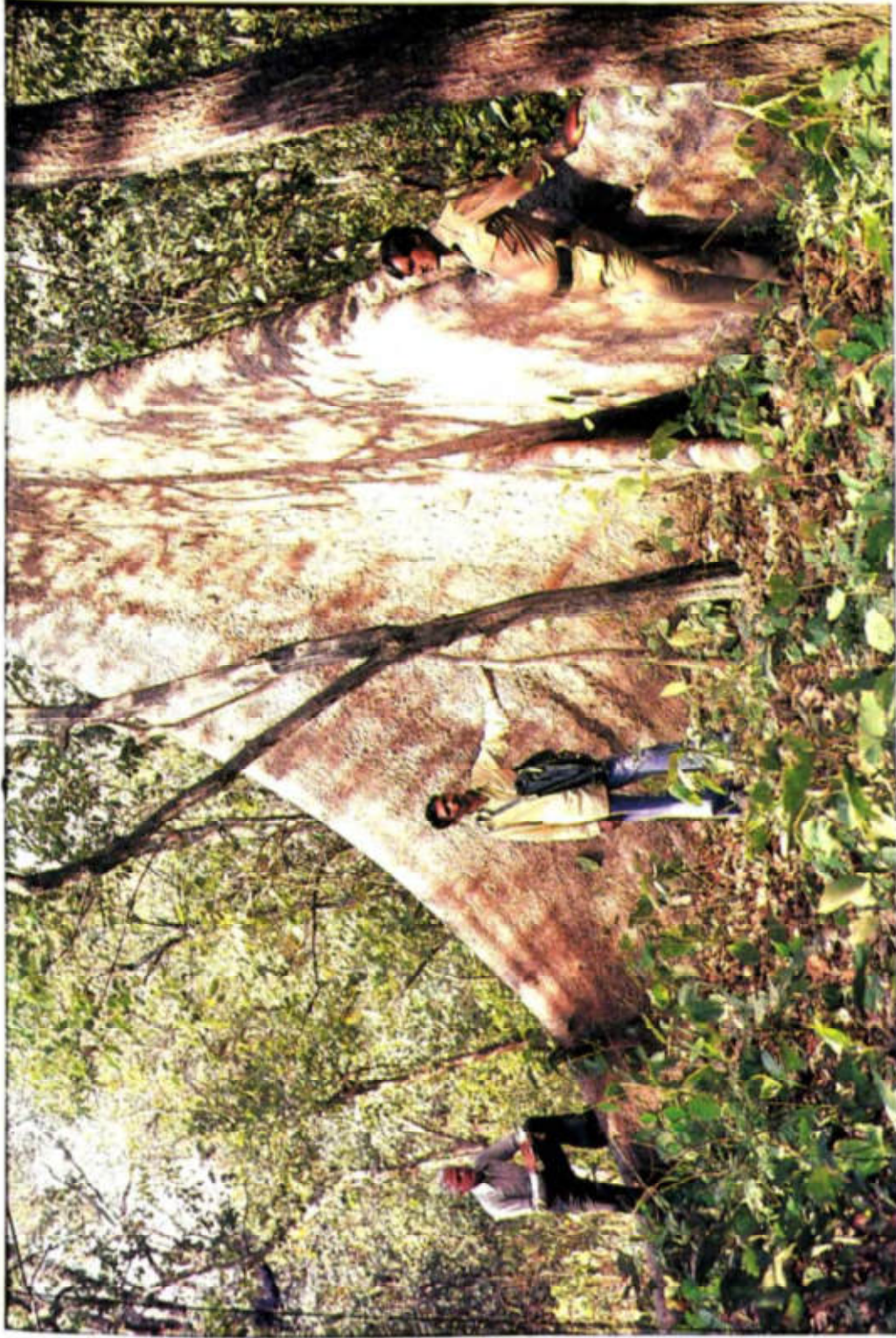


Plate 4. Enormously buttressed *Bombax ceiba* L. at Dhela Block.



Among deciduous species *Terminalia alata*, *T. chebula* *Semecarpus anacardium* "The Marking Nut Tree"; *Lannea coromandelica*; *Adina cordifolia*; *Sapium insigne*; *Ehretia laevis*, *Lagerstroemia parviflora* could be seen around Dhikala, Bijrani, Mailani, Dhulwa east and Kanda environs. *Aegle marmelos* - "The Bael Tree" is quite common in Dhela block forest compartment No. 10, here at certain places "Bael" forms dominant feature of middle canopy of the forest crop. *Schleichera oleosa* is quickly spotted during March-April around Sultan and Ghilmodya forest compartment No. 9 and 10 by its pink coloured new foliage (Plate 3.). The "Mahua Tree" - *Madhuca incica* can be easily located in Bijrani and Gairai environs with fleshy corollas. At places associated with SAL or scattered is "Easter Tree" or "Ivory Tree" - *Holarrhena pubescens*; *Bombax ceiba* - "The red silk cotton Tree" sometimes with enormously buttressed trunk (Plate 4.); and *Careya arborea* are striking with their large fleshy crimson-pink flowers of Ca 8-12 cm diameter, at Bijrani, Dhela Block and Kichar Sot, Ratapani Sot respectively.

"Axle Wood Tree" - *Anogeissus latifolius* is the frequent associate of "SAL" which at times ranks next to it in gregariousness and prefers the hilly tracts, as observed in the sections of Bijrani, Mailani and at place from Phulai towards Kanda.

At open sunny faces of Dhangadi nallaha, Pateli Chaur to Paterpani "The Cutch Tree" - *Acacia catechu* can be seen growing gregariously. Some other scattered species are *Kydia calycina*; *Desmodium oojeinense*; "Indian Elm" *Holoptelea integrifolia* and *Phyllanthus emblica*.

Along Ramganga river in Dhikala - Phulai, *Dalbergia sissoo* is visible, occupying appreciably large interspersed patches. As also at quite many places in Kanda and Paterpani environs.

At Ghilmodya forest compartment No. 9 and 10 *Albizia odoratissima* could be observed with fragrant flowers. Moving around Kothi Rau, on way to Jamnagwar, Domunda Bridge, Dabriya Chaur, Kichar Sot., Ratapani Sot and Forest Compartment No. 8, *Diospyros tomentosa* could be spotted. The globose, sweet fruits of this tree are favourite to 'Sloth Bear' of the park.

In contrast to above mentioned species of wide spread growth in the park, species like *Bischofia javanica* at Ghilmodya Sot and Sultan. *Firmiana pallens* near Machan Tower in Sultan and Kanda. *Hymenodictyon excelsum* at Bagia nallaha and *Alangium salvifolium* at Noongarh Sot, Dhela Block have been observed to occur scarcely.

Of the very popular showy flowering trees mention may be made for *Bauhinia variegata*; *Butea monosperma* "The Flame of the Forest" and *Erythrina indica* "The Indian Coral Tree" Yet other showy one is "The Indian Laburnum" *Cassia fistula*.

"Figs" are yet other interesting and important species of trees providing much preferred fodder to the elephants of park, some common species of this group are *Ficus auriculata*, *F. racemosa*, *F. rumphii*, *F. virens* and well known "Banyan tree" - *F. benghalensis*.

The solitary gymnosperm in park is *Pinus roxburghii* in Suntha Khal top at Dhikala block and in some places it is mixed with *Shorea robusta*, as it is in forest compartment No. 1 in Gajar sot and on higher reaches of hills at Machan Tower of Sultan Sau Footi Compartment No. 10 and Ghilmodya west compartment No. 11.

Around Dhangadi entrance gate *Tectona grandis*, the well known teak and *Eucalyptus* sp. at Noongarh sot and Dhela block compartment No. 10 are among the plantation crops raised by U.P. State Forest Department within the park boundary.

Shrubs of wide spread occurrence are represented by gregarious *Clerodendrum viscosum* usually as a close associate of 'SAL' (Plate 5); *Glycosmis arborea* with lemon scented leaves on open places and along forest paths. *Murraya koenigii* by foetid leaves, popularly used in southern India for flavouring curries. *Pogostemon benghalense* is seen with aromatic leaves at Dhangadi nallaha in Dhulwa east on open aspects along with foetid smelling *Adhatoda zeylanica*. During February-April at Panod nallaha and Mailani one may be tempted to suck the conspicuous bright red tubular flowers of evergreen *Woodfordia fruticosa*, for their sweet scented honey.

Along the edges of the dry nallahs *Colebrookea oppositifolia* or *Spermadictyon suaveolens*, is commonly met. On open places usually on level land *Ziziphus mauritiana* could be observed at various places around the park area. *Helicteres isora*; "Indian wormwood" - *Artemisia nilagirica* are visible on ridges and flat savanna land as well. Of the Rose family, the prickly *Rubus ellipticus* with white flowers during January-April and April-May with juicy edible drupelets can be seen around Kanda. *Masea indica*, *Callicarpa macrophylla* are scattered at various places, where as *Ardisia solanacea* prefers moist shady places. Along Ramganga river basin on sandy soil and amidst clump of grasses or heaps of boulders *Tamarix dioica* is quite conspicuous with annular rings on the twigs.



Plate 5. *Clerodendrum viscosum* Vent. a gregarious shrubby under growth of "SAL" forest.



Plate 6. Leafless twiggy shrub of *Orthanthera viminea* Wight & Arn.

Some subwoody species of Fabaceae and Malvaceae are distributed in various sections, of these mention may be made of some common ones as: *Crotalaria sericea*, *Desmodium triangulare*, *D. velutinum*, *Indigofera atropurpurea*, *Tephrosia purpurea*, *Flemingia strobilifera*, *Sida cordifolia*, *S. cordata*, *S. rhombifolia* and *Urena lobata*. Among large scrambling shrubs "Chinese Hat-Plant" *Holmskioldia sanguinea* with characteristic obconic calyx and *Embelia tsjeriam-cottam* with purplish-red fleshy drupes are seen during July-September. Usually leafless *Orthanthera viminea* either on river basin or on dry stream beds (Plate 6.), and thick fleshy leaved *Calotropis procera* and *C. gigantea* are found on open sunny places. Evergreen *Solanum erianthum* and prickly *S. indicum* and *S. viarum* are the members of "Potato Family", in many places.

Among hardy intruders species like spinulose *Lantana camara*, forming large patches of impenetrable growth with flowers in varying shades of light purple, pink or red. *Acanthospermum hispidum* having yellow flowers during November show an abundant growth at Dhangadi Nallaha and "True Hemp" or "Soft Hemp" *Cannabis sativa* a strong smelling plant in gregarious colonies are common around Dhikala. Evergreen *Carissa carandas* with faintly scented flowers is frequently met around Gairal.

Among large number of entwined woody climbers and twiners, some have right-wardly turning stems and typical butterfly shaped corollas such as in *Millettia extensa*, *Pueraria tuberosa* and *Mucuna imbricata*. Asclepidaceous *Cryptolepis buchanani*, with milky juice, is a common twiner in the tract. Landscape of park changes with the advent of spring and summer when numerous small white flowers of evergreen *Porana paniculata*; *Ichnocarpus frutescens* and larger greenish-white flowers of *Vallaris solanacea*, are seen laden and hanging from the top canopy of forest crop. Yet few other striking climbers met with are *Pothos cathcartii*, scrambling upon trees, preferably *Shorea robusta*, by means of adventitious roots. Shrubby twiner like *Clematic gouriana* and extensive liana with tendrillar branches and flat rusty tomentose woody pods of *Bauhinia vahlii* and *Celastrus paniculatus*, are found to flourish well in the Sal forest. Herbaceous climbers have their usual representation in park of these mention may be made for *Ampelocissus divaricata*, *Diplocyclos palmatus*, *Dioscorea belophylla*, *D. bulbifera* and *Ipomaea quamoclit*.

Of the palms *Phoenix acaulis* and *P. humilis* prefer to be in grassland and open sunny places: Scarcely occurring and elegant looking *Wallichia densiflora* with leaves dark green above and silvery-white beneath has been observed on moist shady aspects of Sultan environs.

The common parasitic members are represented by evergreen shrubs of *Dendrophthoe falcata* having scarlet red flowers; *Scurrula cordifolia* is recognisable by rusty-tomentose coating on its shoots and leaves. In contrast to these shrubby ones, the herbaceous leafless root parasite is *Aeginetia indica* having purple tinged plant body and *Cuscuta reflexa* the common 'Dodder' with interlaced yellow cord like habit is found upon shrubs etc.

Yet another kind of plants perched on trunks of trees are epiphytes. Of these orchidaceous members *Luisia trichorhiza*, *Eria pubescens*, *Vanda testacea* and *Oberonia falconeri* are quite conspicuous around Sultan and its environs. Scarcely *Ficus microcarpa*, of the "Fig Family" is also found as an epiphyte on *Syzygium cumini*.

The largest number of plants, of the total vegetation on floor of the park is herbaceous including many luxuriant grasses. They are found in varying habits from compactly spreading on ground to upright position. Of the whole herbaceous flora grasses are omnipresent in park. At places the vegetation is exclusively comprised of grasses, whence the Grasslands (CHAURS) are formed, one such is the famous "Dhikala Chaur" which occupies an area of about 7 sq. kms. dominated by *Saccharum bengalense*, *Themeda arundinacea* and others.

Grasses can be broadly divided under two categories for identification in the field, 1. those with slender weak culms and 2. other with thick strong culms (including "Male Bamboo").

Few representatives of the weaker group of grasses are *Apluda mutica*; *Eulaliopsis binata* the well known "Baib Grass" *Cynodon dactylon* the familiar Dub Grass "Dog's tooth" or "Bermuda Grass" often forming wide mats; *Imperata cylindrica*; *Eragrostis atrovirens*; *E. unioloides*; *E. Japonica*; *Dichanthium annulatum*; *Desmostachya bipinnata*; *Arthraxon lancifolius*; *Oplismenus compositus* and *O. burmannii*, are frequently found in park.

Grasses of thick strong culm category are represented by species like *Aristida cyanantha* amidst boulders of dry nallahas. Reed like *Themeda arundinacea* is recognisable from a distance by golden yellow-reddish brown penetrating long awns clinging to clothes while moving around Dhikala Chaur. *Thysanolaena maxima* "The Tiger Grass" on cliffs and precipitous moist shady habitats, the large panicles of this is, an ideal material for broom industry; *Neyraudia arundinacea* with light brown inflorescence and *Heteropogon contortus* "The Spear Grass" with conspicuous sharp awns adhering to clothes and penetrating in skin are commonly seen at many places in park.

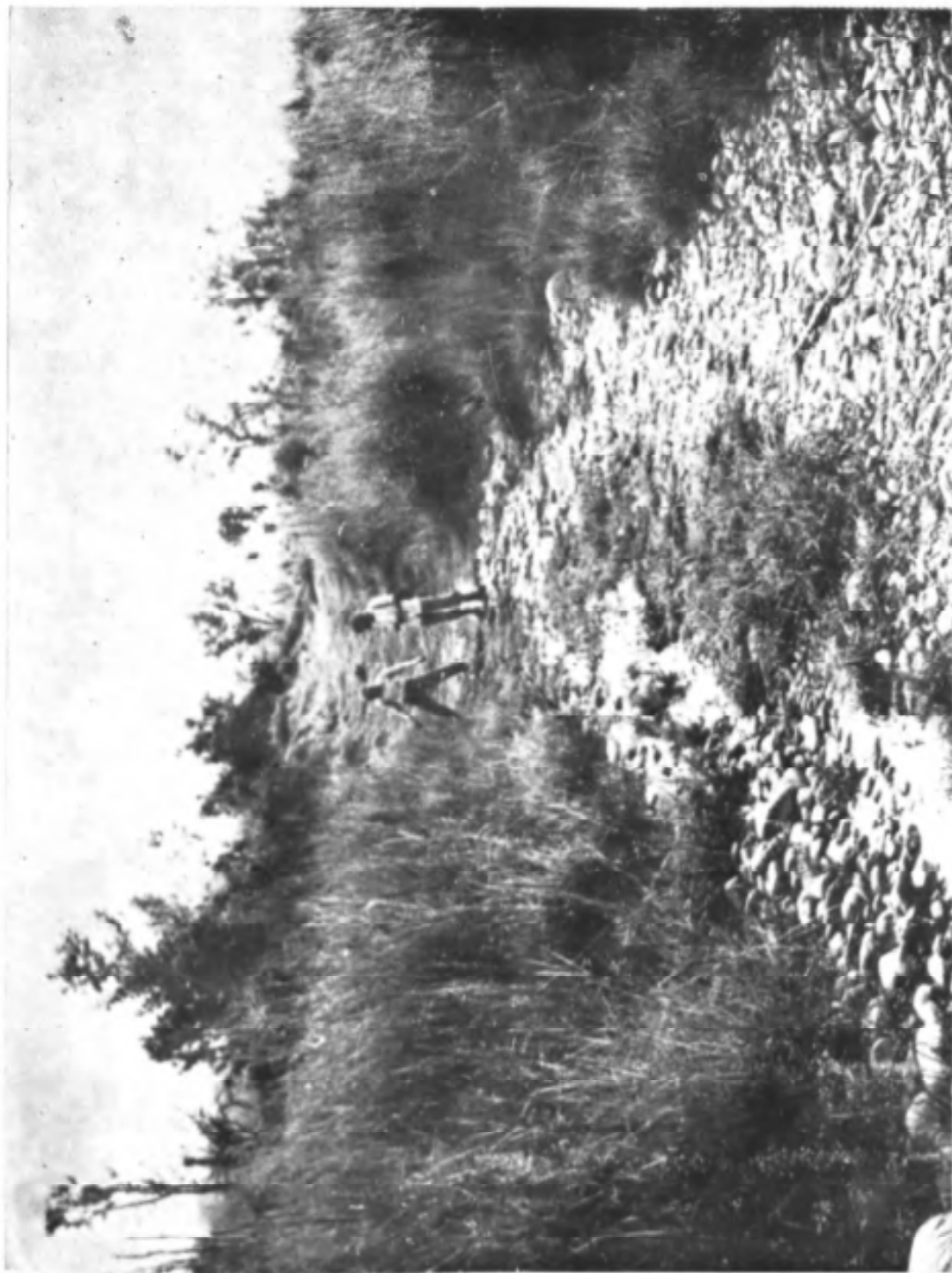


Plate 7. *Arundo donax* L. at Phulai.

*Arundo donax* with smooth culms and profuse brown flowers is abundantly visible at Phulai (Plate 7.). Few other scatteredly seen are tall *Phragmites karka* with creeping rhizomes and leaf blade ending in a long fine point; *Chionachne koenigii* a tall grass, softly bearded at nodes and sheaths with stiff brittle irritating hairs; *Vetiveria zizanioides* the well known "Khus-Khus" is common in marshy areas and provides aromatic rhizomes and fibrous roots which are reputed in making of cooling curtains for the summer heat.

*Narenga porphyrocoma* with woolly purplish or whitish inflorescence; *Saccharum bengalense*; *S. spontaneum* tall tufted grasses with dense white woolly inflorescences; *Rottboellia exaltata* with brittle, jointed slender spikes and spinulose margined leaves; *Erianthus filifolius* with spikelets within purplish-red silky growth; *Cymbopogon flexuosus* a tufted grass with pleasant aromatic leaves are glimpsed, sporadically in the park.

In some places around Dhangadi nallaha, Sultan, Dabriya Chaur Kumar Sot and Hathipani-Kanda, the vegetation is dominated by bamboo forest comprised of *Dendrocalamus strictus* "Male Bamboo" having clustered stout culm and shining papery stem sheaths. Bamboo has a peculiar mode of flowering in long intervals of several years. Although sporadic flowering culms can be witnessed in some spots during colder months.

Apart from grasses, members of *Fabaceae* "The Pea Family" are of wide spread occurrence in park area characterised by 'Butterfly' shaped corolla of various colours. Some very conspicuous species of this family met within the tract are *Alysicarpus rugosus* with leaves having a white band above and pods are transversely ribbed; *Crotalaria medicaginea* with trifoliolate leaves and yellow flowers often streaked with red, amidst clumps of grasses at Dhikala Chaur; Wide trailing much branched *Desmodium microphyllum*; Climbing 3-foliolate yellow-flowered *Dumasia villosa*; Procumbent *Indigofera linifolia* with silvery pubescent linear leaves; *I. linnaei* with much branched stem and small bright red flowers; *Zornia gibbosa* with zigzag wiry branches and black gland-dotted 2-leaflets and minutely prickly pods. Here mention may be made of common *Cassia absus* with leaflets possessing a gland between the each pair; Graceful *C. pumila* with prostrate stem and yellow flowers and foetid *C. tora* of *Caesalpinaceae* can be hardly missed.

In order of dominance *Asteraceae* stands next to *Fabaceae* and has wide spread distribution in the park area. Flowers in this family are crowded in a simple head on top of a stalk and fruit is a small dry 1-seeded achene.



Some conspicuous members of Asteraceae (Compositae) are odorous *Ageratum conyzoides* with mauve or white heads common at open places along margins of forest; *Anaphalis busua* having white or grey tomentose leaf surfaces; mildly fragrant *Artemisia scoparia* with dimorphic leaves broadly ovate at the base and thread like on aerial stem; *Bidens biternata* with quadrangular branches and linear black barbed achenes for easy dispersal by animals; Glandular pubescent or woolly *Blumea mollis* and *Cirsium arvense* with sinuately spinous tipped leaves and dingy purple heads.

Among others of the Daisy family (Asteraceae) glandular sticky *Conyza leucantha*; *Eclipta prostrata* with white flowering heads; *Elephantopus scaber* with flower heads surrounded by cupular bracts; *Lactuca dissecta* with milky juice and variously lobed leaves and blue flowers; *Launaea procumbens* with yellow juice and irregularly lobulate leaves; *Senecio nudicaulis* with bright yellow heads are fairly common in the park. Diffusedly growing and flower heads enclosed within leaf bases of *Soliva anthemifolia* an interesting south American species is now on the march of naturalization at many places in Uttar-Pradesh and also common in moist depressions and river banks in the park area. The sessile globose spiny heads are very striking in this plant.

Few more common species are glandular aromatic *Sphaeranthus senegalensis* with long spreading winged branches and purple globose heads; *Tridax procumbens* a common plant of waste places with flower heads on long solitary stalks; *Vernonia cinerea* with pink or light purple heads; *Vicoa indica* a roughly pubescent herb with auricled bases and bright yellow heads; *Galinsoga parviflora* with profuse small heads of white rays and yellow disc; *Siegesbeckia orientalis* with broadly triangular leaves and plant body clothed with crisped hairs.

Members of Scrophulariaceae (Fig-wort family) rank next to Asteraceae and to mention some species representing the former are *Antirrhinum orontium* the "Weasel's-snout" with two lipped purple streaked flowers; *Limnophila rugosa* with pleasant aromatic leaves; *Lindenbergia indica* with glandular hairy leaf and small yellow flowers; *Lindernia anagallis* with bluish white flowers in damp places; *L. ciliata* an erect glabrous herb with narrow cylindrical capsules; reddish purple flowered *L. nummularifolia* branching from the base are commonly found. In shady localities *Mazus pumilus* with tufted spoon shaped leaves and pale-blue flowers; *Verbascum chinense* with pinnately divided radical and heart-shaped cauline leaves are also seen here and there.

Sedges (Cyperaceae) are yet another widely distributed plants, usually growing in moist places with often rhizomatous stem and triquetrous solid scape. Some frequently met cyperaceous species are *Eriophorum comosum* preferably growing on steep rocky habitats or vertical cliffs, this sedge is very much similar to 'Baib Grass' of Poaceae and can be distinguished from that, by its tufted growth and without woolly base; tufted *Fimbristylis bisumbellata* and *F. miliacea* with angular stem; *Carex myosurus* with stout woody rhizome and broad spikes, long tailed towards the apex by male portion; *Cyperus brevifolius* with slender horizontal rhizomes covered with brown scaly leaves; In *C. compressus* stem's bases are covered with red-purple leaf sheaths; small *C. pumilus* is characterised by tufted slender stem covered by reddish sheaths and *C. pilosus* with acutely triquetrous stem and long stolons are notable species in park.

Plants of many other families constituting the seasonal herbaceous flora with their varying habits, flowering periods, foliage pattern etc. are noticeable now and then in the terrain. Mention may be made of few of them such as succulent *Rhynchoglossum obliquum* with unequal based leaves; *Borreria articularis* with quadrangular stem; *Hedyotis ovatifolia* usually with 4 leaves of unequal pair in a whorl; *Bupleurum hamiltonii* and *Peucedanum dana* with small yellow flowers in umbels; Much branched *Mollugo pentaphylla* with leaves in whorls of 3-5.

*Oenothera rosea* with red tinged stem and pink flowers; Fleshy leaves and yellow flowered *Kalanchoe spathulata*; *Drymaria cordata* with branches forking into two and white flowers in moist shady places; Glandular sticky and yellow flowered *Cleome viscosa*; Succulent "Indian Purslane" *Protulaca oleracea* with wedge-shaped leaves and "Mexican" or "Prickly Poppy" *Argemone mexicana* with yellow juice and bright yellow flowers are not uncommon; Bilipped pink flowering *Dicliptera roxburghiana*; Purplish white flowered *Lepidagathis purpuricaulis*; Diffused softly villous *Nelsonia canescens*; Angled, branched and rose-purple coloured flowers of *Peristrophe bicalyculata* and *Justicia diffusa* with flowers in slender terminal and axillary spikes are among the Acanthus family.

Of the "Borage family" *Cynoglossum lanceolatum* with bulbous based hairy leaves; Prostrate, much branched and linear leaved *Heliotropium strigosum*; Around Dhikala Chaur *Trichodesma indicum* with roughly bulbous-hairy leaves and stem and pretty plae blue nodding flowers and *Evolvulus alsinoides* of convolvulus family with prostrate stem and funnel shaped blue flowers are frequently seen. On open dry sandy soil mauve flowered prickly *Solanum xanthocarpum* is an interesting plant of medicinal

importance. Some members from Mint Family are *Ajuga bracteosa* with mauve coloured flowers crowded in axillary whorls, forming leafy spikes; linear roughly hairy leaved *Leucas hyssopifolia*; softly silky and thick leaved *L. lanata*; tall, stout, strongly aromatic *Perilla frutescens* and yet other striking member spotted around Mailani, Jhirna and Dhikala is *Leonotis nepetaefolia* having dense axillary whorls of orange-scarlet, velvety flowers during October-November; *Alternanthera sessilis* a prostrate herb rooting at nodes with white shining spikes; *Rumex hastatus* a sour tasting herb with thick, triangular hastate leaves abounds in drier situations. On cool shady and moist habitats at Paniagad and Pinalu Chaur in Bijrani range pretty pink flowering *Begonia picta* with succulent tuberous rootstock is an interesting record of distribution from park area. Few herbaceous species of Euphorbiaceae commonly seen in the park area are hispidly hairy *Euphorbia hirta*; slender smooth *E. hypericifolia* etc. Terrestrial Orchids are not many in the park, however, few interesting species are *Eulophia dabia* a tuberous herb having dull pink leafless stem and drooping flowers and *Nervilia crisputa* with single peltate reniform leaf.

Purely aquatic vegetation is scarce in the park area. However, there are some herbaceous species characteristic of moist marshy or water logged area. Only two species *Potamogeton nodosus* with 7-nerved elliptic-lanceolate leaves and *P. crispus* with translucent linear crisped leaves are among the typical aquatic plants in the park.

Other wetland plants met within Corbett National Park are *Cyanotis cristata* a slender, creeping blue-flowering commelinaceous herb; *Polygonum glabrum* with thick reddish stem and tubular stipules; Much branched and minutely glandular *P. hydropiper*. Succulent creeping *Bacopa monnieri*; *Ranunculus sceleratus* - "Buttercup" or "Crowfoot" with fistular stem, long petioled radical leaves and yellow flowers and *Veronica anagallis-aquatica* with erect succulent stem. Few other species of the same habitat are *Lippia nodiflora* with widely creeping stem often tinged with reddish brown and rooting at nodes; Very small tufted *Rotala mexicana*; Erect or decumbent rooting at nodes *R. indica* and *Limnophila indica* with whorled heterophyllous leaves. "Common water cress" *Nasturtium officinale* with pinnatifid lobed leaves and white flowers; *Centella asiatica* with prostrate stem and reniform crenate leaves and the "Bullrush" *Typha angustata* with rhizomatous roots and cylindrical spikes are usually found on marshy places and along running streams.

Though the present study on plants of Corbett National Park is particularly made for the flowering plants, but several ferns and their allies



Plate 8. *Preris biaurata* L. at Sajgadi.

have been also gathered, which usually prefer cool, moist, and shady habitats of the park area. Even at some places it looks like an arranged fernery, as one might see around Sajgadi sot (Plate 8.), on precipitous rock at Hathia Sot and at Kandroo Beat. Since the ferns are equally attractive and elegant looking flowerless plants, with variously dissected leaves, dotted with sori and coiled young fronds look quite fascinating, as such mention of few common species and their allies recorded within the park area include *Dryopteris cochleata*; *Diplazium esculentum*; *Abacopteris multilineata*; *Tectaria macrodonata*; *Lygodium flexuosum*; *Pteris biaurata*; *Adiantum capillus veneris*; *Hypodematium crenatum* "Snake tongued" *Ophiglossum reticulatum* and *Selaginella crysocaulos*.

Some striking observations on the plant life of the terrain have been made during different seasonal explorations, these may be of interest to a visitor to CNP.

1. Certain plants are found to occur specifically along tracts which are subjected to annual forest fires. These species acquire some characteristic features, as woody root stock and stunted growth etc. The following are some examples.

(a) *Grewia sapida* Roxb. throws annually during April-May number of herbaceous shoots, bearing beautiful small yellow flowers, around Machan Chaur Environs, Bijrani, Dhikala Chaur and \*Takiya Sot Boxar (\*Now submerged).

(b) *Indigofera hamiltonii* Grah. ex Duthie & Prain, with shoots bearing pink and red tinged flowers during March-July and compressed pods, at Dhikala Chaur amidst Clumps of burnt up grasses.

(c) *Combretum nanum* Buch. - Ham. ex D. Don with Woody erect shoots, bearing small fragrant white flowers and fruiting during March-August at Dhikala Chaur.

(d) *Clausena pentaphylla* DC. An aromatic undershrub with yellowish-white flowers during March-April amidst clumps of burnt up grasses at Noongarh sot, Forest Compartment No.5 (Kalagarh).

2. Community of *Siegesbeckia orientalis* and *Perilla frutescens* in the environs of Dhangadi

3. *Cassia obtusifolia* and *Tephrosia purpurea* in a community at Mailani Forest Compartment No.8.

4. *Lantana camara* and *Helicteres isora* association at Lal Dhak forest compartment No.2 of Dhela Block.

5. *Solanum viarum* and *Lantana camara* at Phulai Block Dhikala in Ramganga basin, probably this spot might have been a temporary camping site of Gujars or local folk from the neighbouring areas.

6. During the month of April at Dhikala on Savanna land (CHAUR) after the fire season, amidst culms of burnt up grasses many colourful herbaceous plants spring up, thus decorating the landscape of Dhikala Chaur with *Evolvulus alsinoides* having funnel-shaped blue flowers; pinkish-white flowering *Trichodesma indicum*; yellow flowered *Peucedanum dana*; pink flowering *Polygala crotalarioides*; yellow headed *vicoa indica*; yellow flowering *Crotalaria medicaginea* and pinkish brown flowering, tuberous rooted *Eulophia dabia*.

7. *Saccharum bengalense* Retz. bordering usually along dry nallahas amidst boulders and silver white silky spikes in flash of this grass are visible from a distance during August-November.

8. *Thysanolaena maxima* (Roxb.) O. Kuntze on hilly cliffs at Kanda, Paterpani and Dabriya Chaur Kumar Sot etc. with numerous dull green spikelets during hot season.

9. *Themeda arundinacea* (Roxb.) Ridley. a tall tufted grass with golden-yellow spikes and penetrating awns during September-October around Bijrani Chaur and Mailani range is quite striking.

10. *Heteropogon contortus* (L.) P. Beauv ex Roem. & Schult with dark brown long penetrating awns, around Bijrani and Mailani Forest area during September-October.

11. *Aristida cyanantha* Nees ex Steud during September-October with brown coloured drooping spikes can be spotted along Dhangadi nallaha, Panod nallaha and Mailani.

#### Statistical Analysis

Results of present studies on vegetation and floristics have provided data as tabulated below on the systematic census of plants from Corbett National Park, Uttar Pradesh.

Table I General Survey

Plant Groups Analysed	Number of families	Number of genera	Number of species
Angiosperms :			
a) Dicotyledones	85	309	462
b) Monocotyledones	13	82	132

Plant Groups Analysed	Number of families	Number of genera	Number of species
Gymnosperms	1	1	1
Ferns and Fern Allies	12	18	22
<b>Total</b>	<b>111</b>	<b>410</b>	<b>617</b>

Ten dominant families with respective number of species gathered from park with their comparative census vide check-list to Duthie's flora of upper Gangetic Plain and including Supplement to Duthie's Flora of Upper Gangetic Plain and of the adjacent Siwalik And Sub-Himalayan tracts are as follows :

Table II Split up of dominant families.

Family	Number of species gathered from Corbett National Park in present analysis.	Aggregate of species as enumerated in "Flora Of The Upper Gangetic Plain And of The Adjacent Siwalik And Sub-Himalayan Tracts Check List" and "Supplement to Duthie's Flora of the Upper Gangetic Plain and of the Adjacent Siwalik And Sub-Himalayan Tracts"
Poaceae	72	292*
Fabaceae	53	196
Asteraceae	50	177
Cyperaceae	24	113
Scrophulariaceae	22	59
Euphorbiaceae	20	84
Acanthaceae	19	76
Lamiaceae	19	68
Rubiaceae	18	58
Caesalpiniaceae	12	39

\*Vide Raizada et Jain Grasses of the Upper Gangetic Plain Part I, II and III.

*Biotic Factors*

During field exploration, following biotic factors effecting the plant life and terrain of the park have been noticed.

1. Existence of 'Lal Dhak' 'Jhirna' and 'Sanwal De' Villages in the immediate vicinity of Park boundary.
2. Cattle life from the above village entering within park area for grazing.
3. Exploitation of plant material like *Eulaliopsis binata* by Sanwal De villager's for rope making, etc.

The aforementioned biotic factors are presently localised and cause lesser degree of ecological disturbances, but a timely check of this increase is necessary.



Analytical Catalogue To Families Of Plants From  
Corbett National Park.

**PHANEROGAMS** : Plants with flowers, bearing distinct stamens, pistils and seeds.

**ANGIOSPERMS** : Plants with highly evolved flowers. Ovules in a closed ovary.

1. *Class Dicotyledones* : Herbs, Shrubs or trees. Stem, when perennial provided by concentric layers of wood and separable bark. Leaves net veined. Perianth 4- or 5-merous. Embryo with 2 Cotyledons.

Exceptions : *Trimerous flowers are found in Annonaceae and Menispermaceae Cotyledons none or obscure in Cuscuta.*

*Division I Polypetalae* : Flowers\* both with Calyx and Corolla. Petals free.

\**Exceptions : Flowers wanting either Calyx or Corolla are found to occur in families Ranunculaceae, Flacourtiaceae, Sterculiaceae, Sepindaceae, Combretaceae, Molluginaceae. Flowers more or less with petals connate at base in Menispermaceae, Malvaceae, Crassulaceae, Myrtaceae and Cucurbitaceae.*

*Sub Division I Thalamiflorae* : Sepals usually distinct petals and stamens hypogynous, disk usually absent, ovary free.

1. **RAUNCULACEAE**: Herbs or climbing shrubs. Leaves simple or compound, lobed or partite. Sepals petaloid, Petals 5 or wanting. Stamens many. Fruit head of achenes.
2. **ANNONACEAE**: Trees or shrubs. Leaves alternate, entire. Sepals 3. Petals 6, in two whorls. Stamens numerous, free. Fruit of many seeded, indehiscent carpels
3. **MENISPERMACEAE**: Climbing or twining shrubs. Leaves alternate, entire, often peltate. Flowers small, dioecious. Male flowers cymose. Sepals 4 or 5-6. Petals 4, connate. Female flowers racemed, crowded in the axils of leafy bracts. Fruit a drupe.
4. **PAPAVERACEAE**: Annual, rarely perennial, prickly herbs, often with milky or coloured sap. Leaves with spiny teeth. Flowers large showy. Sepals 2 or 3. Petals twice the sepals. Stamens many. Fruit a dehiscent capsule.

5. **BRASSICACEAE:** Terrestrial or semi aquatic herbs. Leaves alternate. Flowers usually in corymbs or racems. Sepals 4, imbricate. Petals 4, rarely 0. Stamens 6, 4 inner longest. Fruit 2-valved pod.
6. **CAPPARACEAE:** Herbs, shrubs or trees. Leaves alternate, simple or digitate. Sepals Petals 4. Stamens 4 - many Ovary syncarpous, seated on a gynophore. Fruit a capsule or ovoid, globose berry, fleshy or with woody rind.
7. **FLACOURTIACEAE:** Tress or shrubs, often armed. Leaves alternate, simple often with punctate glands. stipules 0 or minute. Flowers small. Sepals 4-5. Petals 5-0. Stamens many, free. Fruit berry or capsule.
8. **POLYGALACEAE:** Annual or perennial herbs. Flowers bisexual. Sepals unequal, 2 inner petaloid. Petals 5 or 3. Stamens usually 8, hypogynous. Fruit 2-celled.
9. **CARYOPHYLLACEAE:** Herbs. Leaves opposite, entire. Sepals 4-5 free or connate. Petals 4-5. Stamens usually twice the petals, rarely fewer. Fruit 3-valved capsule.
10. **PORTULACACEAE:** Succulent herbs. Sepals 2, connate, the free portions deciduous. Petals 4-6, perigynous. Fruit a capsule dehiscing transversely.
11. **TAMARICACEAE:** Shrubs. Leaves minute, scale like. Flowers small. Sepals and petals 5-each. Stamens 5, free. Fruit a capsule.
12. **HYPERICACEAE:** Herbs. Leaves opposite, gland dotted, exstipulate. Flowers bisexual. Sepals and petals 5, each. Stamens numerous. Fruit a capsule.
13. **DIPTEROCARPACEAE:** Trees. Leaves alternate, entire, stipulate. Flowers in racemose panicles. Sepals 5, connate. Petals 5. Stamens numerous. Fruit with 3-long wings.
14. **MALVACEAE:** Herbs, shrubs or trees. Leaves usually simple, alternate, stipulate. Flowers mostly with an involucre below. Sepals 5, valvate more less connate. Petals 5, united at base to staminal column. Stamens numerous or rarely 5-adelphous. Fruit dry, of dehiscent or indehiscent cocci or capsular.
15. **BOMBACACEAE:** Trees with sometimes bulging stem. Leaves simple or digitate, alternate, stipulate, deciduous. Flowers hermaphrodite, large and showy. Calyx cup shaped. Petals obovate. Stamens in 5 bundles, opposite to petals. Capsule loculicidally 5-valved.
16. **STERCULIACEAE:** Herbs, shrub or trees. Leaves alternate, simple often palmately lobed, stipulate. Sepals 5, valvate, connate. Petals 5 or 0. Stamens 5 - 20, in two series, those opposite to sepals are reduced to staminodes or wanting, the one opposite to petals are monoadelphous. Fruit follicle or a loculicidal capsule.
17. **TILJACEAE:** Herbs, shrubs or trees. Leaves simple, alternate, stipulate. Sepals 4 - 5,

free. Petals 4 - 5, free, often glandular at base. Stamens 5, numerous, free. Fruit drupe or capsule.

*Sub Division 2 Disciflorae:* Sepals distinct or connate, rarely superior to ovary. Petals distinct or connate at the base. Torus generally expanded, not a pulvinate or cupular disk between petals and ovary.

18. MALPIGHIACEAE: Usually climbing shrubs. Leaves opposite, simple entire, stipules 0 or minute. Calyx 5 - partite, one or more segments glandular outside or eglandular. Petals imbricate. Stamens 10, shortly connate at base. Disk obscure. Fruit dry and winged.
19. OXALIDACEAE: Herbs. Leaves digitately or pinnately compound, stipules 0. Flowers hermaphrodite. Calyx 5-fid or partite, imbricate. Petals 5. Stamens 10. hypogynous, connate at base. Fruit a capsule.
20. RUTACEAE: Trees or shrubs, often armed. Leaves alternate or opposite, gland dotted, aromatic, simple or compound, stipules 0. Flowers usually bisexual. Sepals and petals 5 each, latter ones free. Stamens 4 - 10 or many. Disk usually conspicuous. Fruit capsule, drupe or berry.
21. BURSERACEAE: Trees, resinous. Leaves alternate, paripinnate, stipules 0. Flowers small polygamous. Calyx 5-lobed. Petals 5, free. Stamens 10, inserted with petals. Fruit drupaceous
22. MELIACEAE: Trees. Leaves imparipinnate, stipule 0. Flowers small, bisexual. Calyx 5-lobed. Petals 5, free. Stamens 4-6 free, inserted on a raised disk. Fruit 5-valved capsule.
23. OLACACEAE: Shrubs or unders shrubs, rarely herbs. Leaves alternate, simple. Flowers in terminal or extra-axillary cymes, rarely capitate. Calyx cup shaped, minute. Petals 3-6, valvate. Disk cup shaped. Stamens 3-fertile, opposite petals, staminodes 4-5. Fruit drupaceous.
24. CELASTRACEAE: Trees or shrubs, rarely climbing. Leaves opposite or alternate, simple, stipules small or 0. Flowers small, hermaphrodite or polygamous. Calyx 4 -5, lobed or partite. Petals 4 - 5, free. Stamens 4 - 5, inserted on a disk or beneath its margin. Disk conspicuous, round the base of ovary. Fruit capsule or drupe.
25. RHAMNACEAE: Erect or climbing, trees or shrubs, sometimes armed. Leaves alternate or opposite, simple, usually stipulate. Flowers hermaphrodite or polygamous. Calyx 4 - 6 fid. Petals 4 - 6 or 0, usually hooded over the stamens. Stamens as many as and opposite to petals. Disk lining the calyx tube, fleshy or membranous. Fruit drupaceous or capsular, capsule sometimes winged.
26. VITACEAE: Climbing or erect shrubs, mostly tendril bearing. Leaves alternate, simple

or compound, stipulate. Flowers small, hermaphrodite or unisexual. Calyx entire or 4-5 lobed. Petals 4-5, distinct or connate at base or apex. Stamens 4-5, opposite to petals, free or connate and adnate to petals. Disk annular or expanded. Fruit a berry.

27. **SAPINDACEAE:** Trees or shrubs or climbing herbs. Leaves opposite or alternate, compound or simple. Calyx 4-5 lobes or sepals. Petals 4-5, free or 0. Disk usually conspicuous. Stamens 4-10, free. Fruit capsule, loculicidal or dry indehiscent.
28. **SABIACEAE:** Climbing or sarmentose shrubs. Leaves simple. Flowers bisexual. Calyx 4-5 partite. Petals 4-5. Disk 4-5 lobed. Stamens 4-5, perfect. Fruit drupe.
29. **ANACARDIACEAE:** Trees or shrubs. Leaves alternate, simple or pinnate, stipules 0. Flowers hermaphrodite, polygamous or unisexual. Calyx 1-6 partite. Petals 3-5 or 0. Stamens 3-10, inserted outside, rarely on the disk. Fruit drupaceous, dry or succulent.

*Sub Division 3 Calyciflorae:* Flowers regular or irregular. 1 or 2 sexual. \*Petals distinct or united at base perigynous. Disk rarely present.

*\*Exceptions: Petals absent in Molluginaceae*

30. **FABACEAE:** Herbs, shrubs or trees. Leaves simple or compound. Flowers mostly hermaphrodite. Calyx 5, more or less connate into a tube. Petals 5, imbricate, upper exterior forming standard, two lateral wings and lower two interior connate by their margins to keel. Stamens 10, monadelphous or diadelphous. Fruit usually a legume.
31. **CAESALPINIACEAE:** Trees, shrubs or rarely herbs. Leaves pinnate or bipinnate, rarely simple or 1-foliolate. Flowers uni or bisexual. Sepals 5. Petals 5. Stamens mostly 10, very rarely numerous. Fruit a legume or indehiscent.
32. **MIMOSACEAE:** Trees or shrubs, very rarely herbs. Leaves mostly bipinnate, rarely simple pinnate. Flowers hermaphrodite. Calyx 5-lobed or toothed. Petals valvate or free or connate to a short tube. Stamens as many as sepals or more or indefinite. Fruit a legume or indehiscent.
33. **ROSACEAE:** Herbs or shrubs, sometimes scrambling, often armed. Leaves alternate, simple or compound, usually stipulate. Flowers hermaphrodite rarely polygamous. Calyx lobed. Petals 5. Stamens many, distinct. Fruit drupe or achene.
34. **CRASSULACEAE:** Herbs, usually succulent. Leaves opposite or upper alternate, stipules 0. Flowers hermaphrodite or 1-sexual. Calyx 4-partite or 4-fid. Petals same as sepals. Stamens 8, in two series. Fruit follicular membranous or leathery.
35. **COMBRETACEAE:** Trees or shrubs, often climbing. Leaves alternate, sub opposite or opposite, simple, entire, stipules 0. Flowers 1 or 2-sexual. Calyx limb tubular, lobes 4-5, valvate. Petals 4,5 or 0. Stamens 8 or 10 biseriate, lower opposite calyx lobes; upper opposite the petals. Fruit dry indehiscent, usually angled or winged.
36. **MYRTACEAE:** Trees or shrubs. Leaves opposite, usually evergreen and gland dotted.

- stipules 0. Flowers hermaphrodite. Calyx limb short, 4-5 lobed. Petals 4 or 5, free or united in calyptra. Stamens numerous. Fruit a berry, drupe or capsule.
37. **LECYTHIDACEAE:** Trees, leaves alternate, serrate, crowded at the ends of branches; stipules 0. Flowers large, showy, 4-merous. Calyx tube campanulate or funnel shaped. Petals 4 imbricate. Stamens many in several series. Fruit a berry.
38. **MELASTOMATACEAE:** Herbs. Leaves usually opposite, simple; stipules 0. Flowers hermaphrodite. Calyx limb tubular 3 - 5 lobed. Petals 3, Stamens usually 3. Fruit a capsule.
39. **LYTHRACEAE:** Trees, shrubs or herbs. Leaves opposite, subopposite or whorled; stipules 0. Flowers generally hermaphrodite, regular or oblique. Calyx lobes 3 - 6. Petals as many as calyx lobes, often crumpled. Stamens 8, 12 or many. Fruit a capsule or berry like.
40. **ONAGRACEAE:** Herbs, sometimes aquatic. Leaves simple, opposite or alternate, stipules mostly absent or deciduous. Flowers hermaphrodite. Calyx lobes 4 - 5, valvate. Petals 4 - 5, free. Stamens as many or twice as many as the calyx lobes. Fruit a capsule.
41. **CUCURBITACEAE:** Climbers with spirally twisted tendrils. Leaves alternate, entire or palmately lobed. Flowers monoecious or dioecious. Calyx tube long. Petals connate at base, fimbriate. Stamens 3. Fruit a berry.
42. **PASSIFLORACEAE:** Herbaceous climbers with tendrils. Leaves alternate, entire or lobed, often with glands on petiole, stipules usually small and deciduous. Flowers bisexual or unisexual. Calyx of 5, free or partially united sepals. Petals 5, rarely absent, free or shortly united. Corona of one or more rows of thread like filaments or scales. Fruit a capsule or berry.
43. **BEGONIACEAE:** Herbs, mostly succulent, stem jointed. Leaves alternate, simple, often unequal sided, lobed; stipules free, deciduous. Flowers monoecious. Male: Perianth of 2 outer sepaloid segments, 2 - 0 inner smaller segments. Stamens numerous. Female Perianth of 2-5 segments ovary inferior. Fruit usually capsular, often winged.
44. **MOLLUGINACEAE:** Herbs. Leaves opposite, subopposite, alternate or subverticillate, stipules deciduous or 0. Flowers hermaphrodite. Calyx of 5 sepals. Petals absent. Stamens 3 - 5. Fruit dry, dehiscent loculicidally or by transverse slit.
45. **APIACEAE:** Herbaceous, with furrowed stem. Leaves alternate, mostly much divided, sheathing at base. Flowers hermaphrodite rarely unisexual. Calyx 5-lobed. Petals 5, valvate or slightly imbricate. Stamens 5, alternate with sepals. Fruit dry, dividing into 2-mericarps.
46. **ALANGIACEAE:** Trees or shrubs, sometimes spiny. Leaves alternate, simple, stipules 0. Flowers hermaphrodite. Calyx with 4 - 10 teeth, truncate. Petals 4 - 10,

mostly linear. Stamens equalling the number of petals or 2 - 4 times, more or less villous inside. Fruit a drupe crowned by sepals and disk.

*Division 2 Gamopetalae:* Flowers usually 2-sexual. Petals connate entire or cleft, rarely free to a little above base. Stamens inserted on corolla.

47. RUBIACEAE: Herbs, shrubs or trees, sometimes armed. Leaves opposite or whorled, entire, stipules inter or intrapetiolar, conspicuous. Flowers hermaphrodite, usually 4 - 5 merous. Calyx tube adnate to ovary. Corolla tubular to rotate usually 4 - 5 lobed. Stamens as many as corolla lobes, inserted on corolla. Fruit usually a berry, drupe or capsule.
48. ASTERACEAE: Herbs, shrubs or rarely small trees. Leaves alternate stipules 0. Flowers in head, surrounded by involucre of bracts. Calyx tube adnate to ovary, limb 0 or of hairs or scales. Corolla tubular or ligulate. Stamens 4 - 5, inserted on the corolla. Fruit an achene often with a tuft of hairs.
49. CAMPANULACEAE: Herbs. Leaves alternate, rarely opposite, simple, stipules 0. Flowers hermaphrodite. Calyx tube 3 - 10 lobed, lobes imbricate or valvate. Corolla tubular or campanulate. Stamens as many as corolla lobes and alternate with them. Fruit capsular.
50. PLUMBAGINACEAE: Shrubs or undershrubs. Leaves alternate or rosulate, stipules 0. Flowers hermaphrodite. Calyx gamosepalous, more or less tubular. Corolla salver shaped. Stamens as many as corolla lobes. Fruit a capsule.
51. PRIMULACEAE: Herbs. Leaves radical or radical and cauline, stipules 0. Flowers hermaphrodite. Calyx 5-cleft. Corolla bell or funnel shaped. Stamens 5. Fruit a capsule.
52. MYRSINACEAE: Trees or shrubs. Leaves alternate, simple, sometimes with resinous glands, stipules 0. Flowers small, often 1-sexual, Calyx persistent. Corolla tube short or petals free. Stamens as many and adnate or inserted on the corolla lobes or petals. Fruit dry or succulent.
53. SAPOTACEAE: Trees with milky juice. Leaves alternate entire, simple, usually coriaceous. Flowers hermaphrodite. Sepals 4 - 5, nearly distinct, persistent. Corolla tube short, lobes 5- 24. Stamens 12 - 40, inserted on corolla. Fruit a berry.
54. EBENACEAE: Trees. Leaves alternate or sub-opposite, simple, entire, stipules 0. Flowers dioecious. 4 - 5 merous. Calyx gamosepalous. Corolla gamopetalous. Stamens 4 - many. Staminodes in female flowers usually fewer than the stamens in male flowers. Fruit a berry, seated on coriaceous calyx.
55. OLEACEAE: Shrubs or trees, sometimes twining. Leaves opposite or alternate, simple or compound, stipules 0. Flowers hermaphrodite or sometimes polygamous or

- dioecious. Calyx 4-toothed or truncate. Corolla gamopetalous, 4-10 lobed. Stamens 2, inserted on the corolla or hypogynous. Fruit viscous.
56. APOCYNACEAE: Trees or shrubs, often twining, usually with milky juice. Leaves opposite or whorled, stipules 0. Flowers bisexual, 5-merous. Calyx lobes 5 rarely 4. Corolla rotate or salver shaped, lobes 5 rarely 4. Stamens 5, inserted on corolla tube. Fruit of 1 or 2 dry or fleshy drupes or of 2 free or connate follicles.
57. ASCLEPIADACEAE: Herbs or shrubs, mostly twining, usually with milky juice. Leaves opposite or wanting, stipules 0. Flowers hermaphrodite, 5 merous. Calyx divided nearly or completely to base. Corolla 5-lobed. Stamens 5, inserted at base of corolla, filaments free or united in a column. Fruit of 1 or 2 follicles
58. LOGANIACEAE: Shrubs, sometimes twining. Leaves opposite, stipules usually represented by a raised line between the petioles. Flowers bisexual, 4-5 merous. Stamens as many as corolla lobes, inserted on the corolla tube. Fruit a capsule or berry.
59. GENTIANACEAE: Herbs. Leaves opposite, entire often connate or connected by transverse line, stipules absent. Calyx tubular or of separate sepals, imbricate. Corolla sympetalous, lobes 4-12. Stamens the same number as the corolla lobes. Fruit a capsule.
60. BORAGINACEAE: Herbs, shrubs or trees. Leaves alternate or opposite, stipules 0. Flowers hermaphrodite rarely 1-sexual, usually 5-merous. Calyx 5-rarely 6-8, toothed or lobed. Corolla usually 5-lobed. Stamens inserted on the corolla tube, as many as corolla lobes. Fruit drupaceous or dividing into nutlets.
61. EHRETACEAE: Trees or shrubs. Leaves alternate or rarely subopposite, entire or toothed, stipules absent. Flowers in cymes, cylindrical spikes or in heads, rarely all axillary or leaf-opposed. Corolla tubular, lobes 5, rarely 4 or 6 or more. Stamens as many as Corolla lobes. Fruit drupaceous, often enclosed by persistent sometimes enlarged calyx.
62. CONVULVULACEAE: Herbs or shrubs, usually twining. Leaves alternate, exstipulate (none in *Cuscuta*). Flowers hermaphrodite, often showy. Calyx deeply 5 lobed. Corolla campanulate or funnel shaped. Stamens 5, attached to corolla tube. Fruit a capsule or berry.
63. SOLANACEAE: Herb or shrubs or undershrubs, often armed. Leaves alternate (or falsely opposite) stipules 0. Flowers usually hermaphrodite, rarely dioecious, usually 5-merous. Calyx usually 5-lobed or toothed. Corolla funnel shaped, campanulate or rotate. Stamens 5 or fewer, inserted on corolla. Fruit a berry.
64. SCROPHULARIACEAE: Herbs. Leaves all or the lower only opposite, rarely all alternate or whorled, stipules 0. Flowers hermaphrodite. Calyx lobes 5 or rarely 4.

Corolla more or less 2-lipped or sometimes personate. Stamens 4, didynamous. Fruit a capsule.

65. OROBANCHACEAE: Leafless herbs, brown or reddish coloured root parasites. Flowers hermaphrodite. Calyx spathaceous, split in from nearly to the base. Corolla broadly tubular, obscurely 2-lipped. Stamens didynamous. Fruit 2-valved capsule.
66. GESNERIACEAE: Herbs. Leaves opposite, alternate or solitary, stipules 0. Flowers hermaphrodite. Calyx lobes 5. Corolla tube long or short, lobes usually 5. Stamens 2, sometimes 5 all or only 2 fertile. Fruit a capsule.
67. BIGNONIACEAE: Trees. Leaves 1 or 2-pinnate; stipules 0. Flowers hermaphrodite. Calyx 2-5 lobed or toothed. Corolla tubular or campanulate. Stamens 4, with a rudimentary 5th. Fruit hard indehiscent capsule.
68. PEDALIACEAE: Herbs. Leaves opposite or upper alternate, entire, toothed or lobed. Flowers hermaphrodite. Calyx 4-5 partite. Corolla tubular - ventricose. Stamens didynamous. Fruit hard, indehiscent capsule.
69. MARTYNIACEAE: Aromatic tall herbs undershrubs, glutinous villous. Leaves alternate or opposite, stipules absent. Flowers hermaphrodite. Calyx of 5-nearly free or partly united sepals. Corolla sympetalous, 5-lobed. Stamens 5, 2 perfect, 2 without anthers and 1 rudimentary. Fruit a more or less long horned capsule.
70. ACANTHACEAE: Herbs, shrubs or undershrubs. Leaves simple, opposite. Flowers hermaphrodite. Calyx 4-5 partite or multifid. Corolla subequally 5-lobed or 2-lipped. Stamens 4 or 2, inserted on the corolla. Fruit a capsule.
71. VERBENACEAE: Herbs, shrubs or trees, sometimes rambling or climbing. Leaves opposite or whorled, simple or digitate, stipules 0. Flowers hermaphrodite. Calyx gamosepalous, 4 - 5 rarely 6 - 8 toothed. Corolla tube dilated upwards or cylindric. Stamens 4, didynamous. Fruit drupaceous.
72. LAMIACEAE: Herbs, shrubs or undershrubs, stem usually quadrangular. Leaves opposite, simple, stipules 0. Flowers hermaphrodite. Calyx 4 - 5 cleft or distinctly 2-lipped. Stamens 4 or 2, inserted on corolla. Fruit of dry nutlets.  
*Division 3 Monochlamydeae: Perianth single, rarely 0. Lobes or segments 1-seriate or if 2-seriate both usually calycine.*
73. NYCTAGINACEAE: Herbs. Leaves opposite, often unequally paired. Flowers hermaphrodite. Perianth gamophyllous, petaloid. Stamens 1-5 exerted. Fruit membranous indehiscent.
74. AMARANTHACEAE: Herbs, shrubs or undershrubs. Leaves opposite or alternate, stipules 0. Flowers usually bisexual. Perianth usually 5, free or connate, hyaline



- or scarious segments. Stamens 5, opposite the perianth segments, filaments connate below, with or without interposed staminodes. Fruit a berry or utricle.
75. CHENOPODIACEAE: Herbs or shrubs. Leaves alternate, simple, entire, stipules 0. Flowers minute, unisexual. Perianth segments 4 in males, wanting in females. Stamens 4, opposite the perianth segments. Fruit a utricle enclosed in a persistent perianth.
76. POLYGONACEAE: Herbs or shrubs. Leaves alternate, entire, stipules usually sheathing. Flowers usually hermaphrodite, rarely 1-sexual. Perianth inferior, 3-6 cleft. Stamens 4-8. Fruit a nut, enclosed in the perianth.
77. PIPERACEAE: Scandent. Leaves alternate, entire; stipulate. Flowers minute 1 or 2 sexual. Perianth none. Stamens 2-4 rarely more. Fruit a berry.
78. LAURACEAE: Trees or shrubs. Leaves alternate, rarely opposite, evergreen entire, stipules 0. Flowers small, 1 or 2 sexual. Perianth inferior or tube short, lobes usually 6, sepaloid. Stamens in 2-4 whorls, the outer opposite the perianth segments, the inner usually reduced to staminodes. Fruit a berry.
79. LORANTHACEAE: Parasitic shrubs. Leaves usually opposite or wanting, entire, thick, stipules 0. Perianth simple or double. Stamens as many as and opposite the perianth lobes. Fruit a berry or drupe.
80. EUPHORBIACEAE: Herbs, shrubs or trees, rarely climbing, often with milky juice. Leaves usually alternate, simple or trifoliolate, usually stipulate. Flowers unisexual, usually small. Perianth usually simple and calycine, rarely double or 0.
81. ULMACEAE: Trees or shrubs, sap watery. Leaves alternate, simple; stipulate. Flowers small, monoecious, subdioecious or polygamous or hermaphrodite. Perianth simple, segments 4 - 8. Stamens as many as and opposite the perianth segments. Fruit a winged nut, drupe or samara.
82. CANNABACEAE: Erect herbs or shrubs. Leaves alternate or opposite, simple, undivided or palmately lobed; stipulate. Flowers dioecious, male with 5-partite calyx, female crowded with leafy bracts. Fruit compressed nut.
83. URTICACEAE: Herbs, shrubs or trees, sap watery. Leaves opposite or alternate, simple, stipulate. Flowers small monoecious or dioecious and sometimes hermaphrodite or polygamous. Perianth simple, segment 4 - 5 rarely 2 or 3. Stamens as many as and opposite the perianth segments. Fruit an achene, usually invested by dry or fleshy pericarp.
84. MORACEAE: Trees or shrubs, sometimes scandent with milky latex. Leaves alternate, rarely opposite, simple; stipulate. Flowers monoecious or dioecious. perianth simple, segments 2 - 6, Stamens as many as and opposite the perianth segments. Fruit of single or confluent perianths and often enlarged receptacle.

85. SALICACEAE: Deciduous trees or shrubs. Leaves alternate, simple. Flowers unisexual, in catkins, each flower in the axil of a bract. Perianth 0, disk of 1 or more glands or cup shaped. Stamens 2 or more, usually free. Fruit a capsule.
2. *Class Monocotyledones*: Herbs rarely shrubs and trees. Leaves usually parallel veined. Perianth 3-merous. Embryo with 1-cotyledon.  
*Division 1 Petaloideae*: Perianth usually of 6 free or connate segments in 2 series. Inner or both series more or less coloured and petal like.  
*Sub-division 1 Microspermous*: Flowers 1 or 2 sexual. Perianth superior, segments usually 2-seriate, inner or both corolline.
86. ORCHIDACEAE: Herbs, terrestrial, epiphytic or saprophytic with rhizome or tuberous root or rootstocks. Stem leafy, frequently thickened at base into pseudobulbs. Leaves alternate and often distichous, rarely opposite, often fleshy, sheathing at base. Flowers hermaphrodite. Perianth epigynous, composed of petaloid segments in two whorls. Stamens 1. Fruit a capsule.
87. ZINGIBERACEAE: Herbs, usually aromatic with horizontal tuberous rhizome. Leaves usually distichous, sheathing. Flowers hermaphrodite. Perianth 6-merous, 2-seriate, outer calyx like, inner corolla like. Stamen 1. Fruit a 3-valved capsule or indehiscent and membranous or fleshy.
88. DIOSCOREACEAE: Usually climbers with tuberous rhizome or thick woody rootstock. Leaves alternate or rarely opposite. Flowers small unisexual. Perianth 6 lobed, lobes 2-seriate. Stamens 6 sometimes 3 reduced to staminodes or only 3 perfect. Fruit Capsule or berry.  
*Sub Division 3 Coronariae*: Flowers rarely 1-sexual (Dioecious in *Smilax*) Perianth inferior, 6 part, in 2 series, one or both corolline.
89. LILIACEAE: Herbs or shrubs, often climbing, sometimes armed. Leaves alternate or replaced by cladodes. Flowers 1 or 2 sexual. Perianth of 6 free segments. Stamens 6. Fruit a berry or capsule.
90. PONTEDERIACEAE: Aquatic, erect or floating herbs. Leaves sheathing at base. Flowers hermaphrodite, Perianth of 6, sub-2-seriate lobes. Stamens 6. Fruit a capsule.
91. COMMELINACEAE: Herbs. Leaves with a basal membranous often nervose sheath. Flowers hermaphrodite or rarely polygamous. Perianth very distinctly 2-seriate, outer sepal like, inner petal like. Stamens 6 or few. Fruit capsular.  
*Sub Division 4 Calycinae*: Perianth inferior. Lobes or segments 2-seriate.
92. ARECACEAE: Shrubs, often spiny, sometimes climbing. Stem solid. Leaves alternate, pinnate or flabelliform. Flowers small, in spikes or panicles. Perianth of 6 lobes or segments. Stamens usually 6. Fruit usually a drupe.

93. **TYPHACEAE:** Marsh or lake herbs with creeping rhizome. Leaves mostly radical, spongy. Flowers unisexual, numerous, two sexes continuous or remote from each other. Fruit dry, at length, splitting.
94. **ARACEAE:** Herbs with bitter or milky, watery juice, rhizome tuberous or elongated. Leaves few mostly radical. Flowers 1 or 2-sexual in a spadix enclosed in a spathe, male in upper part of spadix, the female below. Perianth in bisexual flowers. Stamens 2, 4 or 8. Fruit a berry.
95. **POTAMOGETONACEAE:** Aquatic herbs of fresh water. Leaves alternate or opposite. Flowers bisexual, small. Perianth present, of 4, free, shortly clawed valvate segments. Stamens 4. Fruiting carpels sessile.

*Division 2 Glumiferae:* Flowers in imbricating bracts of heads or spikelets, 1- or 2-sexual. Perianth 0 or of minute scales or bristles, rarely with sheathing bracteoles.

96. **ERIOCAULACEAE:** Herbs. Leaves narrow, sometimes membranous. Flowers unisexual. Perianth scarious or membranous, segments 2 - 3 merous in two distinct series. Stamens as many or double the number of perianth segments. Fruit membranous, loculicidally dehiscent.
97. **CYPERACEAE:** Herbs, usually in damp marshy habitats. Stem solid or rarely hollow, often triquetrous. Leaves usually in basal tuft. Flowers small, hermaphrodite, or unisexual and monoecious or very rarely dioecious. Perianth reduced to bristles, scales or hairs very rarely subpetaloid, often absent. Stamens 3 or fewer, very rarely more or numerous. Fruit nut like indehiscent.
98. **POACEAE:** Herbs or shrubs rarely arobrescent. Leaves solitary at nodes, sometimes crowded at the base of stem. Flowers usually hermaphrodite, sometimes unisexual, small, usually consisting of stamens and pistils and 2 - 3 minute hyaline or fleshy scales (lodicules) representing the perianth.

**GYMNOSPERMS:** Shrubs and trees with separable bark. Leaves fascicled generally acicular. Flowers unisexual, perianth none or incomplete.

99. **PINACEAE:** Evergreen trees. Leaves with resin canals, acicular, fascicled. Flowers unisexual. Perianth 0. Male flowers in deciduous catkins. Stamens numerous, scale like. Female flowers in cones with scale-like flat carpels. Fruit a woody cone.

**CRYPTOGAMS:** Plants devoid of flowers and true seeds.

100. **PSILOTACEAE:** Rootless epiphyte. Rhizome short, creeping. Stem erect. Leaves minute, scale like. Sporangia turbinate.

101. SELAGINELLACEAE: Terrestrial herbs. Stem tufted, erect or creeping. Leaves small, dimorphic in two planes. Plants heterosporous with ligulate sporophylls in stroblii or cones.
102. EQUISETACEAE: Erect or scrambling, green rush like herbs. Stem radially symmetrical, jointed, sulcate, hollow, often branching. Leaves oblong and chaffy. Sporangia on undersurface of peltate scales of sporangiophores.
103. OPHIOGLOSSACEAE: Mostly terrestrial herbs. Stem short, fleshy. Fruits solitary or few, fertile fronds mostly consisting of sterile segments. Sporangia marginal.
104. LYGODIACEAE: Terrestrial, rhizome creeping or ascending. Fronds glabrous or slightly hairy, scandent, pinnae conjugate palmate-lobed. Sporangia solitary marginal.
105. SINOPTERIDACEAE: Terrestrial or epiphytic herbs. Rhizome creeping, suberect or erect, clothed with scales. Fronds simple, pinnate or decomposed, Veins forking. Rachis grooved. Sporangia with long stalks.
106. PTERIDACEAE: Robust, tufted, terrestrial herbs. Stipe scaly at base, straw coloured with polished apex. Fronds simply pinnate. Sori of continuous line round the segments.
107. ADIANTACEAE: Terrestrial herbs, rhizome short, creeping or suberect. Indumentum of scales or hairs. Stipe usually polished black. Fronds pinnate, simple or deltoid, decomposed. Sporangia short stalked.
108. PARKERICEAE: Marsh or aquatic herbs. Rhizome short. Fronds dimorphic simple or pinnate, submerged and pinnately decomposed aerial fertile, with narrow segments. Sporangia large scattered on dorsal veins.
109. THELYPTERIDACEAE: Terrestrial herbs. Rhizome stout, creeping, erect or ascending. Stipe short or very long. Fronds pinnate, sometimes glandular, sori on single or two rows.
110. WOODSIACEAE: Terrestrial herbs. Rhizome suberect, scaly. Scales entire or toothed margins. Stipe with spinous papillae at base. Fronds lanceolate, membranous. Sporangia long stalked.
111. ASPIDIACEAE: Terrestrial herbs, few epiphytic. Rhizome prostrate or suberect. Fronds pinnate, bipinnate or simple decomposed, occasionally dimorphic. Sori dorsal on veins or vein tips.

1. RANUNCULACEAE (Buttercup Family)

- 1a Erect herbs.  
 2a. Leaves simple. *Ranunculus* 2  
 2b. Leaves compound. *Thalictrum* 3  
 1b Climbing shrubs. *Clematis* 1

1. CLEMATIS L.

- 1a Leaflets hairy; floral bracts partite. *C. roylei* 2  
 1b Leaflets glabrous; floral bracts not partite. *C. guouriana* 1

1. **C. guouriana** Roxb. {Hort. Beng. 43 (1814) *nom. nud.*} ex DC. Syst. nat. 1:138. 1817; Duthie, F.U.G.P. 1:19. 1960 (Rep. ed).

Stem thick, purple tinged. Leaflets ovate, entire or toothed. Flowers white. Achenes oblong, hairy.

Scattered; fl. & fr.: Aug. Oct. & Nov. Apr.; Dhikala (8); *P.C. Pant* 43026.

2. **C. roylei** Rehder, Journ. Arn. Arb. 22:575. 1941. *C. nutans* Royle III. Bot. Him. 51. 1834 (non Crantz 1763); Duthie, F.U.G.P. 1:20. 1960 (Rep. ed.).

Stem slender. Leaves compound, leaflets ovate-oblong or lanceolate. Flowers creamy-white. Achenes ovate, with plumose style.

Scattered; fl. & fr.: Oct. Dec. & Mar.; Gairal (10); *P.C. Pant* 43409.

2. RANUNCULUS L.

**R. sceleratus** L. Sp. Pl. 551:1753; Duthie, F.U.G.P. 1:21. 1960 (Rep. ed.).

Glabrous herbs. Stem hollow, grooved. Leaves clustered and reniform at base, alternate and segmented upwards. Flowers yellow. Achenes in cylindrical head.

Few; fl. & fr.: Apr. & June.; Dhikala (8); *P.C. Pant* 43703.

3. THALICTRUM L.

**T. javanicum** Bl. Bijdr. 2. 1825; Duthie, F.U.G.P. 1:20. 1960 (Rep. ed.).

Glabrous herbs. Leaflets ovate-oblong or circular. Flowers white. Achenes oblong, beaked and ribbed.

Few; fl. & fr.: Sept. Nov.; On Way to Sultan (11); *P.C. Pant* 72405.

## 2. ANNONACEAE (Custard-Apple Family)

**MILIUSA** Leschn. ex A. DC.

**M. velutina** (Dunal) Hook. f. & Thoms. Fl. Ind. 151. 1855; Duthie, F.U.G.P. 1:26. 1960 (Rep. ed.) *Uvaria velutina* Dunal Anon. 91. 1817.

Deciduous trees. Bark dark grey, rough. Leaves ovate-circular, young ones velvety. Flowers greenish-yellow. Berry atoping torus.

Rare; fl. & fr.: Apr. - May & June; Between Hathipani - Kanda (2-3); *P.C. Pant* 43762.

## 3. MENISPERMACEAE (Moonseed Family)

**CISSAMPELOS** L.

**C. pareira** L. var **hirsuta** (Ham ex DC.) Forman in Kew Bull. 22:356. 1968; *C. hirsuta* Ham. ex DC. Syst. Nat. 1:535. 1817. *C. pareira* L. Sp. Pl. 1031. 1753; Duthie, F.U.G.P. 1:31. 1960 (Rep. ed.).

Climbing shrubs, dioecious. Leaves broadly ovate, entire, subpeltate. Flowers greenish. Drupes subglobose, hairy.

Scattered; fl. & fr.: Apr. - Nov. & Dec.; Jhirna Dhara (15); *P.C. Pant* 43431.

## 4. PAPAVERACEAE (Poppy Family)

**ARGEMONE** L.

1a. Flowers sulphur-yellow.

*A. mexicana* 1

1b. Flowers white.

*A. ochroleuca* 2

1. **A. mexicana** L. Sp. Pl. 508. 1753; Duthie, F.U.G.P. 1:37. 1960 (Rep. ed.).

Prickly, glaucescent herbs. Leaves variable, sinuate-pinnatifid, upper surface prickly and white-blotched. Flowers sessile or subsessile. Capsules oblong-ellipsoid.

Scattered; fl. & fr.: Sept. - May; Kandroo Beat, Kalagarh (14); *P.C. Pant* 61792.

2. **A. ochroleuca** Sweet Brit. Fl. Gard. 3. t. 242. 1828; Raizada Suppl. Duthie's F.U.G.P. 5. 1976.

Robust, prickly, greenish-white herbs. Leaves sinuate, upper surface white blotched, margin sharply prickled. Flowers sessile. Capsules oblong.

Few; fl. & fr.: Feb. - Nov.; Mailani (17); *P.C. Pant* 43608.

## 5. BRASSICACEAE (Mustard Family)

1a. Succulent herbs.

*Rorippa* 2

1b. Non succulent herbs

*Cardamine* 1

## 1. CARDAMINE L.

*C. Scutata* Thunb. Trans. Linn. Soc. Lond. 2:339. 1794; *C. hirsuta* L. Sp. Pl. 655.1753. Duthie, F.U.G.P. 1:40. 1960 (Rep. ed.).

Weak herbs. Leaves membranous, lobed, radical ones in clusters, alternate upwards. Flowers white. Pods erect, obtuse.

Common; fl. & fr.: Mar. - Nov.; Dhangadi (12); *K.P. Janardhanan* 50168.

## 2. RORIPPA Scop.

*R. nasturtium-aquaticum* (L.) Hayek Sched. Fl. Stlr. Exs. 22. 1905. *Sisymbrium nasturtium-aquaticum* L. Sp. Pl. 657. 1753. *Nasturtium officinale* R. Br. in Ait. Hort. Kew. ed. 2, 4:111.1812; Duthie, F.U.G.P. 1:39. 1960 (Rep. ed.).

Branched herbs. Leaves pinnately lobed. Flowers white. Pods stalked, cylindrical.

Rare; fl. & fr.: Nov. Mar.; Gairal (10); *K.P. Janardhanan* 51160.

## 6. CAPPARACEAE (Caper Family)

1a. Glandular herbs.

*Cleome* 1

1b. Non glandular shrubs or trees.

*Crateva* 2

## 1. CLEOME L.

*C. viscosa* L. Sp. Pl. 672. 1753; Duthie, F.U.G.P. 1:48. 1960 (Rep. ed.).  
"JAKHIYA"

Erect pubescent herbs. Leaves 3-5 foliolate, leaflets ovate or obovate. Flowers yellow. Capsules sticky, short beaked.

Few; fl. fr.: July - Oct.; Amgadi Sot (11); *P.C. Pant* 72380.

## 2. CRATEVA L.

*C. adansonii* D.C. Sub. Sp. *Odora* (Buch.-Ham.) Jacobs in Blumea 12:198.1964. *C. Odora* Buch. Ham. in Trans. Linn. Soc. Lond. 15:118.1827. *C. religiosa* Forst. f. Var *roxburghii* (R.Br.) Hook.f. & Thom. in Hook.f. Fl. Brit. Ind. 1:172.1872; Duthie, F.U.G.P. 1:50. 1960 (Rep.ed.).

Deciduous trees. Bark rough, grey. Leaves compound, leaflets broadly elliptic, entire. Flowers white with many stamens and projecting gynophore. Berries reddish-brown.

Rare; fl. & fr.: Apr. - May & Aug.; On way to Boxar (8); *P.C. Pant* 43860.

## 7. FLACOURTIACEAE (including SAMYDACEAE)

1a. Armed.

*Flacourtia* 2

1b. Unarmed.

*Casearia* 1

## 1. CASEARIA Jacq.

**C. elliptica** Willd. Sp. Pl. 2:628. 1800. *C. tomentosa* Roxb. Fl. Ind. ed. 2. 2:421.1832; Duthie, F.U.G.P. 1:330. 1960 (Rep. ed.).

Deciduous trees. Bark rough, dark-brown. leaves oblong-lanceolate or elliptic-oblong. Flowers yellowish-green. Fruits fleshy, ellipsoid.

Frequent; fl. & fr. : Apr. - July; Bijrani (18); *P.C. Pant* 43615.

## 2. FLACOURTIA L. Herit.

**F. indica** (Burm.f.) Merril Interpret. Rumph. Herb. Amb. 377.1917. *Gmelina indica* Burm. f. Fl. Ind. 132. t. 39.f.5.1768. *Flacourtia ramontchi* L'Herit Strip. Nov. 3: 59.tt.30 & 30 B. 1786; Duthie, F.U.G.P. 1: 57. 1960 (Rep. ed.).

Deciduous trees or shrubs. Bark ash-black. Leaves broadly ovate, elliptic or suborbicular. Flowers greenish-yellow. Berries globose, brown.

Rare; fl. & fr.: Apr.-Dec.; Hathipani (3); *P.C. Pant* 43769.

## 8. POLYGALACEAE (Milkwort Family)

## POLYGALA L.

1a. Roots woody; flowers pink caruncle with two appendages.

*P. crotalarioides* 2

1b. Roots not woody; flowers yellow; caruncle with three appendages.

*P. arvensis* 1

1. **P. arvensis** Willd. Sp. Pl. ed. 3,2: 876. 1802. **P. chinensis** auct. *Pl. non* L. 1753; Duthie, F.U.G.P. 1: 60. 1960 (Rep.ed.).

Small herbs. Leaves oblanceolate-oblong. Flowers in short axillary racemes. Capsules suborbicular, notched.

Scattered; fl. & fr.: July-Nov.; Mailani (17); *P.C. Pant* 72366.

2. **P. crotalarioides** Buch. -Ham. ex Dc. Prodr. 1: 327. 1824; Duthie, F.U.G.P. 1: 59. 1960 (Rep. ed.).

Small villous herbs. Leaves obovate-oblong. Flowers in axillary racemes. Capsules notched, ciliate.

Scattered; fl. & fr.: Apr.-Nov.; Dhikala Chaur (8); *P.C. Pant* 43731.

## 9. CARYOPHYLLACEAE (Pink Family)

## DRYMARIA Willd. ex Roem. &amp; Schult.

**D. cordata** (L.) Willd. ex Roem. & Schult. Syst. Veg. 5:406. 1819; Duthie, F.U.G.P. 1:64. 1960 (Rep.ed.). *Holosteum cordatum* L. Sp. Pl. 88. 1753.

Diffused or prostrate herbs. Leaves ovate, cordate, 3-nerved from base. Flowers white. Capsules ovoid.

Frequent; fl. & fr.: Apr. -Dec.; Kanda (3); *P.C. Pant* 43315.



## 10. PORTULACACEAE (Purslane Family)

## PORTULACA L.

**P. oleracea** L. Sp. Pl. 445. 1753; Duthie, F.U.G.P. 1:66. 1960 (Rep. ed.).

Diffusely branched herbs. Stem purple tinged and specked. Leaves spatulate or oblong-obovate, fleshy, mucilaginous. Flowers yellow. Capsules oblong-ovoid.

Scarce; fl. & fr.: May - Dec.; Sarpaduli, along Ramganga River(10); *P.C. Pant* 43246.

## 11. TAMARICACEAE (Tamarisk Family)

## TAMARIX L.

**T. dioica** Roxb. [Hort. Beng. 22: (1814) *nom. nud.*] ex Roth Nov. Pl. Ind. Or. 185. 1821; Duthie, F.U.G.P. 1:68. 1960 (Rep. ed.).

Glaucous shrubs. Leaves very small, sheathing. Flowers dioecious, purple. Capsules oblong.

Scattered; fl. & fr.: May - Sept. & Sept.-Dec.; Babulmunda Kalagarh (14); *P.C. Pant* 43453.

## 12. HYPERICACEAE (St. John's Wort Family)

## HYPERICUM L.

**H. japonicum** Thunb. ex Murr. Syst. Veg. 14:702. 1784; Raizada, Suppl. Duthie's, F.U.G.P. 24. 1976.

Weak herbs. Stem quadrangular, winged. Leaves ovate or obovate. Flowers yellow, rarely white. Capsules ovoid.

Rare; fl. & fr.: Apr. Aug.; Dhikla (8); *P.C. Pant* 43704.

## 13. DIPTEROCARPACEAE (Dipterocarp Family)

## SHOREA Roxb. ex Gaertn.

**S. robusta** Gaertn. Fruct. 3:48.t.186. 1805; Duthie, F.U.G.P. 1:71. 1960 (Rep.ed.). "*SAL*"

Subdeciduous trees. Bark dark-brown ash-black, vertically fissured. Leaves broadly ovate. Flowers creamy-yellow. Fruits ovoid, with persistent winged sepals.

Frequent; fl. & fr.: Mar. Apr. & June - July; Sultan (11); *P.C. Pant* 43531.

## 14. MALVACEAE (Mallow Family)

1a. Pitted gland on under surface of leaves.

2a. Trees. Fruits winged.

*Kydia* 4

- 2b. Herbs, shrubs or undershrubs: fruits not winged.
- 3a. Flowers yellow. *Thespesia* 7
- 3b. Flowers pink. *Urena* 8
- 1b. Pitted gland absent.
- 4a. Plant body with long bristly hairs. *Abelmoschus* 1
- 4b. Plant body glabrous, puberulus or hairy.
- 5a. Fruits capsular. *Hibiscus* 3
- 5b. Fruits schizocarpic.
- 6a. Bracteoles absent.
- 7a. Carpels 2 or more seeded. *Abutilon* 2
- 7b. Carpels 1 seeded. *Sida* 6
- 6b. Bracteoles 3. *Malvastrum* 5

### 1. ABELMOSCHUS Medik.

- 1a. Bracteoles 4-5, oblong-lanceolate. *A. manihot* 2
- 1b. Bracteoles 10-15, filiform *A. crinitus* 1

1. *A. crinitus* Wall. Pl. As. Rat. 1:39.t.44. 1830. *Hibiscus cancellatus* Roxb. Fl. Ind. ed 2, 3:201. 1832; Duthie, F.U.G.P. 1:87. 1960 (Rep. ed.).

Erect herbs undershrubs. Leaves 5-7 palmatilobed. Flowers yellow, purple blotched at base. Capsules ovoid to globular, bristly.

Scarce; fl. & fr.: Aug. Dec.; 4th Km. ahead of Kalagarh towards Jhirna (15); *K.P. Janardhanan* 51509.

2. *A. manihot* (L.) Medik, Malv. 46. 1787. *Hibiscus manihot* L. Sp. Pl. 696. 1753. *Hibiscus pungens* Roxb. Fl. Ind. ed. 2, 3:213. 1832; Duthie, F.U.G.P. 1:86. 1960 (Rep. ed.).

Tall herbs. Leaves roundish, cordate, palmately 3-7 lobed, long petioled. Flowers yellow, dark-purple blotched at base. Capsules ovoid-oblong, bristly.

Few; fl. & fr.: Aug. Nov.; Dhangadi Environs (12); *P.C. Pant* 72452.

### 2. ABUTILON Mill.

*A. indicum* (L.) Sweet Hort. Brit. 54.1827; Duthie, F.U.G.P. 1:78. 1960 (Rep. ed.). *Sida indica* L. Cent. Pl. 2:26. 1756.

Undershrubs. Leaves suborbicular, cordate, greyish-green. Flowers orange-yellow. Fruits awned.

Scattered; fl. & fr.: Aug. Dec.; Lakar Ghat Kalagarh (14); *P.C. Pant* 43898.

### 3. HIBISCUS L. *nom. cons.*

*H. lobatus* (Murr.) O. Kuntze. Rev. Gen. 3:19. 1898. *Solandra lobata*

Murr. in Comm. Gotting 6:24, t. 1. 1785. *Hibiscus solandra* L; Herit. Strip. Nov. 1:103, t. 49. 1788; Duthie, F.U.G.P. 1:84. 1960 (Rep. ed.).

Herbs. Leaves ovate, 3-lobed at apex. Flowers yellow. Capsules ovoid. Scarce; fl. & fr.: Sept. Jan.; Amgadi Sot (11); *P.C. Pant* 72394.

#### 4. KYDIA Roxb.

**K. calycina** Roxb. Pl. Cor. 3:12. t. 215. 1819; Duthie, F.U.G.P. 1:92. 1960 (Rep. ed.). "PULA"

Deciduous trees. Leaves suborbicular - cordate, irregularly lobed. Flowers white or pink. Capsules subglobose.

Scattered; fl. & fr.: July-Dec. & Nov. May; Paterpani (8); *P.C. Pant* 40150.

#### 5. MALVASTRUM A. Gray nom. cons.

**M. coromandelianum** (L.) Garcke in Bonplandia 5:295. 1875. *Malva cormandeliana* L. Sp. Pl. 687. 1753. *Malvastrum tricuspidatum* A. Gray Pl. Wright. 1:16. 1852; Duthie, F.U.G.P. 1:75. 1960 (Rep. ed.).

Herbs or undershrubs. Leaves ovate-lanceolate, irregularly serrate. Flowers yellow. Fruits tricuspidate, strigose.

Scattered; fl. & fr.: July - Jan.; Dhikala (8); *P.C. Pant* 43231.

#### 6. SIDA L.

1a. Leaves cordate, obovate or rhomboid.

2a. Leaves thick, densely hairy tomentose.

*S. cordifolia* 3

2a. Leaves thin, laxly hairy.

3a. Peduncles shorter than leaves.

*S. rhombifolia* 4

3b. Peduncles equalling or longer than leaves.

*S. cordata* 2

1b. Leaves lanceolate.

*S. acuta* 1

1. **S. acuta** Burm. f. Fl. Ind. 147. 1768; Duthie, F.U.G.P. 1:76. 1960 (Rep. ed.)

Undershrubs. Leaves serrate. Flowers yellow. Fruits globose, 2-awned. Few; fl. & fr.; Aug. Nov.; Sultan (11); *P.C. Pant* 43171.

2. **S. cordata** (Burm.f.) Borss. Waalk in Blumea 14:182. 1966. *Melochia cordata* Burm.f. Fl. Ind. 143. 1768. *Sida veronicaefolia* Lamk. Encycl. Meth. Bot 1:5. 1783; Duthie, F.U.G.P. 1:75. 1960 (Rep. ed.).

Procumbent or suberect plants. Leaves suborbicular, cordate, margin crenate serrate. Flowers yellow. Fruits globose, enveloped in calyx.

Common; fl. & fr.: Sept. Dec.; Mailani (17); *P.C. Pant* 43362.

3. **S. cordifolia** L. Sp. Pl. 684.1753; Duthie, F.U.G.P. 1:77. 1960 (Rep. ed.).

Undershrubs. Leaves ovate-cordate, margin crenate. Flowers pale-yellow. Fruits globose with hispid awns.

Scattered; fl. & fr.: Sept. - Nov. & Dec. - May; Boxar (8); *P.C. Pant* 43847.

4. *S. rhombifolia* L. Sp. Pl. 684. 1753; Duthie, F.U.G.P. 1:76. 1960 (Rep. ed.).

Undershrubs. Leaves rhomboid lanceolate or obovate, margin in upper half toothed. Flowers yellow. Fruits with short awns.

Frequent; fl. & fr.: Sept. Dec.; Dhikala (8); *P.C. Pant* 43232.

#### 7. THESPESIA Soland ex Correa *nom. cons.*

*T. lampas* (Cav.) Dalz. & Gibs. Bombay Fl. 14. 1861. *Hibiscus lampas* Cav. Diss. 3: 154, t. 56. f. 2. 1787. *Thespesia macrophylla auct. Pl* non Bl. 1825; Duthie, F.U.G.P. 1:88. 1960 (Rep. ed.).

Shrubs. Leaves cordate, lobed or entire. Flowers crimson at base. Capsules seated on cupular calyx..

Scarce; fl. & fr.: Sept. - Jan.; Paternallaha environs (14); *P.C. Pant* 40157.

#### 8. URENA L.

*U. lobata* L. Sp. Pl. 692.1753; Duthie, F.U.G.P. 1:80. 1960 (Rep. ed.).

Herbs-undershrubs, densely tomentose. Leaves suborbicular, broadly ovate, shallowly lobed. Flowers with a dark blotch at base. Schizocarps bristly.

Scattered; fl. & fr.: Aug. Dec.; Dhara Block Kalagarh (14); *P.C. Pant* 43881.

### 15. BOMBACACEAE (Bombax Family)

#### BOMBAX L.

*B. ceiba* L. Sp. Pl. 511. 1753. *B. malabaricum* DC. Prodr. 1:479.1824; Duthie, F.U.G.P. 1:92. 1960 (Rep. ed.). "*SEMAL*"

Deciduous trees. Young stem and branches prickly. Bark fissured on ageing. Leaves digitate, leaflets elliptic-lanceolate. Flowers fleshy, crimson or orange. Capsules woody, packed with seeds in silky growth.

Few; fl. & fr.: Jan.-Mar. & Apr.-May; Dhela Block (16); *P.C. Pant* 62821.

### 16. STERCULIACEAE (Sterculia Family)

1a. Trees or shrubs; stem solid.

2a. Leaves scattered, small, ca 8 x 6.5 cm.

*Helicteres* 2

2b. Leaves crowded at the end of branches, big, ca 25 x 20 cm.

*Firmiana* 1

1b. Herbs, or undershrubs; stem hollow.

*Melochia* 3

## 1. FIRMIANA Marsigli

**F. pallens** (Wall. ex King) Stern in Blatter & Millard Some Beaut. In.Tr. ed. 2, 79. 1959. *Sterculia pallens* Wall ex King in Jour. As. Soc. Beng. 60(2): 73 in Obs. 1891; Duthie, F.U.G.P. 1:95. 1960 (Rep. ed.) "GUDALA"

Middle-sized deciduous trees. Bark pale, ash-brown or silvery-grey, smooth. Leaves orbicular or subsquarrose, obscurely 3-lobed. Flowers pale-yellow. Follicles membranous.

Rare; fl. & fr.: Feb. - Apr. & Apr. - June; Sultan Sot vicinity (11); *P.C. Pant* 61745.

## 2. HELICTERES L.

**H. isora** L. Sp. Pl. 963. 1753; Duthie, F.U.G.P. 1:96. 1960 (Rep. ed.).

Shrubs or small trees. Leaves suborbicular or obovate, often lobed. flowers crimson-red. Fruits of 5-coiled follicles.

Common; fl. & fr.: May - Sept. & Sept. - Apr.; Sarpaduli along Ramganga River (10); *P.C. Pant* 43249.

## 3. MELOCHIA L.

**M. corchorifolia** L. Sp. Pl. 675. 1753; Duthie, F.U.G.P. 1:100. 1960 (Rep. ed.).

Stellate hairy plants. Leaves ovate, base 5-nerved. Flowers white, pinkish tinged. Capsules globose, hispid.

Scattered; fl. & fr.: July - Sept. & Oct. - Nov.; Dhara Block (14); *P.C. Pant* 43882.

## 17. TILIACEAE (Linden Family)

- |   |                     |
|---|---------------------|
| 1a. Trees or shrubs.  | <i>Grewia</i> 2     |
| 1b. Woody herbs.  |                     |
| 2a. Lowest serratures of some leaves developing to thin tail like appendages; fruits not spiny. | <i>Corchorus</i> 1  |
| 2b. None of the serratures of leaves developing to appendages; fruits spiny.                    | <i>Triumfetta</i> 3 |

## 1. CORCHORUS L.

- |   |                       |
|---|-----------------------|
| 1a. Leaves ovate; capsules winged                     | <i>C. aestuans</i> 1  |
| 1b. Leaves elliptic - lanceolate; capsules not winged | <i>C. olitorius</i> 2 |

1. **C. aestuans** L. Syst. ed. 10, 1079. 1759 (non Forsk.). *C. acutangulus* Encycl. Meth. Bot. 2:104. 1786; Duthie, F.U.G.P. 1:114. 1960 (Rep. ed.).

Much branched herbs, stem reddish tinged. Leaves acute, toothed. Flowers yellow. Capsules cylindric.

Scattered; fl. & fr.: July - Oct.; Bijrani (18); *P.C. Pant* 72300.

2. *C. olitorius* L. Sp. Pl. 520. 1753; Duthie, F.U.G.P. 1:113. 1960 (Rep. ed.).

Erect, glabrous herbs. Leaves with 3-5 basal nerves. Flowers yellow. Capsules ribbed.

Few; fl. & fr.: Aug. - Sept. & Oct. - Nov.; Kothi Rau Jhirna (15); *P.C. Pant* 43473.

## 2. GREWIA L.

1a. Trees.

2a. Leaves elliptic-oblong or lanceolate; base 3-nerved; flowers white.

*G. disperma* 1

2b. Leaves obliquely ovate; base 5-7 nerved; flowers yellow.

*G. elastica* 2

1b. Stunted shrubs.

*G. sapida* 3

1. *G. disperma* Rottb. in Spreng Syst. Veg. 2:579. 1825. *G. laevigata* auct. non Vahl 1790; Duthie, F.U.G.P. 1:109. 1960 (Rep. ed.).

Evergreen trees. Bark pale brown, smooth. Leaves thin, lower portion of margin glandular. Flowers 2-6 on each axillary peduncle. Drupes pulpy, black.

Few; fl. & fr.: June - Sept. & Nov. - Mar.; Jhirna (15); *P.C. Pant* 43433.

2. *G. elastica* Royle Illus. Bot. Himal. 104. t. 22. 1839; Duthie, F.U.G.P. 1:106. 1960 (Rep. ed.).

Small-medium trees. Bark dark-brown or blackish, smooth. Leaves stellately pubescent above and white-tomentose beneath when young, margins serrulate. Flowers on axillary peduncles. Drupes globose.

Scattered; fl. & fr.: Apr. - June & Aug. - Nov.; Hathipani - Kanda (3); *P.C. Pant* 43764.

3. *G. sapida* Roxb. [Hort. Bengl. 42 (1814) nom. nud.] ex DC. Prodr. 1:512. 1824; Duthie, F.U.G.P. 1:109. 1960 (Rep. ed.).

Shrubs with thick woody underground stem. Leaves oblong, obovate, surface brownish red above and dull grey underneath. Flowers axillary, clustered. Drupes pubescent.

Few; fl. & fr.: Apr. - May & Oct. - Nov.; Dhikala Chaur (8); *P.C. Pant* 43729.

## 3. TRIUMFETTA L.

1a. Leaves variable, lower 3-5 lobed, upper entire; capsule hairy.

*T. rhomboidea* 2

1b. Leaves all similar, not lobed, capsule glabrous.

*T. annua* 1

1. **T. annua** L. Mant. Pl. 1:73. 1769; Raizada Suppl. Duthie's F.U.G.P. 34. 1976.

Erect herbs. Leaves alternate, ovate, toothed. Flowers orange-coloured. Capsules globose.

Rare; fl. & fr.: Sept. Dec.; Bijrani Environs (18); *P.C. Pant* 72284.

2. **T. rhomboidea** Jacq. Enum. Pl. Carib. 22. 1750; Duthie, F.U.G.P. 1:111. 1960 (Rep.ed.).

Erect, suffruticose herbs. Leaves, lower ones broadly orbicular, upper ones ovate. Flowers yellow. Capsules globose.

Frequent; fl. & fr.: Aug. Nov. & Dec.; Between Dhangadi and Panod Nallaha (12); *P.C. Pant* 43075.

### 18. MALPIGHIACEAE (Malpighia Family)

1a. Flowers ca 1 cm diameter; wings of fruit shield shaped.

*Aspidopterys* 1

1b. Flowers ca 2.5 cm diameter; wings of fruit spatula shaped.

*Hiptage* 2

#### 1. ASPIDOPTERYS Juss.

**A. wallichii** Hook. f. in Fl. Brit. Ind. 1:421. 1874; Duthie, F.U.G.P. 1:118. 1960 (Rep.ed.).

Scandent shrubs. Leaves ovate. Flowers white. Samaras with membranous wings.

Few; fl. & fr.: Aug. Sept. & Nov. Apr.; Amgadi Sot (11); *P.C. Pant* 43113.

#### 2. HIPTAGE Gaertn.

**H. benghalensis** (L.) Kurz. in Journ. Asiat. Soc. Beng. 43(2): 136. 1874. *Banisteria benghalensis* L. Sp. Pl. 427. 1753. *Hiptage madablota* Gaertn. Fruct 2:169, t.116, f.4.1791; Duthie, F.U.G.P. 1:117. 1960 (Rep. ed.).

Scandent, evergreen shrubs. Leaves ovate-lanceolate, glabrous. Flowers with 4-white and 1-yellow petal, fragrant. Samaras with one large and two small wings.

Few; fl. & fr.: Feb. - Apr. & Apr. - June; Kichar Sot Bijrani (18); *P.C. Pant* 43574.

### 19. OXALIDACEAE (Wood-Sorrel Family)

1a. Leaves pinnately compound.

*Biophytum* 1

1b. Leaves digitately compound.

*Oxalis* 2

#### 1. BIOPHYTUM DC

**B. reinwardtii** (Zucc.) Klotzsch. in Peters. Reisc. Mossamb. Boit. 1:85. 1862; Duthie, F.U.G.P. 1:123. 1960 (Rep. ed.). *Oxalis reinwardtii* Zucc. in

Abh. Akad. Munch. 1:274. 1829-1830.

Erect herbs. Leaves whorled. Leaflets obliquely oblong. Flowers yellowish orange. Capsules elliptic.

Frequent; fl. & fr.: Aug. Nov.; Sarpaduli (10); *P.C. Pant* 43205

## 2. OXALIS L.

**O. corniculata** L. Sp. Pl. 435.1753; Duthie, F.U.G.P. 1:122. 1960 (Rep. ed.).

Procumbent herbs. Leaves 3-foliolate, leaflets obcordate. Flowers yellow. Capsules linear - oblong.

Frequent; fl. & fr.: Jan. Dec.; Kichar Sot Bijrani (18); *P.C. Pant* 43575.

## 20. RUTACEAE (Rue Family)

1a. Armed plants.

2a. Leaves 1-foliolate. *Citrus* 2

2b. Leaves 3-foliolate. *Aegle* 1

1b. Unarmed plants.

3a. Leaflets tomentose underneath. *Clausena* 3

3b. Leaflets puberulous underneath.

4a. Leaflets large ca. 16 x 6.5 cm. *Glycosmis* 4

4b. Leaflets small ca. 5.5 x 2 cm. *Murraya* 5

### 1. AEGLE *Correa nom. cons.*

**A. marmelos** (L.) Corr. in Trans. Linn. Soc. Lond. 5:223.1800. *Crataeva marmelos* L. Sp. Pl. 444: 1753; Duthie, F.U.G.P. 1:134. 1960 (Rep. ed.).  
"BEL"

Deciduous trees. Leaves compound, leaflets ovate-lanceolate. Bark grey. Flowers greenish white. Fruits spherical, smooth and woody.

Scattered; fl. & fr.: Apr. - May & Next year; Dhulwa East (12); *P.C. Pant* 43124.

### 2. CITRUS L.

**C. medica** L. Sp. Pl. 782. 1753; Duthie, F.U.G.P. 1:131. 1960 (Rep. ed.).  
"JAMIR"

Evergreen, small trees or shrubs. Bark grey, smooth. Leaves oblong-lanceolate or obovate. Flowers white, scented. Berries globose, fleshy.

Rare; fl. & fr.: Apr. May & Dec. Jan.; Dhulwa East (12); *P.C. Pant* 43509.

### 3. CLAUSENA *Burm. f.*

**C. pentaphylla** DC. Prodr. 1:538. 1824; Duthie, F.U.G.P. 1:129. 1960 (Rep. ed.).



Stunted undershrubs. Leaves compound, leaflets ovate or lanceolate. Flowers yellowish, Berries small, ovoid.

Few; fl. & fr.: May; Boxar (8); *P.C. Pant* 43823.

#### 4. GLYCOSMIS Correa

**G. pentaphylla** (Retz.) Correa in Ann. Mus. Nat. Paris. 6:386.1805; Duthie, F.U.G.P. 1:127. 1960 (Rep. ed.). *Limonia pentaphylla* Retz. Obs. B. 5:24. 1788.

Evergreen shrubs. Leaves compound, leaflets ovate-lanceolate, ovate, obovate. Flowers white, citrus smelling. Berries globose.

Scattered; fl. & fr.: Nov. Dec. & Apr. next year; Dhikala (8); *P.C. Pant* 43738.

#### 5. MURRAYA L. *nom. cons.*

1a. Leaflets light green; ripe fruits black

*M. koenigii* 1

1b. Leaflets dark green; ripe fruits red.

*M. paniculata* 2

**M. koenigii** (L.) Spreng. syst. Veg. 2:315. 1825; Duthie, F.U.G.P. 1:129. 1960 (Rep. ed.). *Bergera koenigii* L. Mant. Pl. 2: 563. 1771.

Deciduous shrubs. Leaves compound, leaflets ovate-lanceolate. Flowers white, fragrant. Berries ovoid.

Common; fl. & fr.: Apr. - May & June - Nov.; Dhulwa East (12); *P.C. Pant* 43507.

2. **M. paniculata** (L.) Jacq. Mal. Misc. 1(5):31. 1820. *Chalcas paniculata* L. Mant. Pl. 1:68. 1767. *Murraya exotica* L. Mant. Pl. 563. 1771; Duthie, F.U.G.P. 1:128. 1960. (Rep. ed.). "MARCHIA"

Evergreen shrubs or small trees. Leaves compound, leaflets ovate. Flowers white. Berries ovoid, pointed.

Scattered; fl. & fr.: Apr. & Nov. Dec.; Phulai (2); *P.C. Pant* 43748.

### 21. BURSERACEAE (Bursera Family)

#### GARLGA Roxb.

**G. pinnata** Roxb. [Hort. Beng. 33(1814) *nom. nud.*] Pl. Cor. 3:5. 208:1811; Duthie, F.U.G.P. 1:139. 1960 (Rep. ed.). "KHARPAT"

Deciduous trees. Bark grey-brown. Leaves compound, leaflets ovate-lanceolate. Flowers cream-yellow. Drupes black.

Frequent; fl. & fr.: Apr. Nov.; Gairai (10); *P.C. Pant* 43701.

### 22. MELIACEAE (Mahogany Family).

#### TOONA M. Roem.

**T. ciliata** Roem. Syn Hesp. 1:139. 1846. *Cedrela toona* Roxb. ex Rottl. &

Willd in Ges. Naturf. Fr. Neue. Schr. 4:198. 1803; Duthie, F.U.G.P. 1:143. 1960 (Rep. ed.). "*TOONA*"

Deciduous trees. Bark reddish-brown, rough. Leaves compound, leaflets ovate or lanceolate. Flowers white, mildly fragrant. Capsules oblong.

Rare; fl. & fr.: Apr. & May; On way to Paterpani (14); *P.C. Pant* 43819.

## 23. OLACACEAE

### OLAX L.

*O. nana* Wall [Cat. 228, n. 6783 A,B (1832) *nom. nud.*] ex Benth. in Trans. Linn. Soc. Lond. 18:678. 1841; Duthie, F.U.G.P. 1:145. 1960 (Rep. ed.).

Small undershrubs. Leaves sessile, ovate-lanceolate or oblong-lanceolate, margins recurved. Flowers white, solitary on axillary peduncles. Drupes subglobose.

Few; fl. & fr.: Apr. May & June Aug.; Dhikala chaur (8); *P.C. Pant* 61759.

## 24. CELASTRACEAE (Staff Tree Family)

1a. Large woody climbers.

*Celastrus* 2

1b. Trees

*Cassine* 1

### 1. CASSINE L.

*C. glauca* (Rottb.) O. Kuntze. Rev. Gen. Pl. 1:114. 1891. *Mangifera glauca* Rottb. in Nye Sammi Vid. Selsk. Skrift. 2.534.t.4.f.1.1783. *Elaeodendron glaucum* Pers. Syn. Pl. 1:241. 1805; Duthie, F.U.G.P. 1:150. 1960 (Rep. ed.).

Deciduous trees. Bark grey, almost smooth. Leaves elliptic, ovate or oblong. Flowers greenish-white. Drupes ovoid or obovoid.

Rare; fl. & fr.: Feb. July & Nov.; Bijrani (18); *P.C. Pant* 43403.

### 2. CELASTRUS L.

*C. paniculatus* Willd. Sp. Pl. 1:1125. 1797; Duthie, F.U.G.P. 1:148. 1960 (Rep. ed.).

Climbing shrubs. Bark pale-brown, rough. Leaves obovate or sub-orbicular. Flowers white. Capsules globose.

Few; fl. & fr.: Apr. June & Oct. Jan.; Kanda (3); *P.C. Pant* 43782.

## 25. RHAMNACEAE (Buckthorn Family)

1a. Shrubs, unarmed, with tendrils.

2a. Leaves ovate or oblong - elliptic; fruits winged.

3a. Branchlets pubescent, leaf base unequal.

*Ventilago* 3

3b. Branchlets glabrous; leaf base rounded or subcordate.

*Gouania* 1

- 2b. Leaves lanceolate; fruits not winged. *Helinus* 2  
 1b. Plants armed, without tendrils. *Ziziphus* 4

### 1. GOUANIA Jacq.

*G. leptostachya* DC. Prodr. 2:40. 1825; Duthie, F.U.G.P. 1:157. 1960 (Rep. ed.).

Large, climbing shrubs. Leaves with crenate margins, subcoriaceous, rusty-pubescent. Flowers white, fascicled. Capsules dehiscent.

Few; fl. & fr.: Aut. - Sept. & Dec.; Kanda Environs (3); *K.P. Janardhanan* 51421.

### 2. HELINUS E. Mey ex Endl. *nom cons.*

*H. lanceolatus* Brand. For. Fl. 574. 1874; Duthie, F.U.G.P. 1:158. 1960 (Rep. ed.).

Climbing shrubs. Leaves ovate-lanceolate. Flowers greenish-yellow. Capsules globose or turbinate.

Scarce; fl. & fr.: Feb. - May & May - June; Kanda (3); *P.C. Pant* 43687.

### 3. VENTILAGO Gaertn.

*V. denticulata* Willd. in Ges. Naturf. Fr. Neue Schr. 3:417. 1801. *V. maderaspatana auct non Gaertn.*; Wall. Cat. 150. n. 4268. 1831, p.p.; Duthie F.U.G.P. 1:152. 1960 (Rep.ed.).

Evergreen, woody climbers. Bark grey or dark brown, fissured. Leaves ovate, elliptic oblong. Flowers yellowish green. Nuts subglobose, samaroid.

Scarce; fl. & fr.: Dec. - Mar. & May - June; Bijrani on way to Kichar Sot (18); *K.P. Janardhanan* 51375.

### 4. ZIZIPHUS Mill.

1a. Leaves ovate to broadly elliptic or sub orbicular.

2a. Leaves densely buff or grey tomentose underneath. *Z. mauritiana* 1

2b. Leaves glabrous or sparsely pubescent underneath. *Z. Xylopyrus* 3

1b. Leaves obliquely ovate-lanceolate. *Z. oenopia* 2

1. *Z. mauritiana* Lamk. Encycl. Meth. Bot. 3:319. 1789. *Z. jujuba* Lamk. Encycl. Meth. Bot. 3:318. 1789 non Mill. 1768; Duthie, F.U.G.P. 1:152. 1960 (Rep. ed.).

Shrubs with spreading crown. Leaves variable, entire or toothed. Flowers greenish. Drupes globose, oblong or ovoid.

Common; fl. & fr.: May - Sept. & Dec. - Feb.; Dhulwa East (12), *P.C. Pant* 43070.

2. *Z. oenoplia* (L.) Mill. Gard. Dict. ed. 8, 3:1768; Duthie, F.U.G.P. 1:154. 1960 (Rept. ed.). *Rhamnus oenoplia* L. Sp. Pl. 282. 1753.

Scandent shrubs. Bark grey, rough. Flowers very small. Drupes shining black when ripe.

Few; fl. & fr.: Mar. May & Nov. Dec.; Bijrani Environs (18); K.P. Janardhanan 51389.

3. *Z. xylopyrus* (Retz.) Willd. Sp. Pl. 1:1104.1798; Duthie, F.U.G.P. 1:154. 1960(Rep. ed.). *Rhamnus xylopyrus* Retz. Obs. Bot. 2:11.1781.

Deciduous shrubs or small trees. Bark greyish or brown, rough. Flowers green. Drupes globose.

Frequent; fl. & fr.: Apr. - July. & Nov. - Mar.; Boxar (7); P.C. Pant 43794.

## 26. VITACEAE (Vine Family)

1a. Leaves simple.

*Cissus* 2

1b. Leaves compound.

2a. Leaflets faintly serrate, base acute.

*Tetrastigma* 3

2b. Leaflets bristle serrate, base obliquely cordate.

*Ampelocissus* 1

### 1. AMPELOCISSUS Planch. *nom. cons.*

*A. divaricata* (Wall. ex Lawson) Planch. in DC. Monogr. Phan. 5:378. 1887; Raizada Suppl. Duthie's F.U.G.P. 43.1976. *Vitis divaricata* Wall. ex Lawson in Hook.f. Fl. Brit. Ind. 1:657. 1875.

Slender, glabrescent climbers. Flowers small, reddish-brown. Berries globose.

Scattered; fl. & fr.: June - Oct. & Nov., Dhulwa East (12); P.C. Pant 43052.

### 2. CISSUS L.

*C. adnata* Roxb. Fl. Ind. 1:423. 1820; Duthie, F.U.G.P. 1:162. 1960 (Rep. ed.).

Deciduous, woody climbers, bark reddish brown. Leaves ovate-cordate, rusty tomentose. Flowers small, greenish brown. Berries pyriform.

Scattered; fl. & fr.: Apr. - June & June - July; On way to Kothi Rau (14); P.C. Pant 43827.

### 3. TETRASTIGMA Planch.

*T. campylocarpum* (Kurz) Planch. in DC. Mon. Phan. 5:437. 1887; Raizada Suppl. Duthie's F.U.G.P. 44.1976. *Vitis campylocarpa* Kurz in Journ. As. Soc. Beng. 41(2):302.1872.

Large, evergreen climbers. Bark reddish-brown, rough. leaves 3-6 foliolate, leaflets elliptic, acuminate. Flowers small, brown. Berries oblong or ovoid.

Rare; fl. & fr.: Nov. - Apr.; Dhangadi Environs (12); *P.C. Pant* 43119.

## 27. SAPINDACEAE (Soapberry Family)

- 1a. Climbers. *Cardiospermum* 1  
 1b. Trees. *Schleichera* 2

### 1. CARDIOSPERMUM L.

*C. halicacabum* L. Sp. Pl. 366. 1753; Duthie, F.U.G.P. 1:166. 1960 (Rep. ed.).

Glabrous herbs. Stem furrowed. Leaves segmented, leaflets ovate-lanceolate. Flowers white, atoping coiled tendril. Capsules inflated.

Few; fl. & fr.: July - Oct. & Oct. Nov.; Gairal (10); *K.P. Janardhanan* 51113.

### 2. SCHLEICHERA Willd. *nom. cons.*

*S. oleosa* (Lour.) Oken Alleg. Naturgesh 3(2): 1341. 1841. *Pistacia oleosa* Lour. Fl. Cochinch. 615. 1790. *Schleichera trijuga* Willd. Sp. Pl. 4:1096. 1806; Duthie, F.U.G.P. 1:167. 1960 (Rep. ed.). "*KUSUM*"

Deciduous trees. Bark grey. Leaves paripinnate, leaflets elliptic - oblong. Flowers greenish. Drupes ovoid, smooth or rough.

Scattered; fl. & fr.: Mar. Apr. & Oct. Nov.; Panod Nallaha (12); *P.C. Pant* 43514.

## 28. SABIACEAE (Sabia Family)

### SABIA Colebr.

1. *S. paniculata* Edgew. in Hook. f. & Thom. Fl. Ind. 1:211. 1855; Duthie, F.U.G.P. 1:171. 1960 (Rep. ed.).

Scandent shrubs. Leaves coriaceous, oblong-lanceolate. Flowers yellow. Drupes orbicular, reticulately veined.

Scarce; fl. & fr.: Jan. Feb. & Apr.; On way to Sultan (12), *P.C. Pant* 43535.

## 29. ANACARDIACEAE (Sumach Family)

- 1a. Leaves simple.  
 2a. Leaf apex rounded or obtuse.  
 3a. Leaves fiddle shaped or obovate-oblong; crowded towards the end of branches; flowers in lax panicles. *Semecarpus* 4  
 3b. Leaves oblong or elliptic, scatteredly arranged, not crowded; flowers in dense panicles. *Buchanania* 1  
 2b. Leaf apex acute. *Mangifera* 3  
 1b. Leaves compound. *Lannea* 2

1. **BUCHANANIA** Sprengel

**B. latifolia** Roxb. [Hort. Beng. 32: (1814) *nom. nud.*] Fl. Ind. ed. 2:385. 1832; Duthie, F.U.G.P. 1:173. 1960 (Rep. ed.).

Subdeciduous trees. Bark dark black or grey, rough. Leaves coriaceous. Flowers greenish-white. Drupes globose.

Scattered; fl. & fr.: Jan. - Mar. & Apr. - June; Bijrani-Mailani (18-17); *P.C. Pant* 43618.

2. **LANNEA** A. Richard *nom. cons.*

**L. coromandelica** (Houtt.) Merr. in Journ. Arn. Arb. 19:353. 1938. *Dialicum coromandelicum* Houtt. Nat. Hist. ser. 2, 39, t. 5, f. 2. 1774. *Odina wodier* Roxb. Fl. Ind. ed. 2, 2:293. 1832; Duthie, F.U.G.P. 1:175. 1960 (Rep. ed.), "*JHIGAN*"

Small deciduous trees. Bark grey, rough. Leaves imparipinnate, leaflets ovate or lanceolate. Flowers yellowish-green. Drupes oblong, fleshy.

Few; fl. & fr.: Mar. Apr. & Apr. June; Panod nallaha (12); *P.C. Pant* 43526.

3. **MANGIFERA** L.

**M. indica** L. Sp. Pl. 200. 1753; Duthie, F.U.G.P. 1:176. 1960 (Rep. ed.). "*AAM*"

Large, evergreen trees. Bark dark grey-black, rough. Leaves oblong-lanceolate, glabrous, midrib raised on undersurface. Flowers yellowish-green, scented. Drupes ovoid, fleshy.

Few; fl. & fr.: Mar. Apr. & July; Sultan Sot (12); *P.C. Pant* 61723.

4. **SEMECARPUS** L.f.

**S. anacardium** L.f. Suppl. Pl. 182. 1781; Duthie, F.U.G.P. 1:176. 1960 (Rep. ed.).

Deciduous trees. Bark dark brown, rough. Leaves alternate, entire. Flowers greenish-yellow. Drupes obliquely-ovoid, on fleshy receptacle.

Scattered; fl. & fr.: May Sept. & Nov. Feb.; Between Dhangadi and Pandod nallaha (12); *P.C. Pant* 43091.

30. **FABACEAE**

1a. Climbers and twiners.

2a. Leaflets even pinnate.

*Abrus* 1

2b. Leaflets odd pinnate.

3a. Leaflets small, ca 1-6 cm x 5-4.5 cm.

4a. Pods flat, compressed.

5a. Pods glabrous.

*Shuteria* 19

- 5b. Pods hairy.
  - 6a. Pods septate.
    - 7a. Leaves thick, resinous glands underneath. *Atylosia* 3
    - 7b. Leaves thin, glands absent. *Dumasia* 8
  - 6b. Pods not septate. *Rhynchosia* 17
- 4b. Pods linear, subcylindrical *Vigna* 23
- 3b. Leaflets large, ca 8.5 - 19.5 cm x 5-18.5 cm
  - 8a. Flowers small, ca. 1-2 cm long.
    - 9a. Leaves imparipinnate; leaflets 7-9. *Millettia* 13
    - 9b. Leaves imparipinnate, trifoliolate *Pueraria* 16
  - 8b. Flowers big, ca 5.7 - 6.5 cm long. *Mucuna* 14
- 1b. Plants erect or diffused.
  - 10a. Herbs, shrubs or undershrubs.
    - 11a. Pods turgid.
      - 12a. Inflorescence lax raceme (*Excepting Crotalaria medicaginea*)
        - 13a. Pods prominently veined. *Alysicarpus* 2
        - 13b. Pods not veined *Crotalaria* 5
      - 12b. Inflorescence dense raceme.
        - 14a. Pods coiled. *Uraria* 22
        - 14b. Pods not coiled. *Flemingia* 10
    - 11b. Pods not turgid.
      - 15a. Pods flat.
        - 16a. Leaf margin ciliate with bristles and rachis of leaf ending into a bristle. *Smithia* 20
        - 16b. Leaf margin eciliate and rachis not ending into a bristle.
          - 17a. Leaflets 1-2 paired. *Zornia* 24
          - 17b. Leaflets odd-pinnate.
            - 18a. Leaflets parallel veined.
              - 19a. Erect stout herbs or undershrubs; leaflets 9-21. *Tephrosia* 21
              - 19b. Procumbent weak herbs; leaflets 3. *Medicago* 12
            - 18b. Leaflets reticulately veined.
  - 20a. Flowers concealed within prominent foliaceous bracts. *Phyllodium* 15
  - 20b. Flowers not concealed in foliaceous bracts. *Desmodium* 7
    - 15b. Pods cylindrical or globose (*Excepting compressed in Indigofera hamiltonii*).
      - 21a. Pods septate. *Sesbania* 18
      - 21b. Pods not septate. *Indigofera* 11

## 10b. Trees.

- 22a. Leaflets - 3, large, lateral ones with oblique halves.  
 23a. Branches armed with prickles; flowers coral red. *Erythrina* 9  
 23b. Branches unarmed; flowers orange-red. *Butea* 4  
 22b. Leaflets 3-25, small, all alike. *Dalbergia* 6

## 1. ABRUS L.

**A. pulchellus** Wall. [Cat. 199. n. 5819 (1831-1832) *nom. nud.*] ex Thwaites, Enum. Pl. Zeylan. 91. 1859; Duthie, F.U.G.P. 1:242. 1960 (Rep. ed.).

Climbing shrubs. Leaves paripinnate, leaflets oblong, obtuse-mucronate at apex. Flowers red. Pods thin, flat.

Scattered; fl. & fr.: Aug. - Nov.; Amgadi Sot (11); *P.C. Pant* 43108.

2. ALYSICARPUS Desv. *nom. cons.*

- 1a. Sparingly branched; pods transversely ribbed. *A. rugosus* 1  
 1b. Profusely branched; pods vertically reticulated. *A. vaginalis* 2

1. **A. rugosus** (Willd.) DC. Prodr. 2:353. 1825; Duthie, F.U.G.P. 1:256. 1960 (Rep. ed.). *Hedysarum rugosum* Willd. Sp. Pl. 3:1172. 1802.

Erect or decumbent-ascending herbs. Leaves lanceolate-oblong to obovate. Flowers white, tinged with pink. Pods flat.

Scattered; fl. & fr.: Aug. Oct.; Bijrani (18); *P.C. Pant* 72320.

2. **A. vaginalis** (L.) DC. Prodr. 2:353. 1825; Duthie, F.U.G.P. 1:255. 1960 (Rep. ed.). *Hedysarum vaginae* L. Sp. Pl. 746. 1753.

Suffruticose herbs or undershrubs. Leaves suborbicular, oblong. Flowers in pair, tinged with pink. Pods terete, jointed.

Scattered; fl. & fr.: Sept. - Dec.; Ratapani Sot Bijrani (18); *P.C. Pant* 43381.

## 3. ATYLOSIA Wight &amp; Arn.

- 1a. Herbaceous twiner, terminal leaflet obovate - oblong. *A. scarabaeoides* 1  
 1b. Woody climber, terminal leaflet deltoid. *A. volubilis* 2

1. **A. scarabaeoides** (L.) Benth. in Miq. Pl. Jungh. 242. 1852; Duthie, F.U.G.P. 1:196. 1960 (Rep. ed.). *Dolichos scarabaeoides* L. Sp. Pl. 726. 1753.

Slender, twining or trailing herbs. Leaflets 3-nerved at base. Flowers yellow. Pods oblong, hairy.

Few; fl. & fr.: Aug. Dec., Sultan Environs (11), *P.C. Pant* 43134.

2. **A. volubilis** (Blanco) Gamble Fl. Presid. Madr. 1:369. 1918. *Cytisus volubilis* Blanco Fl. Filip. 599. 1837. *Atylosia crassa* Prain, in Jour. Asi. Soc.



Beng. 66(2): 45 & 432. 1897; Duthie, F.U.G.P. 1:195. 1960 (Rep.ed.).

Large climbers. Leaflets subequal, densely pubescent beneath, lateral ones oblique. Flowers yellow. Pods obliquely grooved.

Few; fl. & fr.: Apr. - Dec., Kanda (3); *P.C. Pant* 43341.

4. **BUTEA** Koenig ex Roxb.

**B. monosperma** (Lamk.) Taubert in Engl. & Prantl. Pflanzenfam. 3. 3:366. 1894. *Eythrina monosperma* Lamk. Encycl.Meth. Bot. 1:391. 1785. *Butea frondosa* Koenig. ex Roxb. in As. Res. 3:369.1972; Duthie, F.U.G.P. 1:221. 1960 (Rep. ed.). "DHAK"

Deciduous trees. Leaves 3-foliolate, terminal leaflets rhomboid or obovate, lateral obliquely ovate or elliptic. Flowers fascicled, appearing before leaves. Pods silky, tomentose.

Few; fl. & fr.: Mar. Apr. & Apr. - July; Gairal (10); *P.C. Pant* 43656.

5. **CROTALARIA** L.

1a. Leaves simple.

2a. Leaves linear or lanceolate.

3a. Flowers deflexed. *C. sessiliflora* 7

3b. Flowers not deflexed.

4a. Calyx densely tomentose; pods hairy. *C. tetragona* 8

4b. Calyx silky, hairy; pods glabrous *C. calycina* 3

2b. Leaves obovate or oblong - oblanceolate.

5a. Stem winged. *C. alata* 1

5b. Stem not winged.

6a. Stipules foliaceous. *C. sericea* 6

6b. Stipules absent.

7a. Inflorescence lateral, 2-4 flowered. *C. prostrata* 5

7b. Inflorescence terminal, 6-20 flowered. *C. albida* 2

1b. Leaves compound. *C. medicaginea* 4

1. **C. alata** Buch. Ham. [in Roxb. Hort. Beng. 98 (1814) *nom. nud*] ex. D. Don Prodr. Fl. Nep. 241. 1825; Duthie, F.U.G.P. 1:186. 1960 (Rep. ed.).

Suberect undershrubs or herbs. Leaves oblong or oblanceolate. Flowers yellow. Pods glabrous.

Scattered; fl. & fr.: Sept. Dec.; Paterpani (8); *P.C. Pant* 43494.

2. **C. albida** Heyne ex Roth Nov. Pl. Ind. Or. 333. 1821; Duthie, F.U.G.P. 1:189. 1960 (Rep. ed.).

Herbs. - undershrubs, much branched. leaves oblanceolate, gland dotted. Flowers yellow. Pods oblong, cylindrical.

Scattered; fl. & fr.: Apr. Dec.; Mailani Tal (17); *P.C. Pant* 43417.

3. *C. calycina* Schrank Pl. Rar. Hort. Monac. t. 12. 1817; Duthie, F.U.G.P. 1:188. 1960 (Rep. ed.).

Erect herbs, branches silky hairy. Leaves linear, subsessile. Flowers pale-yellow. Pods dark-brown.

Scarce; fl. & fr.: July Sept. & Oct. Dec.; Phulai (8); *P.C. Pant* 43274.

4. *C. medicaginea* Lamk. Encycl. Meth. Bot. 2:201. 1786; Duthie, F.U.G.P. 1:190. 1960 (Rep. ed.).

Herbs, rootstock woody, branched from base. Leaves 3-foliolate, leaflets oblanceolate or obovate. Flowers yellow. Pods obliquely subglobose.

Scattered; fl. & fr.: Apr. Nov.; Dhikla Chaur (8) *P.C. Pant* 43719.

5. *C. prostrata* Rottl. ex Willd. Enum. Hort. Berol. 2:747. 1809; Duthie, F.U.G.P. 1:186. 1960 (Rep. ed.).

Diffused herbs. Leaves obliquely obovate, oblong. Flowers yellow. Pods almost sessile.

Rare; fl. & fr.: July Sept. & Oct. Nov.; Bijrani (18); *P.C. Pant* 43638.

\*\*6. *C. sericea* Retz. Obs. Bot. 5:26. 1789; Duthie, F.U.G.P. 1:189. 1960 (Rep. ed.).

Erect, bright green shrubs. Leaves obovate or oblanceolate. Flowers showy, golden yellow. Pods oblong, glabrous.

Scattered; fl. & fr.: Sept. May; Dhikala - Phulai (8); *P.C. Pant* 43286.

7. *C. sessiliflora* L. Sp. Pl. ed. 2, 1004. 1763; Duthie, F.U.G.P. 1:188. 1960 (Rep. ed.).

Erect herbs. Leaves narrowed at both ends. Flowers blue and white. Pods oblong.

Rare; fl. & fr.: Aug. Dec.; Bijrani Jhabar Sot (18); *K.P. Janardhanan* 51388.

8. *C. tetragona* Andr. Bot. Repos. 10. t. 593. 1810; Duthie, F.U.G.P. 1:190. 1960 (Rep. ed.).

Erect shrubs, branches finely silky, sulcate. Leaves lanceolate. Flowers beautiful lemon yellow. Pods densely brown velvety.

Few; fl. & fr.: Sept. - Dec.; On way to Pateli Chaur (14); *P.C. Pant* 43461.

#### 6. DALBERGIA L. f. *nom. cons.*

1a. Leaflets rounded at apex.

---

\*\*Hara et al. treated this species under *C. spectabilis* Roth. [An Enumeration of the flowering plants of Nepal 2:114.1979].

- 2a. Twigs and surfaces of leaflets glabrous; flowers in lax panicles; pods 6 - 11 cm long. *D. lanceolaria* 1
- 2b. Twigs and surfaces of leaflets specially lower ones with appressed pubescence; flowers in congested panicles; pods 3-5 cm long. *D. sericea* 2
- 1b. Leaflets acute at apex. *D. sissoo* 3

\*\*1. *D. lanceolaria* L. f. *Suppl. Pl.* 316. 1781; Duthie, F.U.G.P. 1:243. 1960 (Rep. ed.).

Deciduous trees. Bark pale brown or grey, smooth. Leaves imparipinnate, leaflets ovate or obovate. Flowers pinkish or white. Pods bright brown, flat.

Scarce; fl. & fr.: Apr. - May & Sept. - Jan.; Kalagarh Environs (14); *K.P. Janardhanan* 51510.

2. *D. sericea* G. Don. *Gen. Syst.* 2:375. 1832; Duthie, F.U.G.P. 1:244. 1960 (Rep. ed.).

Deciduous trees. Bark dark-brown or grey, rough. Leaves imparipinnate, leaflets ovate or elliptic. Flowers pale-lilac or whitish. Pods linear, flat.

Few; fl. & fr.: Apr. - May & Oct. - Feb.; Sajgadi Sot (11); *P.C. Pant* 72432.

3. *D. sissoo* Roxb. [*Hort. Beng.* 53 (1814) *nom nud.*] ex DC. *Prodr.* 2:416. 1825; Duthie, F.U.G.P. 1:243. 1960 (Rep. ed.). "*SISHAM*"

Medium sized deciduous trees. Bark grey, rough. Leaves imparipinnate, 3-5 foliolate, leaflets obliquely ovate or suborbicular. Flowers pale-yellow. Pods strap shaped.

Common; fl. & fr.: Mar. - Apr. & Sept. - Dec.; Dhikala Environs (8-9); *P.C. Pant* 43351.

#### 7. DESMODIUM Desv. *nom. cons.*

- 1a. Herbs, shrubs or undershrubs.
- 2a. Herbs.
- 3a. Stem; short tufted; flowers 1-3 in leaf axils. *D. triflorum* 8
- 3b. Stem; long trailing; flowers 6-8 in terminal racemes *D. microphyllum* 4
- 2b. Shrubs or undershrubs.
- 4a. Leaves 1-foliolate.
- 5a. Leaflet with repand margin; upper surface hispid. *D. velutinum* 9
- 5b. Leaflets with entire margin; upper surface glabrescent. *D. gangetium* 2
- 4b. Leaves 3-foliolate (sometimes 1-foliolate in *D. motorium*).
- 6a. Leaflets with obtuse apex.
- 7a. Pods indistinctly jointed *D. motorium* 5

---

\*\*Probably planted.

- 7b. Pods distinctly jointed.
- 8a. Stem smooth, purplish; lateral nerves prominent on undersurface of leaflets. *D. concinnum* 1
- 8b. Stem hairy, dull brown; lateral nerves obscure. *D. heterocarpon* 3
- 6b. Leaflets with acute apex. *D. triangulare* 7
- 1b. Trees. *D. oojeinense* 6

1. **D. concinnum** DC. Ann. Sci. Nat. Paris 4:101. 1825; Duthie, F.U.G.P. 1:261. 1960 (Rep. ed.).

Tall undershrubs. Leaves compound, leaflets oblong, obtuse. Flowers blue or purple. Pods stalked.

Rare; fl. & fr.: Aug. Nov.; Kanda (3); *P.C. Pant* 43317.

2. **D. gangeticum** (L.) DC. Prodr. 2:327. 1825; Duthie, F.U.G.P. 1:264. 1960 (Rep. ed.). *Hedysarum gangeticum* L. Sp. Pl. 746. 1753.

Suberect undershrubs. Leaves ovate, elliptic oblong, base rounded-subcordate. Flowers white or purple. Pods deeply indented.

Scattered; fl. & fr.: Apr. Dec.; Mailani (17); *P.C. Pant* 43628.

3. **D. heterocarpon** (L.) DC. Prodr. 2:337. 1825. *Hedysarum heterocarpon* L. Sp. Pl. 747. 1753. *Desmodium polycarpum* DC. Prodr. 2:334. 1825; Duthie, F.U.G.P. 1:261. 1960 (Rep. ed.).

Decumbent undershrubs. Leaves 3-foliolate, leaflets obovate or elliptic-oblong. Flowers bluish purple. Pods 6-8 jointed, covered with brown, hooked bristles.

Scattered; fl. & fr.: July Aug. & Oct. Dec.; Mailani (17); *P.C. Pant* 43357.

4. **D. microphyllum** (Thunb.) DC. Prodr. 2:337. 1825. *Hedysarum microphyllum* Thunb. Fl. Jap. 284. 1784. *Desmodium parvifolium* DC. in Ann. Sci. Nat. 4:100. 1825; Duthie, F.U.G.P. 1:263. 1960 (Rep. ed.).

Slender herbs. Leaves 3-foliolate, leaflets oval or obovate. Flowers purple. Pods pubescent.

Scattered; fl. & fr.: Aug. - May Next season; Dhikala Chaur (8); *P.C. Pant* 43869.

5. **D. motorium** (Houtt.) Merr. in Journ. Arn. Arb. 19:345. 1938. *Hedysarum motorium* Houtt. Nat. Hist. 2.10:246. 1779. *Desmodium gyrans* DC. Prodr. 2:326. 1825; Duthie, F.U.G.P. 1:265. 1960 (Rep. ed.).

Semiherbaceous undershrubs. Leaves 1-3 foliolate, leaflets oblong-lanceolate, unequal. Flowers pink or mauve. Pods falcate.

Few; fl. & fr.: Aug. Dec.; Bijrani Environs (18); *P.C. Pant* 72278.

6. *D. oojeinense* (Roxb.) Ohashi in *Ginkgoana* 1:117. t. 146. 1973. *Dalbergia oojeinense* Roxb. *Fl. Ind.* ed. 2, 3:200. 1832. *Ougeinia dalbergioides* Benth. in *Miq. Pl. Jungh.* 216. 1852; Duthie, *F.U.G.P.* 1:258. 1960 (Rep. ed.). "SANDHAN"

Subdeciduous trees. Bark grey or light brown, thin, rough. Leaves pinnately 3-foliolate, leaflets broadly ovate, rounded or trapezoid. Flowers whitish or pale pink. Pods flat, jointed.

Few; fl. & fr.: Mar. - May & Mar. - June; Dhangadi - Sajgadi Sot (12); *P.C. Pant* 62820.

7. *D. triangulare* (Retz.) Merr. in *Journ. Arn. Arb.* 23:170. 1942. *Hedysarum triangulare* Retz. *Obs. Bot.* 3:40. 1783. *Desmodium cephalotes* Wall. Var. *Congestum* (Wight. & Arn.) Prain in *Journ. As. Soc. Beng.* 66.389.1898; Duthie, *F.U.G.P.* 1:260. 1960 (Rep. ed.).

Shrubs, young parts grey silky. Leaves compound, leaflets elliptic or lanceolate. Flowers red. Pods curved, grey silky.

Scattered; fl. & fr.: July - Sept. & Oct. - Dec.; Bijrani Environs (18); *P.C. Pant* 72313.

8. *D. triflorum* (L.) DC. *Prodr.* 2:334. 1825; Duthie, *F.U.G.P.* 1:263. 1960 (Rep. ed.). *Hedysarum triflorum* L. *Sp. Pl.* 749. 1753.

Diffused branched herbs. Leaves 3-foliolate, leaflets obovate-cuneate. Flowers pink or purple. Pods flat, curved.

Scattered; fl. & fr.: Round the year. Sultan (11); *P.C. Pant* 43555.

9. *D. velutinum* (Willd.) DC. *Prodr.* 2:328. 1825. *Hedysarum velutinum* Willd. *Sp. Pl.* 3, 2:114. 1802. *Desmodium latifolium* DC. *Prodr.* 2:328. 1825; Duthie, *F.U.G.P.* 1:264. 1960 (Rep. ed.).

Fulvous undershrubs. Leaflets broad-ovate, base truncate or cordate. Flowers purple. Pods hairy.

Few; fl. & fr.: June - Dec. & Dec. May; Dhikala Chaur (8); *P.C. Pant* 43869.

#### 8. DUMASIA DC.

*D. villosa* DC. in *Ann. Sci. Nat.* 4:97 & *Prodr.* 2:241. 1825; Duthie, *F.U.G.P.* 1:213. 1960 (Rep. ed.).

Climbing herbs. Leaves 3-foliolate, leaflets ovate or oblong. Flowers yellow. Pods velvety.

Rare; fl. & fr.: Aug. Nov.; Sultan (11); *K.P. Janardhanan* 50152.

#### 9. ERYTHRINA L.

*E. suberosa* Roxb. [*Hort. Beng.* 58 (1814) *nom. nud.*] *Fl. Ind.* ed. 2, 3:253. 1832; Duthie, *F.U.G.P.* 1:219. 1960 (Rep. ed.)

Deciduous trees. Bark thick, corky. Branches with conical prickles. Leaves trifoliolate, terminal rhomboid or ovate, lateral oblique. Flowers fascicled. Pods subterete, torulose.

Few; fl. & fr.: Mar. - Apr. & June; Gajar Sot (11); *P.C. Pant* 43552.

#### 10. FLEMINGIA Roxb. ex Ait. *nom. cons.*

- 1a. Leaves simple. *F. strobilifera* 2  
1b. Leaves 3-foliolate. *F. macrophylla* 1

1. *F. macrophylla* (Willd.) Prain in Jour. As. Soc. Beng. 66(2): 440. 1897. *Crotalaria macrophylla* Willd. Sp. Pl. 3:982. 1800. *Flemingia congesta* Roxb. Hort. Beng. 56.1814; Duthie, F.U.G.P. 1:201. 1960 (Rep. ed.).

Shrubs, branches channelled. Leaves digitate, leaflets oblanceolate or lanceolate with brown-black glands underneath. Flowers pink. Pods hairy. Scattered; fl. & fr.: Apr. - Nov.; Sultan (11); *P.C. Pant* 43538.

2. *F. strobilifera* (L.) R. Br. in Ait Hort. Kew. ed. 2.4:350. 1812; Duthie, F.U.G.P. 1:199. 1960 (Rep. ed.). *Hedysarum strobiliferum* L. Sp. Pl. 746. 1753.

Evergreen shrubs. Leaves ovate-lanceolate, acute. Flowers purple, enclosed within membranous bracts. Pods oblong.

Scattered; fl. & fr.: Aug. - Nov. & Nov. - Jan.; Dhikala (8); *P.C. Pant* 43233.

#### INDIGOFERA L.

- 1a. Leaves simple. *I. linifolia* 4  
1b. Leaves compound.  
2a. Herbs.  
3a. Procumbent, slender, much branched from the base; stem circular, pod cylindrical. *I. linnaei* 5  
3b. Erect, thick, sparingly branched; stem and pod quadrangular. *I. astragalina* 1  
2b. Shrubs.  
4a. Dwarfed shrubs with many diffused slender racemes from woody rootstock; leaflets 3-9 *I. hamiltonii* 3  
4b. Tall shrubs, racemes from axil of leaves, no woody rootstock; leaflets 7-17. *I. atropurpurea* 2

1. *I. astragalina* DC. Prodr. 2:228. 1825. *I. hirsuta auct. pl. non. L.* 1753; Duthie, F.U.G.P. 1:234. 1960 (Rep. ed.).

An erect or suberect herb. Leaves imparipinnate, leaflets obovate or elliptic - oblong. Flowers pink, crowded. Pods quadrangular.

Few; fl. fr.: Aug. Oct.; Kalagarh Dam Environs (14); *P.C. Pant* 72216.

2. *I. atropurpurea* Buch. - Ham. ex Hornem. H. Reg. B. Hafm Suppl. 152. 1819. *I. pulchella* Roxb. Hort. Beng. 57. 1814; Duthie F.U.G.P. 1:236. 1960 (Rep. ed.).

Large shrubs. Leaves imparipinnate, leaflets obovate-oblong. Flowers pink or red. Pods cylindrical, glabrous.

Few; fl. & fr.: Dec. Apr. & May June; Gaujpani (15); *K.P. Janardhanan* 51288.

3. *I. hamiltonii* Grah. ex Duthie & Prain in Ann. Roy. B.G. Cal. 9(1): 22. t. 29. 1901; Duthie, F.U.G.P. 1:233. 1960 (Rep. ed.). Fig. 1.

Plants with woody, dorsiventral rootstock. Leaves imparipinnate, leaflets obovate, oblong. Flowers pink with reddish line. Pods ligulate, compressed. Frequent; fl. & fr.: Mar. - July; Dhikala Chaur (8); *P.C. Pant* 61760.

4. *I. linifolia* (L.f.) Retz. Obs. Bot. 4:29. 1786; Duthie, F.U.G.P. 1:229. 1960 (Rep. ed.). *Hedysarum linifolium* L.f. Suppl. Pl. 331. 1781.

Procumbent, silvery pubescent herbs. Leaves linear. Flowers red. Pods globose, silvery white.

Scattered; fl. & fr.: Apr. - Dec.; Panod Nallaha (12); *P.C. Pant* 43513.

5. *I. linnaei* Ali Bot. Not. 111:549. 1958. *I. enneaphylla* L. Mant. Pl. 2:272. 1771 *nom. illeg.*; Duthie, F.U.G.P. 1:230. 1960 (Rep. ed.).

Prostrate, branched herbs. Leaves imparipinnate, leaflets oblanceolate. Flowers pink. Pods oblong, cylindrical, hispid.

Few; fl. & fr.: Aug. - Jan.; Kalagarh Environs (14); *P.C. Pant* 72215.

## 12. MEDICAGO L.

*M. lupulina* L. Sp. Pl. 779. 1753; Duthie; F.U.G.P. 1:194. 1960 (Rep. ed.).

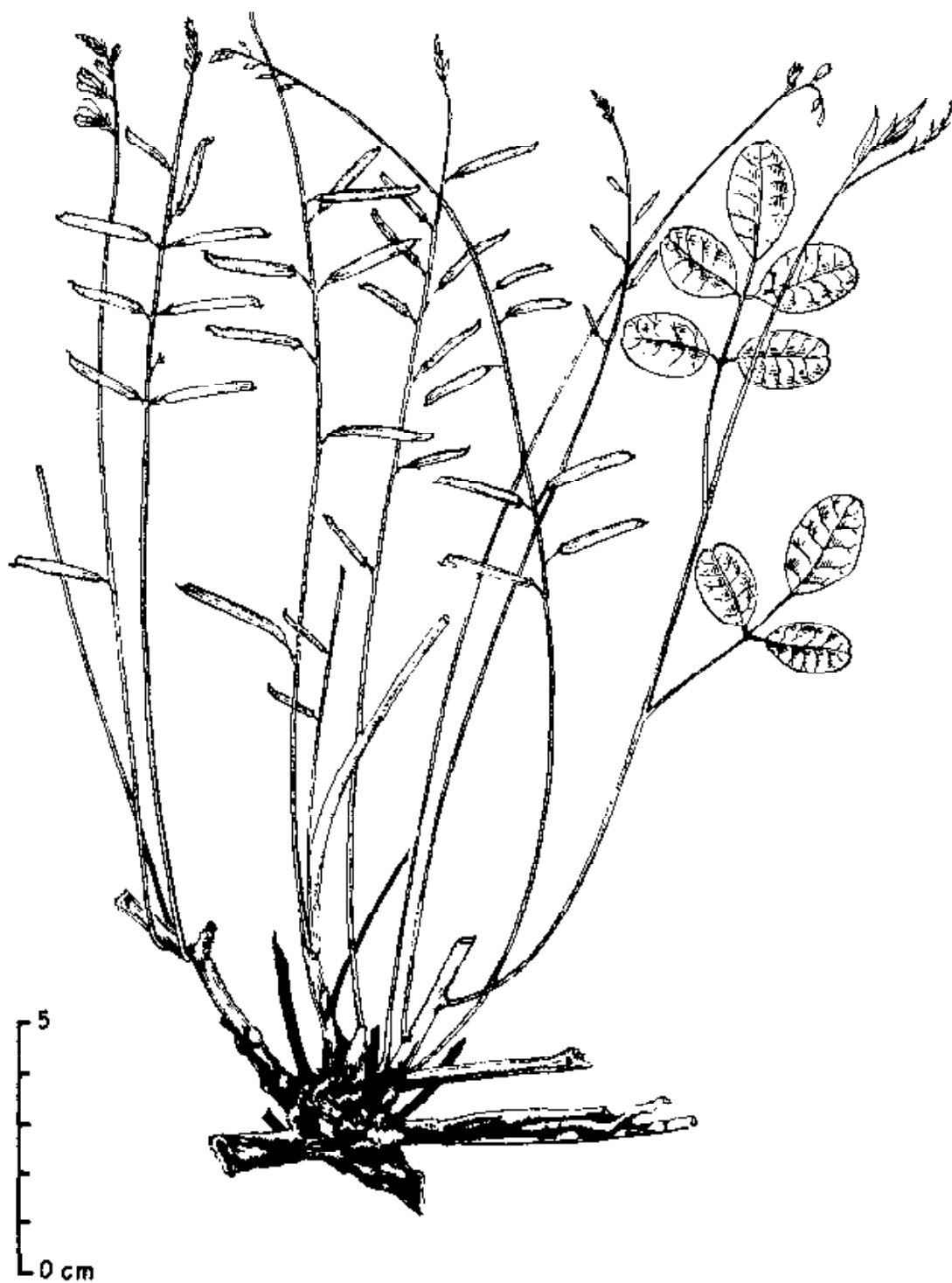
Diffusedly branched herbs. Leaflets obovate, shallowly notched. Flowers yellow. Pods coiled.

Abundant; fl. & fr.: Nov. - May; Dhikala along Ramganga Bank (8); *P.C. Pant* 61765.

## 13. MILLETTIA Wight & Arn.

*M. extensa* (Benth.) Baker in Hook.f. Fl. Brit. Ind. 2:109. 1876. *Otosema extensa* Benth. in Miq. Pl. Jungh. 249. 1852. *Millettia auriculata* Baker ex Brandis, For. Fl. Ind. 138. 1874; Duthie, F.U.G.P. 1:227. 1960 (Rep. ed.).

Stout, woody climbers. Leaves imparipinnate, leaflets oblong, elliptic or obovate. Flowers cream coloured. Pods woody, strap shaped, brown, velvety.



**Fig. 1.** *Indigofera hamiltonii* R. Grah. ex Duthie & Prain dwarfed due to periodical forest fires.



Common; fl. & fr.: Apr. - July & Aug. - Dec.; Amgadi Sot (11), *P.C. Pant* 43104.

#### 14. MUCUNA Adanson *nom. cons.*

- |                          |                       |
|--------------------------|-----------------------|
| 1a. Woody climbers.      | <i>M. nigricans</i> 2 |
| 1b. Herbaceous climbers. |                       |
| 2a. Flowers in raceme.   | <i>M. pruriens</i> 3  |
| 2b. Flowers in corymb.   | <i>M. capitata</i> 1  |

1. *M. capitata* Wight & Arn. Prodr. Fl. Penin. Ind. Ori. 255. 1834; Duthie, F.U.G.P. 1:219. 1960 (Rep. ed.).

Climbers. Leaflets 3, lateral one with unequal halves, terminal rhomboid. Flowers purple. Pods clothed with deciduous bristles.

Rare; fl. & fr.: Aug. Dec.; Jhirna (15); *P.C. Pant* 40141.

2. *M. nigricans* (Lour.) Steud. Nomencl. Bot. ed. 2,2:163. 1841. *Citta nigricans* Lour. Fl. Cochinch. 456. 1790. *Mucuna imbricata* DC. Prodr. 2:406. 1825; Duthie, F.U.G.P. 1:217. 1960 (Rep. ed.).

Large climbers. Leaves 3-foliolate, lateral leaflets oblique, terminal ovate. Flowers dull purple. Pods oblong, plaited.

Scattered; fl. & fr.: July Sept. & Oct. Nov.; Dhangadi Environs (12); *P.C. Pant* 43112.

3. *M. pruriens* (L.) DC. Prodr. 2:405. 1825; Duthie, F.U.G.P. 1:218. 1960 (Rep. ed.) *Dolichos pruriens* L. in Stickman Herb. Amb. 23. 1754.

Large climbers. Leaves 3-foliolate, leaflets elliptic ovate or rhomboid-ovate. Flowers purple. Pods terete, clothed with irritating bristles.

Few; fl. & fr.: Aug. Nov. & Oct. Dec.; Phulai (2); *K.P. Janardhanan* 51343.

#### 15. PHYLLODIUM Desv.

*P. pulchellum* (L.) Desv. in J. De. B. Desv. Ser. 2, 1:124. t. t, f.24. 1813. *Hedysarum pulchellum* L. Sp. Pl. 747. 1753. *Desmodium pulchellum* (L.) Benth. Fl. Hongk.83. 1861; Duthie, F.U.G.P. 1:260. 1960 (Rep. ed.).

Shrubs, branches angular. Leaves compound, leaflets elliptic or oblong-lanceolate. Flowers white. Pods with 2-joints, glabrate or downy.

Scattered; fl. & fr.: July - Sept. & Oct. - Dec.; Phulai (2); *P.C. Pant* 43264.

#### 16. PUERARIA DC.

*P. tuberosa* (Roxb. ex Willd.) DC in Ann. Sci. Nat. 4:97. 1825; Duthie, F.U.G.P. 1:215. 1960 (Rep. ed.). *Hedysarum tuberosum* Roxb. ex Willd. Sp. Pl. 3:1197. 1802.

Large, woody climbers. Leaves pinnately 3-foliolate, terminal leaflet broadly ovate, lateral ones obliquely ovate, leafless while flowering. Flowers purplish blue. Pods constricted.

Few; fl. & fr.: Apr. - June; Dhangadi-Sultan (12-11); *P.C. Pant* 43545.

#### 17. RHYNCHOSIA Lour. *nom. cons.*

**R. minima** (L.) DC. Prodr. 2:385. 1825; Duthie, F.U.G.P. 1:204. 1960 (Rep. ed.). *Dolichos minimus* L. Sp. Pl. 726. 1753.

Twining herbs. Leaves 3-foliolate, leaflets deltoid, shining yellow glands underneath. Flowers yellow. Pods slightly recurved.

Few; fl. & fr.: Apr. - Oct.; Mailani (17); *P.C. Pant* 72339.

#### 18. SESBANIA Scop.

**S. bispinosa** (Jacq.) W.F. Wight U.S. Deptt. Agri. Bur. Pl. Ind. Bull. 137: 15. 1909. *Aeschynomene bispinosa* Jacq. Ic. Pl. Rar. 3:13. t. 564. 1792. *Sesbania aculeata* Pers. Syn. Pl. 2:316. 1807; Duthie, F.U.G.P. 1:224. 1960 (Rep. ed.).

Shrubby annuals, with hooked prickles. Leaves imparipinnate, leaflets linear, obtuse. Flowers yellow. Pods linear, beaked.

Few; fl. & fr.: Sept. - Nov.; Kalagarh Environs (14); *P.C. Pant* 72208.

#### 19. SHUTERIA Wight & Arn.

**S. involucrata** (Wall.) Wight & Arn. Prodr. 207. 1834. *Glycine involucrata* Wall. Pl. As Rar. 3. 22. t. 241. 1832. *Shuteria densiflora* Benth. in Miq. Jungh. 232. 1852; Duthie, F.U.G.P. 1:212. 1960 (Rep. ed.).

Twining. Leaves 3-foliolate, leaflets ovate. Flowers red-purple on long bracteate racemes. Pods recurved.

Few; fl. & fr.: Dec. - Jan. & Mar. - Apr.; Sultan (11); *P.C. Pant* 43554.

#### 20. SMITHIA W. Ait. *nom. cons.*

**S. sensitiva** W. Ait Hort. t. Kew. ed. 1, 3:496. 1789; Duthie, F.U.G.P. 1:248. 1960 (Rep. ed.).

Erect or diffused herbs, stem slender. Leaves pinnate; leaflets 4-20 pairs, oblong, bristly on margin and mid rib beneath. Flowers yellow. Pods with minute nipple like projections.

Few; fl. & fr.: Aug. - Jan.; On way to Sultan from Dhangadi (12); *P.C. Pant* 72403.

#### 21. TEPHROSIA Pers. *nom. cons.*

1a. Leaflets elliptic; branches clothed with brown or grey pubescence.

*T. candida* L

1b. Leaflets obovate or oblanceolate; branches glabrescent.

*T. purpurea* 2

1. **T. candida** (Roxb.) DC. Prodr. 2:249. 1825; Duthie, F.U.G.P. 1:225. 1960 (Rep. ed.). *Robinia candida* Roxb. Fl. Ind. ed. 2, 3:327. 1832.

Undershrubs with grey brown pubescence. Leaves imparipinnate, leaflets silkily hairy underneath. Flowers white, tinged with red. Pods brown, velvety.

Scattered; fl. & fr.: Aug. - Oct. & Nov. - Dec.; Sultan Environs (11); *P.C. Pant* 43138.

2. **T. purpurea** (L.) Pers. Syn. 2:329. 1807; Duthie, F.U.G.P. 1:225. 1960 (Rep. ed.). *Cracca purpurea* L. Sp. Pl. 752. 1753.

Suberect herbs or undershrubs. Leaves imparipinnate, leaflets with marked parallel venation. Flowers red or purple. Pods glabrescent.

Scattered; fl. & fr.: May - Jan.; Dhulwa East (12); *P.C. Pant* 43059.

## 22. URARIA Desv.

1a. Racemes short, ca 4-6 cm, covered with brown hairs.

*U. lagopodioides* 1

1b. Racemes long, ca 7-18 cm, covered with yellow hairs.

*U. lagopus* 2

1. **U. lagopodioides** (L.) Desv. in Mem. S. Linn. Pairs 4:309. 1826. *Hedysarum lagopodioides* L. Sp. Pl. 1198. 1753. *Uraria alopecuroides* (Roxb.) Wight Ic. Pl. Ind. Or. 1:t. 290. 1840; Duthie, F.U.G.P. 1:252. 1960 (Rep. ed.).

Undershrubs. Leaves 1-3 foliolate, terminal one large, lateral small, ovate or elliptic. Flowers pink. Pods jointed, glabrous.

Scarce; fl. & fr.: Sept. - Nov.; Phulai (2); *P.C. Pant* 43263.

2. **U. lagopus** DC. in Ann. Sci. Nat. 4:100. 1825. *U. neglecta* Prain in Jour. Asi. Soc. Beng. 66(2):382. 1896; Duthie, F.U.G.P. 1:253. 1960 (Rep. ed.).

Hairy shrubs or undershrubs. Leaves 1-3 foliolate, leaflets oblong obovate, nerves impressed below. Flowers purple. Pods 2-6 jointed.

Common; fl. & fr.: Sept. - Oct. & Nov. - Dec.; Gairal (10); *P.C. Pant* 43154.

## 23. VIGNA Savi

1a. Leaflets entire.

*V. radiata* 1

1b. Leaflets lobed.

*V. trilobata* 2

1. **V. radiata** (L.) Wilczekin Fl. Congo Belge 6:386. 1954. *Phaseolus radiatus* L. Sp. Pl. 725. 1753; Duthie, F.U.G.P. 1:207. 1960 (Rep. ed.).

Suberect or twining, pubescent herbs. Leaflets roundish or subdeltoid, appressedly pubescent. Flowers yellow. Pods hairy.

Rare; fl. & fr.: Oct. - Nov.; Gairal (10); *P.C. Pant* 43156.

2. **V. trilobata** (L.) Verdc. in *Taxon* 17:172. 1962. *Dolichos trilobata* L. Mant. 1:101. 1767. *Phaseolus trilobus* auct. *pl.* non (L.) Ait. 1789; Duthie, F.U.G.P. 1:207. 1960 (Rep. ed.).

Trailing herbs. Leaflets glabrous. Flowers yellow. Pods subcylindric. Rare; fl. & fr.: July - Dec.; Phulai (2); *P.C. Pant* 43300.

#### 24. ZORNIA J.F. Gmelin

**Z. gibbosa** Spanoghe in *Linnaea* 15:192., 1841. *Z. diphylla* auct. *pl.* non Pers 1807; Duthie, F.U.G.P. 1:247. 1960 (Rep. ed.).

Diffused, slender herbs. Leaves 2-foliolate, leaflets lanceolate. Flowers yellow. Pods prickly.

Scattered; fl. & fr.: July - Nov.; Sarpaduli Environs (10); *P.C. Pant* 43208.

### 31. CAESALPINIACEAE

- |  |                      |
|--|----------------------|
| 1a. Leaves simple.                           | <i>Bauhinia</i> 1    |
| 1b. Leaves compound.                         |                      |
| 2a. Scandent shrubs armed with prickles.     | <i>Caesalpinia</i> 3 |
| 2b. Herbs, shrubs or Trees without prickles. | <i>Cassia</i> 2      |

#### 1. BAUHINIA L.

- |  |                        |
|--|------------------------|
| 1a. Large climbers with tendrils.                                | <i>B. vahlii</i> 4     |
| 1b. Trees or shrubs without tendrils.                            |                        |
| 2a. Leaves entire or slightly notched at apex                    | <i>B. semla</i> 3      |
| 2b. Leaves with distinctly cleft apex.                           |                        |
| 3a. Leaves acidic.   | <i>B. malabarica</i> 1 |
| 3b. Leaves not acidic.   |                        |
| 4a. Leaves 7-9 nerved; flowers many, small, in long racemes.     | <i>B. racemosa</i> 2   |
| 4b. Leaves 11-15 nerved; flowers few, large, in lateral corymbs. | <i>B. variegata</i> 5  |

1. **B. malabarica** Roxb. [*Hort. Beng.* 31(1814) *nom. nud.*] *Fl. Ind.* ed. 2, 2:321. 1832; Duthie, F.U.G.P. 1:275. 1960 (Rep. ed.). "KHATUWA"

Small-medium sized trees. Bark dark brown or blackish, rough. Leaves broader than long. Flowers dull white. Pods almost straight, flat.

Scattered; fl. & fr.: Aug. - Oct. & Nov. - May; Phulai (2); *P.C. Pant* 43294.

2. **B. racemosa** Lamk. *Encycl. Meth. Bot.* 1:390. 1785; Duthie, F.U.G.P. 1:274. 1960 (Rep. ed.).

Small, deciduous trees. Bark dark grey or black, very rough. Leaves cleft, rounded, cordate. Flowers white. Pods smooth, reddish brown.

Few; fl. & fr.: Mar. - June & Nov. - Jan.; Bijrani (18); *P.C. Pant* 43422.

3. *B. semla* Wanderlin in *Taxon* 25:362. 1976; *B. retusa* Buch. Ham. ex Roxb. *Fl. Ind.* ed. 2, 2:322. 1832; Duthie, *F.U.G.P.* 1:275. 1960 (Rep. ed.).

Moderate sized, deciduous trees. Bark dark reddish brown, rough. Leaves broadly rounded, cordate, apex notched or entire. Flowers creamy white. Pods oblanceolate flat.

Few; fl. & fr.: Sept. - May; Hathipani (3); *P.C. Pant* 43291.

4. *B. vahlii* Wight & Arn. *Prodr. fl. Ind. Or.* 297. 1834; Duthie, *F.U.G.P.* 1:276. 1960 (Rep. ed.). "MALU"

Evergreen, stout climbers. Bark dark reddish-brown, young parts rusty tomentose. Leaves broadly ovate-orbicular, cleft at apex. Flowers white or cream coloured. Pods flat, woody and densely velvety.

Scattered; fl. & fr.: Apr. June & Sept. - Dec.; Mailani (17); *P.C. Pant* 43420.

5. *B. variegata* L. *Sp. Pl.* 375. 1753; Duthie, *F.U.G.P.* 1:277. 1960 (Rep. ed.). "GUIRAL" or "KACHNAR"

Medium sized, deciduous trees. Bark dark brown or ash coloured, rough. Leaves cordate, orbicular. Flowers red-purple. Pods glabrous.

Few; fl. & fr.: Mar. - Apr. & Apr. - May; Dhikala (8); *P.C. Pant* 62822.

## 2. CAESALPINIA L.

*C. bonduc* (L.) Roxb. *Fl. Ind.* ed 2, 2:362. 1832. *Guilandina bonduc* L. *Sp. Pl.* 381. 1753. *Caesalpinia bonducella* (L.) Fleming in *As. Rese.* 11:159. 1810; Duthie, *F.U.G.P.* 1:278. 1960 (Rep. ed.).

Evergreen shrubs. Leaves bipinnate, leaflets 6-10 pairs, oblong, mucronate. Flowers yellow. Pods dehiscent, densely prickly.

Few; fl. & fr.: July - Sept. & Oct. - Dec.; Jhirna (15); *P.C. Pant* 40140.

## 3. CASSIA L.

1a. Leaflets 2-8 pairs, ovate-oblong or elliptic or obovate.

2a. Apex of leaflets acuminate or acute.

3a. Trees.

*C. fistula* 2

3b. Shrubs or undershrubs.

*C. occidentalis* 4

2b. Apex of leaflets obtuse.

4a. Flowers reddish yellow, fruits flat.

*C. absus* 1

4b. Flowers yellow; fruits subterete.

5a. Foliar glands linear; sepals glabrous.

*C. tora* 6

5b. Foliar glands cylindrical; sepals ciliate.

*C. obtusifolia* 3

1b. Leaflets 5-20 pairs, linear-oblong.

*C. pumila* 5

1. *C. absus* L. *Sp. Pl.* 376. 1753; Duthie, *F.U.G.P.* 1:271. 1960 (Rep. ed.).

Herbs, with viscous hairs. Leaves even pinnate, leaflets 4, oblong. Flowers few in raceme. Pods bristly hairy, oblique.

Few; fl. & fr.; July - Aug. & Sept. - Nov.; Bijrani (18); *P.C. Pant* 72322.

2. *C. fistula* L. Sp. Pl. 377. 1753; Duthie, F.U.G.P. 1:268. 1960 (Rep. ed.).

Deciduous trees. Bark pale or ash grey rough. Leaflets paripinnate, ovate to elliptic - oblong. Flowers yellow, showy. Pods terete, woody, more or less 60 cm long.

Few; fl. & fr.: Apr. - July & Oct. - Feb.; Dhikala (8); *K.P. Janardhanan* 51328.

3. *C. obtusifolia* L. Sp. Pl. 377. 1753; Duthie, F.U.G.P. 1:270. 1960 (Rep. ed.).

Herbs or undershrubs. Leaves pinnate, leaflets obovate - oblong. Flowers yellow. Pods linear, beaked.

Abundant; fl. & fr.: July - Oct.; Bijrani (18); *P.C. Pant* 72298.

4. *C. occidentalis* L. Sp. Pl. 377. 1753; Duthie, F.U.G.P. 1:269. 1960 (Rep. ed.).

Foetid plants. Leaves petioles with a gland at base, leaflets ovate - oblong or elliptic lanceolate. Flowers orange yellow. Pods compressed and transversely septate.

Scattered; fl. & fr.: July - Sept. & Oct. - Dec.; Dhulwa East (12); *P.C. Pant* 43061.

5. *C. pumila* Lamk. Encycl. Meth. Bot. 1:651. 1785; Duthie, F.U.G.P. 1:271. 1960 (Rep. ed.).

Diffused herbs or undershrubs. Leaves even pinnate, leaflets linear-oblong, mucronate. Flowers yellow. Pods flat.

Few; fl. & fr.: Sept. - Nov.; Kalagarh (14); *P.C. Pant* 72224.

\* 6. *C. tora* L. Sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. Ind. 2:263. 1878. p.p.

Foetid herbs. Leaves paripinnate, Leaflets 3-pairs obovate, oblong. Flowers paired in short axillary peduncles, three anthers with rounded apex. Pods subterete, beaked at apex.

Abundant; fl. & fr.: Aug. - Nov.; Phulai (2); *P.C. Pant* 43297.

### 32. MIMOSACEAE

1a. Armed plants.

2a. Stamens 8-10.

2b. Stamens as many as 100.

1b. Unarmed trees.

*Mimosa* 3

*Acacia* 1

*Albizia* 2

## 1. ACACIA Mill.

## 1a. Climbers.

2a. Branches fluted; leaflets pubescent.

*A. torta* 4

2b. Branches not fluted; leaflets glabrous.

*A. pennata* 2

## 1b. Trees or shrubs.

3a. Flowers in globose heads.

*A. pseudo-eburnea* 3

3b. Flowers in axillary spikes.

*A. catechu* 1

1. *A. catechu* (L.f.) Willd. Sp. Pl. 4:1079. 1806; Duthie., F.U.G.P. 1:290. 1960 (Rep. ed.). *Mimosa catechu* L. f. Suppl. Pl. 439. 1781.

Medium sized, deciduous trees. Bark dark brown or grey, rough. Leaves pinnate, leaflets 30-50 pairs, linear. Flowers pale yellow or white. Pods thin, flat, sometimes constricted.

Frequent; fl. & fr.: Apr. - Aug. & Sept. - Feb.; Jhirna (15); *P.C. Pant* 43427.

2. *A. pennata* (L.) Willd. Sp. Pl. 4:1090. 1806; Duthie, F.U.G.P. 1:293. 1960 (Rep. ed.). *Mimosa pennata* L. Sp. Pl. 1507. 1753.

Large, climbing shrubs; rachis glandular at base. Leaves pinnate, leaflets linear, obtuse. Flowers pale white. Pods reddish brown, glabrous.

Scattered; fl. & fr.: June - Aug. & Sept. Dec.; Jhirna (15); *P.C. Pant* 40138.

3. *A. pseudo-eburnea* J.R. Drumm. in Kew Bull. 1922:185. 1922; Raizada Suppl. Duthie's, F.U.G.P. 66. 1976.

Deciduous trees or shrubs. Bark dark grey to reddish-brown, rough. Leaves pinnate; leaflets linear-oblong. Flowers pale yellow, fragrant. Pods narrowly ligulate.

Scattered; fl. & fr.: Nov. - Feb. & Apr. - May; Mailani Environs (17); *P.C. Pant* 43601.

4. *A. torta* (Roxb.) Craib in Kew Bull. Misc. Inform. 1915:410. 1915. *Mimosa torta* Roxb. Fl. Ind. ed. 2, 2:566. 1832. *Acacia caesia* Wight & Arn. Prodr. 278. 1834; Duthie, F.U.G.P. 1:293. 1960 (Rep. ed.).

Rambling climbers, branches somewhat 5-angled. Bark pale-brown, smooth. Leaves pinnate, leaflets narrowly oblong. Flowers white-pale yellow. Pods flat, minutely hairy.

Few; fl. & fr.: Aug. Sept. & Oct. Apr.; *P.C. Pant* 43348.

## 2. ALBIZIA Durazz.

1a. Leaflets Shining green; pods straw-coloured.

*A. lebbeck* 1

1b. Leaflets dull green; pods reddish brown.

2a. Leaflets 1.5 - 2.5 cm. broad.

*A. procera* 3

2b. Leaflets 0.5 - 0.8 cm broad

*A. odoratissima* 2

1. **A. lebeck** (L.) Benth. in Hook. Lond. Jour. Bot. 3:87. 1844; Duthie, F.U.G.P. 1:295. 1960 (Rep. ed.). *Mimosa lebeck* L. Sp. Pl. 516. 1753. "KALA-SIRIS".

Large, deciduous trees. Bark dark-brown, rough. Leaves pinnate, leaflets, lateral, ones obliquely oblong, terminal obovate. Flowers greenish-white, fragrant. Pods compressed, thin.

Few; fl. & fr.: Apr. June & Oct. Dec.; Dhara Sot Environs (15); K.P. Jaanardhanan 51491.

2. **A. odoratissima** (L.f.) Benth. in Hook. Lond. Jour. Bot. 3:88. 1844; Duthie, F.U.G.P. 1:296. 1960 (Rep. ed.). *Mimosa odoratissima* L.f. Suppl. Pl. 437. 1781.

Subdeciduous trees. Bark dark-grey, rough. Leaves even Pinnate, leaflets obliquely oblong. Flowers yellowish-white, fragrant. Pods thin, flat.

Few; fl. & fr.: Apr. - June & Sept. - Dec.; On Way to Sarpaduli (10); P.C. Pant 43188.

3. **A. procera** (Roxb.) Benth. in Hook. Lond. Jour. Bot. 3:89. 1844; Duthie, F.U.G.P. 1:296. 1960 (Rep. ed.). *Mimosa procera* Roxb. Pl. Cor. 2:12. t. 121. 1798.

Subdeciduous trees. Bark yellowish or greenish-white, smooth. Leaves even pinnate, leaflets ovate to ovate-oblong. Pods glabrous, flexible.

Few; fl. & fr.: June - Aug. & Dec. - May Amgadi Sot (11); P.C. Pant 43187.

### 3. MIMOSA L.

**M. rubicaulis** Lamk. Encyl. Meth. Bot. 1:20. 1783. Subsp. *himalayana* (Gamble) Ohashi Comb. et Stat. nov. *M. rubicaulis* sensu Baker in Hook. f. Fl. Brit. Ind. 2:291. 1878. p.p. non Lamk. 1783; Duthie, F.U.G.P. 1:286. 1960 (Rep. ed.).

Deciduous, prickly shrubs. Bark pale-brown. Leaves bipinnate, leaflets oblong. flowers pink, fading to white. Pods thin, falcate.

Scattered; fl. & fr.: July - Sept. & Oct. - Dec.; Paternallaha (14); P.C. Pant 40142.

## 33. ROSACEAE (Rose Family)

1a. Trailing herbs.

*Duchesnea* 1

1b. Shrubs.

*Rubus* 2

### 1. DUCHESNEA J.E. Smith

**D. indica** (Andr.) Focke Pl. lanzenfam. 111.3:33. 1888. *Fragaria indica* Andr. Bot. Repos. 7:t. 479. 1807; Duthie, F.U.G.P. 1:300. 1960 (Rep. ed.).



Silky hairy herbs. Leaves compound, long stalked, leaflets obovate rhomboid. Flowers yellow. Fruits globose, bright red.

Few; fl. & fr.: Apr. Dec.; On way to Sultan (11); *P.C. Pant* 43565.

2. **RUBUS** L.

- 1a. Leaflets orbicular, obovate or elliptic; flowers white. *R. ellipticus* 1
- 1b. Leaflets ovate-elliptic or ovate-lanceolate; flowers pink. *R. niveus* 2

1. **R. ellipticus** Smith in Rees Cyclop. 30:16.1819; Duthie, F.U.G.P. 1:299. 1960 (Rep. ed.). "*HISALU*".

Prickly shrubs. Leaves 3-foliolate, leaflets toothed. Flowers many. Fruits globose, succulent, golden yellow.

Few; fl. & fr.: Feb. Mar. & Apr. - June; Kanda (3); *P.C. Pant* 43784.

2. **R. niveus** Thunb. Diss. Robo. 9, f. 3.1813. *R. lasiocarpus* Smith in Rees Cyclop. 30: n. 6.1815; Duthie, F.U.G.P. 1:299. 1960 (Rep. ed.).

Rambling, prickly shrubs. Leaves imparipinnate, 5-9 foliolate. Flowers axillary or terminal, in simple or paniced corymbs. Fruits globose.

Few; fl. & fr.: Jan. - Apr. & May - June; On way to Sultan (12); *P.C. Pant* 43537.

34. **CRASSULACEAE** (Orpine Family)

**KALANCHOE** Adans.

**K. integra** (Medik.) O. Kuntze Rev. Gen. Pl. 1:221. 1891. *Cotyledon integra* Medik. Acta. Acad. Theod. Palat. 3:200 t. 49. 1775. *Kalanchoe spathulata* DC. Pl. Hist. Succ. 2:t. 65. 1801; Duthie, F.U.G.P. 1:306. 1960 (Rep. ed.).

Succulent, perennial herbs. Leaves oblong - spathulate, perfoliate. Flowers yellow. Follicles in papery calyx and corolla.

Few; fl. & fr.: Throughout the year; Kanda (3); *P.C. Pant* 43301.

35. **COMBRETACEAE** (Combretum Family)

- 1a. Trees.
  - 2a. Flowers in spikes or racemes. *Terminalia* 3
  - 2b. Flowers in globose heads. *Anogeissus* 1
- 1b. Undershrubs. *Combretum* 2

1. **ANOGEISSUS** Wall.

**A. latifolius** (Roxb. ex DC.) Bedd. Fl. Sylvat. t. 15. 1869; Duthie, F.U.G.P. 1:312. 1960 (Rep. ed.). *Conocarpus latifolius* Roxb. [Hort. Beng. 34. (1814) *nom. nud.*] ex DC. Prodr. 3:17. 1828. "*BAKLI*"

Medium sized or tall trees. Bark greenish white, smooth. Leaves elliptic-ovate or ovate-lanceolate. Flowers small, greenish. Fruits compressed, winged.

Frequent; fl. & fr.: July Sept. & Oct. Feb.; Mailani (17); *P.C. Pant* 43424.

## 2. COMBRETUM Loefl. *nom. cons.*

**C. nanum** Buch.- Ham. ex D. Don Prodr. Fl. Nep. 219. 1825; Duthie, F.U.G.P. 1:311. 1960 (Rep. ed.).

Decumbent, glabrous, rootstock woody. Leaves obovate or ovate-lanceolate. Flowers white. Fruits with 4 wings.

Few; fl. & fr.: Mar. May & June Aug.; Dhikala Chaur (8); *P.C. Pant* 43730.

## 3. TERMINALIA L. *nom. cons.*

1a. Leaves crowded towards the ends of branches; petiole *Ca* 3.5 - 5.5 cm long.

*T. bellirica* 2

1b. Leaves scattered on branches; petiole *Ca.* .07 - 2.5 cm long

2a. Fruit coriaceous with distinct wings.

*T. alata* 1

2b. Fruit fleshy without wings.

*T. chebula* 3

1. **T. alata** Heyne ex Roth Nov. Pl. Ind. Or. 379. 1821. *T. tomentosa* (Roxb.) Wight & Arn. Prodr. Fl. Ind. Or. 1:314. 1834; Duthie, F.U.G.P. 1:310. 1960 (Rep. ed.). "SAIN" or "SAJ"

Tall, deciduous trees. Bark dark brown or grey, rough. Leaves oblong or ovate. Flowers dull yellow. Fruits transversely striate and indehiscent.

Scattered; fl. & fr.: May Aug. & Nov. Mar.; Mailani (17); *P.C. Pant* 43243.

2. **T. bellirica** (Gaertn.) Roxb. Pl. Cor. 2:54. t. 198. 1805; Duthie, F.U.G.P. 1:308. 1960 (Rep. ed.). *Myrobalanus bellirica* Gaertn. Fruct. 2:90. t. 97. f. a-d. 1791.

Large, deciduous trees. Bark dark grey or ash coloured, rough. Leaves broadly elliptic or obovate, sometimes glandular. Flowers greenish yellow. Drupes globose or ovoid.

Scattered; fl. & fr.: Apr. - June & Oct. - Dec.; Pichari Parao Boxar (8); *K.P. Janardhanan* 51336.

3. **T. chebula** Retz. obs. 5:31.1789; Duthie, F.U.G.P. 1:309. 1960(Rep. ed.). "HARRAH"

Deciduous trees. Bark dark brown, rough. Leaves elliptic or ovate-oblong; petiole usually glandular. Flowers yellow or dull white. Drupes obovoid or ellipsoid.

Few; fl. & fr.: Apr. June & Nov. Feb.; Kanda (3); *P.C. Pant* 43305.

### 36. MYRTACEAE (Myrtle Family)

- 1a. Lateral nerves of leaves distant and without intramarginal nerve *Cleistocalyx* 1  
 1b. Lateral nerves of leaves very close and uniting to form an intramarginal nerve *Syzygium* 2

#### 1. CLEISTOCALYX Blume

**C. operculatus** (Roxb.) Merr. & Perry in Journ. Arn. Arb. 18:337. t. 215. f. 41-48. 1937. *Eugenia operculata* Roxb. [Hort. Beng. 37. (1814) *nom. nud.*] Fl. Ind. ed. 2, 2:486. 1832; Duthie, F.U.G.P. 1:314. 1960 (Rep. ed.).

Small, evergreen trees. Bark pale brown, rough. Leaves elliptic-oblong or broadly elliptic-ovate. Flowers greenish white, fragrant. Berries globose or ellipsoid, purple coloured.

Scattered; fl. & fr.: Apr. May & June Aug.; Gaujpani (15); *P.C. Pant* 43815.

#### 2. SYZYGIUM Gaertn. *nom. cons.*

**S. cumini** (L.) Skeels in U.S. Dept. Agri. Bur. Pl. Industr. Bull. 248:25. 1912. *Myrtus cumini* L. Sp. Pl. 471. 1753. *Eugenia jambolana* Lamk. Encycl. Meth. Bot. 3:198. 1789; Duthie, F.U.G.P. 1:314. 1960 (Rep. ed.). "JAMUN"

Large, evergreen trees. Bark grey or brown, rough. leaves broadly elliptic or obovate. Flowers greenish, fragrant. Berries globose or ellipsoid, ripe ones, black.

Common; fl. & fr.: Apr. - June & June - Aug.; Mailani Environs (17); *P.C. Pant* 43623.

### 37. LECYTHIDACEAE (Brazil-Nut Family)

#### CAREYA Roxb. *nom. cons.*

**C. arborea** Roxb. Pl. Cor. 3:14, t. 218. 1811; Duthie, F.U.G.P. 1:317. 1960 (Rep. ed.). "KUMBHI"

Large, deciduous trees. Bark dark grey or brown, fibrous. Leaves broadly obovate or oblanceolate. Flowers cream coloured, unpleasant smelling. Berries globose and woody.

Few; fl. & fr.: Mar. Apr. & July; Mailani (17); *P.C. Pant* 43617.

### 38. MELASTOMATACEAE (Melastoma Family)

#### SONERILA Roxb. *nom. cons.*

**S. tenera** Royle Illus. Bot. Himal. 215. t. 45. f. 2. 1934; Duthie, F.U.G.P. 1:319. 1960 (Rep. ed.).

Delicate herbs. Leaves ovate, base 3-5 nerved. Flowers white-rose purple. Capsules trigonous.

Scarce; fl. & fr.: Sept. & Nov.; Dhulwa Block (12); *P.C. Pant* 43125.

### 39. LYTHRACEAE (Loosestrife Family)

#### 1a. Herbs.

2a. Flowers axillary, solitary or in spikes; Capsules septicidal. *Rotala* 3

2b. Flowers in whorls or cyme; capsules indeltescent or bursting irregularly. *Ammannia* 1

#### 1b. Shrubs or trees

3a. Shrubs; calyx tubular. *Woodfordia* 4

3b. Trees; calyx cupular or campanulate. *Lagerstroemia* 2

#### 1. AMMANNIA. L.

1a. Leaf base auricled or subhastate; flowers peduncled. *A. multiflora* 2

1b. Leaf base narrowed or rounded; flowers sessile. *A. baccifera* 1

1. *A. baccifera* L. Sp. Pl. 120. 1753; Duthie, F.U.G.P. 1:321. 1960 (Rep. ed.).

Erect herbs. Leaves large ones, elliptic-lanceolate and small obovate-oblong. Flowers red. Capsules globose.

Few; fl. & fr.: Aug. - Jan; Mailani (17); *K.P. Janardhanan* 51346.

2. *A. multiflora* Roxb. [Hort. Beng. 11(1814). nom. nud.] Fl. Ind. ed. 2, 1:427. 1832; Duthie, F.U.G.P. 1:322. 1960 (Rep. ed.).

Erect herbs, stem quadrangular. Leaves linear-oblong. Flowers red. Capsules globose.

Scattered; fl. & fr.: Sept. - Nov.; Bijrani, Kichar Sot (18); *P.C. Pant* 43392.

#### 2. LAGERSTROEMIA L.

*L. parviflora* Roxb. Pl. Cor. 1:47, t. 66. 1795; Duthie, F.U.G.P. 1:324. 1960 (Rep. ed.).

Deciduous trees. Bark grey or reddish-brown, smooth. Leaves oblong, narrow, elliptic or ovate-lanceolate. Flowers white, fragrant. Capsules ovoid or ellipsoid, woody.

Scattered; fl. & fr.: Apr. - June & Aug. - Dec.; On Way to Mailani (17); *P.C. Pant* 43390.

#### 3. ROTALA L.

1a. Stems tufted and very thin. *R. mexicana* 2

1b. Stems not tufted and thick.

- 2a. Erect or decumbent herbs; flowers in axillary branches. *R. indica* 1  
 2b. Creeping herbs; flowers in terminal spikes. *R. rotundifolia* 3

1. **R. indica** (Willd.) Koehne in Bot. Jahrb. 1:172. 1880. *Peplis indica* Willd. Sp. Pl. 2. 244. 1799. *Ammannia peploides* Spreng. Syst. Veg. 1:444. 1825; Duthie, F.U.G.P. 1:320. 1960 (Rep. ed.).

Herbs with quadrangular stem. Leaves elliptic or obovate. Flowers red. Capsules ellipsoid.

Scarce; fl. & fr.: Sept. Jan.; Sarpaduli on Dhikala Road (10); K.P. Janardhanan 51262.

2. **R. mexicana** Cham et Schlechtend in Linnaea. 5:567. 1830. *Ammannia pygmaea* Kurz in Jour. Bot. 5:376. 1867; Duthie, F.U.G.P. 1:321. 1960 (Rep. ed.).

Small herbs with tufted stem. Leaves linear or narrowly oblong. Flowers minute, pink. Capsules globose.

Few; fl. & fr.: Aug. Jan.; Sarpaduli (10); K.P. Janardhanan 51219.

3. **R. rotundifolia** (Buch. - Ham. ex Roxb.) Koehne in Bot. Jahrb. 1:175. 1880. *Ammannia rotundifolia* Buch.-Ham. ex [Roxb. Hort. Beng. 11 (1814), *nom. nud.*] Roxb. Fl. Ind. 1:446. 1820; Duthie, F.U.G.P. 1:320. 1960 (Rep. ed.).

Glabrous herbs. Leaves sessile, orbicular or broadly elliptic. Flowers pink. Capsules ellipsoid.

Scattered; fl. & fr.: Oct. Feb.; Bijrani (18); P.C. Pant 43583.

#### 4. WOODFORDIA Salisb.

**W. fruticosa** (L.) Kurz in Jour. Asiat. Soc. Beng. 40(2): 56. 1871. *Lythrum fruticosum* L. Sp. Pl. ed. 2, 1:641. 1762. *Woodfordia floribunda* Salisb. Parad. Lond. t. 42. 1806; Duthie, F.U.G.P. 1:323. 1960 (Rep. ed.).

Large shrubs. Bark reddish-brown. Leaves opposite or whorled, lanceolate or ovate-lanceolate. Flowers scarlet, showy. Capsules within calyx.

Frequent; fl. & fr.: Feb. Apr. & May June; Panod Nallaha (18); P.C. Pant 43520.

### 40. ONAGRACEAE (Evening Primrose Family)

- 1a. Flowers pink; capsules clavate. *Oenothera* 2  
 1b. Flowers yellow; capsules linear or oblong. *Ludwigia* 1

#### 1. LUDWIGIA L.

- 1a. Leaves lanceolate or linear; stamens twice as many as calyx-lobes; seeds pluriseriate. *L. octovalvis* 1

- 1b. Leaves elliptic-ovate; stamens as many as calyx-lobes; seeds uniseriate.

*L. prostrata* 2

1. *L. octovalvis* (Jacq.) Raven in Kew Bull. 15: 476. 1962. *Oenothera octovalvis* Jacq. Enum. Syst. Pl. 19. 1760. *Jussiaea suffruticosa* L. Sp. Pl. 388. 1753; Duthie, F.U.G.P. 1: 327. 1960 (Rep. ed.).

Herbs. Leaves narrowing to the base. Flowers on short stalks. Capsules linear, ribbed.

Rare; fl. & fr.: Apr. - Dec.; Bijrani (18); *P.C. Pant* 43585.

2. *L. prostrata* Roxb. Fl. Ind. 1: 441. 1820; Duthie, F.U.G.P. 1:327. 1960 (Rep. ed.).

Erect or decumbent herbs. Leaves glabrous, cuneate at base. Flowers sessile, axillary. Capsules 4-angled.

Scattered; fl. & fr.: Sept. - Dec.; Bijrani (18); *P.C. Pant* 72300.

## 2. OENOTHERA L.

*O. rosea* L'Herit ex Ait. Hort. Kew. 2:3. 1789; Duthie, F.U.G.P. 1:328. 1960 (Rep. ed.).

Herbs. Stem cylindrical, pinkish tinged. Leaves alternate, acute at apex. Flowers solitary, axillary. Capsules dumble shaped.

Few; fl. & fr.: Mar. - Dec.; Gairal, along Ramganga River Bank (10); *P.C. Pant* 43662.

## 41. CUCURBITACEAE (Gourd Family)

1a. Flowers yellow.

2a. Stem glabrous or pilose; leaves pedately lobed.

3a. Leaves punctate on upper surface; fruits globose with longitudinal strips.

*Bryonopsis* 1

3b. Leaves glabrous or pubescent on surfaces; fruits fusiform and tubercled.

*Momordica* 2

2b. Stem highly scabrous; leaves entire or slightly lobed.

*Mukia* 3

1b. Flowers white.

*Trichosanthes* 4

## 1. BRYONOPSIS Arn.

*B. laciniosa* (L.) Naud. Ann. Sci. Nat. 4. Ser. 12:141. 1859; Duthie, F.U.G.P. 1:349. 1960 (Rep. ed.). *Bryonia laciniosa* L. Sp. Pl. 1013. 1753.

Climbing herbs, tendril bifid. Leaves petioled, lobes oblong lanceolate. Flowers monoecious. Fruits red when ripe.

Scattered; fl. & fr.: Aug. - Dec.; Amgadi - Dhangadi (12); *P.C. Pant* 72391.

## 2. MOMORDICA L.

**M. charantia** L. Sp. Pl. 1009. 1753; Duthie, F.U.G.P. 1:328. 1960 (Rep. ed.).

Climbing herbs, tendrils undivided. Leaves reniform - orbicular. Flowers monoecious, male bracteate, female ebracteate. Fruits orange-yellow on ripening.

Few; fl. & fr.: Apr. Dec.; Jhirna (15); *K.P. Janardhanan* 51503.

## 3. MUKIA Arn.

**M. maderaspatana** (L.). M. Roem. Syn. Monogr. 2:47. 1846. *Cucumis maderaspatana* L. Sp. Pl. 1012. 1753; *Melothria maderaspatana* (L.) Cogn. in DC. Monog. Phan. 3:623. 1881; Duthie, F.U.G.P. 1:347. 1960 (Rep. ed.).

Scandent or prostrate herbs, tendrils undivided. Leaves ovate or subdeltoid, surfaces very rough. Flowers monoecious. Fruits globose, bright red on ripening.

Scarce; fl. & fr.: July Dec.; Jhirna (15); *P.C. Pant* 40139.

## 4. TRICHOSANTHES L.

1a. Leaves 5 or 3-7 lobed.

2a. Leaves distantly denticulate; petiole weak, slender.

*T. cucumerina* 2

2b. Leaves closely denticulate; petiole robust, thick.

*T. bracteata* 1

1b. Leaves not lobed.

*T. dioica* 3

\*\*1. **T. bracteata** (Lamk.) Voigt Hort. Suburb. Calc. 58. 1845. *Modecca bracteata* Lamk. Encycl. Meth. Bot. 4:210. 1797. *Trichosanthes palmata* Roxb. Fl. Ind. ed. 2, 3:704. 1832; Duthie, F.U.G.P. 1:332. 1960 (Rep. ed.).

Extensive, stout climbers, tendrils 3-fid. Leaves broadly ovate or suborbicular. Male flowers on two axillary stalks, one bearing solitary flower other a bracteate raceme, female solitary, axillary. Fruits globose, red and streaked.

Few; fl. & fr.: July Nov.; Gairal Mottia Sot (10); *K.P. Janardhanan* 51152.

2. **T. cucumerina** L. Sp. Pl. 1008. 1753; Duthie, F.U.G.P. 1:333. 1960 (Rep. ed.).

Large climbers, tendrils slender, 2-3 fid. Leaves orbicular, reniform or broadly ovate. Male flowers on long peduncle, female on short ones. Fruits ovoid.

---

\*\*Hara et al. treated this species under *Trichosanthes tricuspidata* Lour. [An enumeration of the flowering plants of Nepal 2:180. 1979].

Few; fl. & fr.: July - Dec.; On Way to Kothi Rau, Jhirna (15); *P.C. Pant* 43467

3. **T. dioica** Roxb. Fl. Ind. ed. 2, 3:701. 1832; Duthie F.U.G.P. 1:334. 1960 (Rep. ed.).

Climbing, villous herbs, tendril 2-4 fid. Leaves cordate, ovate-oblong. Male flowers paired, female solitary. Fruits oblong, orange red on ripening.

Few; fl. & fr.: Mar. - Sept.; On Way to Paterpani (8); *P.C. Pant* 43805.

#### 42. PASSIFLORACEAE (Passion Flower Family)

##### PASSIFLORA L.

**P. foetida** L. Sp. Pl. 959. 1753; Raizada Suppl. Duthie's. F.U.G.P. 80. 1976.

Twining herbs, with axillary tendrils. Leaves ovate, 3-lobed. Flowers white. Fruits globose.

Few; fl. & fr.: July - Dec.; Jhirna (15); *K.P. Janardhanan* 51500.

#### 43. BEGONIACEAE (Begonia Family)

##### BEGONIA L.

**B. picta** J.E. Smith Exot. Bot. 2:81. t. 101. 1805; Raizada Suppl. Duthie's F.U.G.P. 82. 1976.

Succulent herbs. Leaves ovate, cordate, margin finely serrate. Flowers monoecious, pink. Capsules unequally winged.

Few; fl. & fr.: July - Oct.; Bijrani Forest Compartment No.2 (18); *P.C. Pant* 72329.

#### 44. MOLLUGINACEAE

##### MOLLUGO L.

**M. pentaphylla** L. Sp. Pl. 89. 1753; Duthie, F.U.G.P. 1:355. 1960 (Rep. ed.).

Erect, dichotomously branched herbs. Leaves lanceolate to obovate and obtuse. Flowers very small, white, tinged with red. Capsules globose.

Scattered; fl. & fr.: Mar. - Nov.; On Way to Gairal from Sultan (11); *P.C. Pant* 72440.

#### 45. APIACEAE (Carrot Family)

1a. Prostrate, creeping herbs.

*Cemella* 2

1b. Erect herbs.

2a. Leaves pinnate.

*Peucedanum* 3

2b. Leaves simple.

*Bupleurum* 1



## 1. BUPLEURUM L.

**B. hamiltonii** Balakr. in Jour. Bomb. nat. Hist. Soc. 63:328. 1966. *B. tenue* Buch. - Ham ex D. Don. Prodr. Fl. Nep. 182. 1825; Duthie, F.U.G.P. 1:359. 1960 (Rep. ed.).

Herbs. Leaves linear, linear-oblong. Flowers very small, yellow. Fruits, broadly oblong, yellowish brown.

Few; fl. & fr.: Apr. - Dec.; On Way to Mailani (17); *P.C. Pant* 43626.

## 2. CENTELLA L.

**C. asiatica** (L.) Urban in Mart. Fl. Bras. 11:287. t. 78. f. 1. 1879. *Hydrocotyle asiatica* L. Sp. Pl. 234. 1753; Duthie, F.U.G.P. 1:358. 1960 (Rep. ed.).

Herbs, rooting at nodes. Leaves orbicular - reniform. Flowers small, pink. Fruits laterally compressed.

Scattered; fl. & fr.: Apr. - Dec.; Sarpaduli Environs (10); *P.C. Pant* 43199.

## 3. PEUCEDANUM L.

**P. dhana** Wall. [Cat. 244. n. 7216. (1832) *nom nud.* ] ex C.B. Clarke in Hook. f. Fl. Brit. Ind. 2:709. 1879; Duthie, F.U.G.P. 1:363. 1960 (Rep. ed.).

Glabrous herbs. Leaves linear-oblong or ovate, 3-partite. Flowers small, yellow. Fruits ellipsoid, compressed.

Few; fl. & fr.: Apr. - June; Dhikala Chaur (8); *P.C. Pant* 43727

## 46. ALANGIACEAE

ALANGIUM Lamk. *nom. cons.*

**A. salvifolium** (L. f.) Wang. in Engl. Pflerich. 41:9. 1910. *Grewia salvifolia* L. f. Suppl. Pl. 409. 1781. *Alangium lamarckii* Thwaites Enum. Pl. Zey. 135. 1859; Duthie, F.U.G.P. 1:368. 1960 (Rep. ed.).

Small, deciduous trees, often thorny. Bark pale - brown, smooth. Leaves oblong, elliptic lanceolate. Flowers white, fragrant. Berries globose or ellipsoid.

Few; fl. & fr.: Feb. - May & June - July; On way to Kothi Rau (15); *P.C. Pant* 43832.

## 47. RUBIACEAE (Madder Family)

## 1a. Herbs.

2a. Stem fleshy; runners often present; leaves membranous.

*Argostemma* 2

2b. Stem not fleshy; runners never present; leaves not membranous.

3a. Diffused; leaves whorled.

*Galium* 5

3b. Erect or procumbent; leaves opposite.

- 4a. Flowers in terminal trichotomous Corymbose cymes. *Knoxia* 9
- 4b. Flowers in axillary and terminal cymes.
- 5a. Seeds planoconvex. *Hedyotis* 7
- 5b. Seeds oblong, grooved ventrally *Borreria* 3
- 1b. Shrubs and trees:
- 6a. Armed.
- 7a. Flowers large; corolla salver shaped. *Gardenia* 6
- 7b. Flowers small, corolla hypocrateriform. *Xeromphis* 13
- 6b. Unarmed.
- 8a. Shrubs.
- 9a. Flowers big, solitary or upto 3. *Coffea* 4
- 9b. Flowers small, many.
- 10a. Leaves with arcuate lateral nerves; branchlets smooth, polished; flowers bluish mauve in terminal trichotomous panicle. *Spermadictyon* 11
- 10b. Leaves with straight lateral nerves; branchlets puberulous, not polished; flowers white in terminal trichotomous corymbose cyme. *Pavetta* 10
- 8b. Trees.
- 11a. Leaves broadly orbicular-cordate *Adina* 1
- 11b. Leaves lanceolate, ovate-elliptic or suborbicular
- 12a. Leaves coriaceous, densely grey tomentose underneath, lateral nerves 7-10 pairs; fruiting branches and capsule not lenticellate. *Wendlandia* 12
- 12b. Leaves membranous; surfaces finely pubescent, lateral nerves 12-20 pairs; fruiting branches and capsule lenticellate. *Hymenodictyon* 8

### 1. ADINA Salisb.

*A. cordifolia* (Willd. ex Roxb.) Benth. & Hook. f. ex Brand. For. Fl. 263, t. 33. 1874; Duthie, F.U.G.P. 1:375. 1960 (Rep. ed.), *Nauclea cordifolia* Willd. ex. Roxb. Pl. Cor. 1:40, t. 53. 1795. "HALDU"

Large deciduous trees, base usually buttressed. Bark partly brownish-grey and partly ash-silvery white, rough. Leaves apex acuminate. Flowers yellow. Fruits cuneate, downy.

Scattered; fl. & fr.: June Aug. & Apr. May; Bijrani (18); P.C. Pant 43402.

## 2. ARGOSTEMMA Wall.

**A. sarmentosum** Wall. in Roxb. Fl. Ind. 2:324. 1824; Duthie, F.U.G.P. 1:379. 1960 (Rep. ed.).

Delicate herbs, with runners. Leaves orbicular-elliptic or broadly obovate. Flowers white. Fruits 2-celled.

Rare; fl. & fr.: Aug. - Nov.; Bijrani (18); *P.C. Pant* 72328.

3. BORRERIA G.F.W. Mey *nom cons.*

1a. Procumbent herbs; leaves spatulate-oblong.

*B. articularis* 1

1b. Erect herbs; leaves linear-lanceolate.

*B. pusilla* 2

1. **B. articularis** (L.f.) F.N. Williams in Bull. Herb. Boiss. 2(5): 956. 1905. *Spermacoce articularis* L. f. Suppl. Pl. 119. 1781. *S. hispida* L. Sp. Pl. 102. 1753; Duthie, F.U.G.P. 1:395. 1960 (Rep. ed.).

Hispid or subglabrous herbs. Leaf surfaces scabrous. Flowers light violet or blue. Fruits oblong.

Scattered; fl. & fr.: Mar. - Dec.; Paterpani (8); *P.C. Pant* 40153.

2. **B. pusilla** (Wall.) DC. Prodr. 4:543. 1830. *Spermacoce pusilla* Wall. in Roxb. Fl. Ind. 1:379. 1820. *S. stricta* L. f. Suppl. Pl. 120. 1781; Duthie, F.U.G.P. 1:394. 1960 (Rep. ed.).

Slender herbs. Leaves sessile, acute. Flowers white. Fruits membranous.

Scattered; fl. & fr.: Aug. -Dec.; Sarpaduli (10); *P.C. Pant* 43209.

## 4. COFFEA L.

**C. benghalensis** Heyne ex Roem. & Schult. Syst. Veg. 5:200. 1819, *C. bengalensis* Roxb. Fl. Ind. ed. 2, 1:540. 1832; Duthie, F.U.G.P. 1:391. 1960. (Rep. ed.).

Deciduous shrubs. Bark brownish-grey. Leaves elliptic or broadly ovate. Flowers white, fragrant. Fruits globose or ovoid.

Few; fl. & fr.: Mar. - Dec.; Dhikala (8); *P.C. Pant* 43702.

## 5. GALIUM L.

**G. vestitum** D. Don Prodr. 133. 1825.; Raizada Suppl. Duthie's, F.U.G.P. 92. 1976.

Scaberulously pubescent herbs. Leaves oblanceolate. Flowers minute, white. Fruits globular, with hooked hairs.

Abundant; fl. & fr.: Feb. May; Dhikala along Ramganga Bank (8); *P.C. Pant* 61746.

6. GARDENIA Ellis *nom cons.*

**G. turgida** Roxb. Fl. Ind. 2:557. 1824; Duthie, F.U.G.P. 1:388. 1960 (Rep. ed.).

Deciduous thorny trees. Bark Bluish-grey, smooth. Leaves obovate, elliptic or suborbicular. Flowers white. Fruits globose.

Scarce; fl. & fr.: Mar. May & Dec. Jan.; Phulai (2); P.C. Pant 43747.

## 7. HEDYOTIS L.

1a. Flowers in sessile cymes.

2a. Stem erect, slender.

*H. pinifolia* 4

2b. Stem creeping or pendulous thick.

*H. verticillata* 5

1b. Flowers in long peduncled cymes.

3a. Leaves narrow, linear-lanceolate.

4a. Corolla tube long, flowers pale brown.

*H. gracilis* 2

4b. Corolla tube short, flowers white.

*H. corymbosa* 1

3b. Leaves broad, ovate-elliptic

*H. ovatifolia* 3

1. **H. corymbosa** (L.) Lamk Tab. Encycl. 1. 272. 1792. *Oldenlandia corymbosa* L. Sp. Pl. 119. 1753; Duthie, F.U.G.P. 1:380. 1960 (Rep. ed.).

Prostrate, straggling herbs. Leaves sessile, acute. Flowers axillary, solitary or 2-3-flowered, peduncles. Fruits globose.

Scattered; fl. & fr.: June Jan.; High Bank Sarpaduli (10); K.P. Janardhanan 51270.

\*\*2. **H. gracilis** Wall. in Roxb. Fl. Ind. 1:371. 1820. *Oldenlandia gracilis* (Wall.) Hook. f. Fl. Brit. Ind. 3:68. 1880; Duthie, F.U.G.P. 1:382. 1960 (Rep. ed.).

Erect herbs. Leaves glabrous, acuminate. Flowers on long, slender pedicels. Fruits obovoid, globose or hemispheric.

Rare; fl. & fr.: Mar. - June; Dhikala Chaur (8); P.C. Pant 43641.

3. **H. ovatifolia** Cav. Icon. Pl. Hisp. 6:52, t. 573, f. 1. 1801. *Oldenlandia nudicaulis* Roth Nov. Pl. Ind. Or. 96. 1821; Duthie, F.U.G.P. 1:382. 1960 (Rep. ed.).

Small herbs. Leaves usually 4-in a whorl, membranous. Flowers white. Fruits hemispheric.

Scattered; fl. & fr.: Aug. Nov; Phulai (2); P.C. Pant 43278.

4. **H. pinifolia** Wall. [Cat. 25, n. 850 (1829), *nom nud.*] ex G. Don Gen. Syst. 3:526. 1834; Duthie, F.U.G.P. 1:379. 1960 (Rep. ed.).

---

\*\*Hara et al. treated this species under *Kohautia gracilis* (Wall.) DC. Prodr. 4:430. 1830. [An enumeration of the Flowering plants of Nepal 2:203. 1979]

Slender herbs. Leaves narrowly linear, scabrous. Flowers purplish-white. Fruits ovoid, hispid.

Scattered; fl. & fr.: Aug. Nov.; Phulai (2); *P.C. Pant* 43284.

5. *H. verticillata* (L.) Lamk. Tab. Encycl. 1:271. 1792. *Oldenlandia verticillata* L. Mant. Pl. 1:40. 1767. *Hedyotis hispida* Retz. Obs. B. 4:23. 1786; Duthie, F.U.G.P. 1:379. 1960 (Rep. ed.).

Diffused herbs. Leaves elliptic-lanceolate. Flowers white. Fruits hispid, ovoid.

Few; fl. & fr.: Aug. Nov.; Sarpaduli (10); *P.C. Pant* 43203.

#### 8. HYMENODICTYON Wall. *nom. cons.*

*H. orixense* (Roxb.) Mabb. in Taxon. 31:66. 1982. *Cinchona orixensis* Roxb. Bot. Descr. Swietenia 21. 1793 et in Med. Facts. Obs. 6:152. 1795. *Hymenodictyon excelsum* Wall. in Roxb. Fl. Ind. 2:149. 1824; Duthie, F.U.G.P. 1:377. 1960 (Rep. ed.).

Medium to large sized deciduous trees. Bark brownish-grey, rough. Leaves usually with acuminate apex, entire. Flowers fragrant. Capsules loculicidal.

Few; fl. & fr.: May - Sept. & Jan. Apr. (Next Year); Bagia nala, Dhela block (16); *P.C. Pant* 72466.

#### 9. KNOXIA L.

*K. corymbosa* Willd. Sp. Pl. 1:582. 1797; Duthie, F.U.G.P. 1:393. 1960 (Rep. ed.).

Erect herbs. Leaves linear, ovate-lanceolate or oblong. Flowers white or purple. Fruits ellipsoid.

Few; fl. & fr.: Sept. Dec.; Pateli Chaur hillock (14); *P.C. Pant* 43475.

#### 10. PAVETTA L.

*P. tomentosa* Roxb. ex Smith in Rees Cyclop. 26: Pavettia n. 2. 1819. *P. indica* L. var. *tomentosa* (Roxb.) Hook. f. Fl. Brit. Ind. 3:150. 1880; Duthie, F.U.G.P. 1:390. 1960 (Rep. ed.).

Large, deciduous shrubs. Leaves variable, elliptic, obovate or lanceolate, pubescent or tomentose beneath. Flowers fragrant. Fruits globose.

Few; fl. & fr.: Apr. July & Aug. Dec; Pater nallaha (14); *P.C. Pant* 40150.

#### 11. SPERMADICTYON Roxb.

*S. suaveolens* Roxb. Pl. Cor. 3:32, t. 236. 1815. *Hamiltonia suaveolens* Roxb. [Hort. Beng. 15 (1814) *nom. nud.*] Fl. Ind. 2: 223. 1824; Duthie, F.U.G.P. 1:391. 1960 (Rep. ed.).

Deciduous shrubs. Bark pale-brown, slightly rough. Leaves elliptic-lanceolate, foetid when bruised. Flowers bluish-purple, fragrant. Fruits ellipsoid.

Frequent; fl. & fr.: May-Nov., Dec. - Feb.; Hathipani (3); *P.C. Pant* 43288.

### 12. WENDLANDIA Bart. ex DC. *nom. cons.*

*W. exserta* (Roxb.) DC. Prod. 4:411. 1830; Duthie, F.U.G.P. 1:384. 1960 (Rep. ed.). *Rondeletia exserta* Roxb. [Hort. Beng. 14(1814) *nom. nud.*] Fl. Ind. 2:135. 1824. "TRICHONIYA"

Small, deciduous trees. Bark brown, rough. Leaves ovate lanceolate. Flowers scented. Fruits globose, white tomentose.

Scattered; fl. & fr.: Mar. - May & July - Sept.; Mailani - Hari Rau (17); *P.C. Pant* 43603.

### 13. XEROMPHIS Raf.

*X. spinosa* (Thunb.) Keay in Bull. Jard. Bot. Etat. Brux. 28:37. 1958. *Gardenia spinosa* Thunb. Diss. Gard. n. 7.t.2.f.4. 1780. *Randia dumetorum* (Retz.) Lamk. Encycl. Meth. Bot. 2:227. 1794; Duthie, F.U.G.P. 1:386. 1960 (Rep. ed.).

Deciduous, thorny shrubs or trees. Bark grey, rough. Leaves obovate or oblanceolate. Flowers white or greenish, fragrant. Fruits globose or ovoid.

Scattered; fl. & fr.: Mar. June & Aug. Jan.; Kothi Rau, on Way to Jamnagwar (15-16); *P.C. Pant* 43870.

### 48. ASTERACEAE (Daisy Family)

1a. Herbs, shrubs or undershrubs; bark thin.

2a. Diffused, prostrate or decumbent.

3a. Flowers yellow or greenish yellow.

4a. Leaves lobed.

5a. Heads sessile, enclosed within leaf bases. *Soliva* 30

5b. Heads peduncled, not enclosed in leaf bases.

6a. Lobes of leaf segments triangular. *Cotula* 14

6b. Lobes of leaf segments oblong or wedge shaped. *Chrysanthellum* 11

4b. Leaves not lobed. *Centipeda* 10

3b. Flowers pink. *Sphaeranthus* 32

2b. Erect plants.

7a. Plants with milky or yellow juice

8a. Cauline leaves auricled at base

9a. Plants succulent, heads many flowered. *Sonchus* 31

9b. Plants not succulent, heads few flowered. *Lactuca* 24

8b. Cauline leaves not auricled at base

- 10a. Leaf margin with cartilaginous teeth, stem solid. *Launava* 25
- 10b. Leaf margin with simple teeth, not cartilaginous; stem hollow. *Youngia* 35
- 7b. Plants without milky or coloured juice.
  - 11a. Leaves opposite (Sometimes few upper ones alternate in *Blainvillea* and *Ageratum*),
    - 12a. Leaves sessile.
      - 13a. Flower heads yellow. *Acanthospermum* 1
      - 13b. Flower heads white. *Eclipta* 16
    - 12b. Leaves petioled.
      - 14a. Plants viscidly glandular.
        - 15a. Leaves triangular, ovate, irregularly toothed; flowers yellow. *Siegesbeckia* 29
        - 15b. Leaves lanceolate or ovate, coarsely serrate; flowers white. *Adenostemma* 2
      - 14b. Plants eglandular.
        - 16a. Heads heterogamous.
          - 17a. Achenes awned. *Bidens* 6
          - 17b. Achenes not awned.
            - 18a. Heads on very long peduncles. *Tridax* 33
            - 18b. Heads on short peduncles.
              - 19a. Weak herbs; leaves subserrate, pappus of ciliate scales. *Galinsoga* 20
              - 19b. Stout herbs; leaves crenate-serrate; pappus of 2-5 unequal bristles. *Blainvillea* 7
          - 16b. Heads homogamous. *Ageratum* 3
            - 11b. Leaves alternate.
  - 20a. Leaves bases auricled.
    - 21a. Heads globular.
      - 22a. Leaves cauline only.
        - 23a. Leaves glabrescent, pinnatifid. *Cyathocline* 15
        - 23b. Leaves scabrous or villous, entire. *Pentanema* 26
      - 22b. Leaves radical and cauline.
        - 24a. Plants densely hairy. *Erigeron* 19
        - 24b. Plants pubescent or glabrous.
          - 25a. Involucral bracts oblong, 3-nerved. *Senecio* 28
          - 25b. Involucral bracts lanceolate, with 1 brown lining. *Blumeopsis* 9

- 21b. Heads cylindric or subcampanulate. *Emilia* 18
- 20b. Leaves bases not auricled.
- 26a. Base of head with 3-foliaceous bracts. *Elephantopus* 17
- 26b. Base of head without foliaceous bracts.
- 27a. Leaves margins prickly. *Cirsium* 12
- 27b. Leaves margins without prickles.
- 28a. Heads white. *Anaphalis* 4
- 28b. Heads yellow, purple, pink, Mauve or Green.
- 29a. Leaves triangular, cordate. *Xanthium* 36
- 29b. Leaves lyrate, spathulate-obovate, pinnatifid, wedge shaped or elliptic, ovate.
- 30a. Heads large, on long peduncles.
- 31a. Leaves both radical and cauline; flowers pale red. *Saussurea* 27
- 31b. Leaves cauline; flowers yellow. *Inula* 23
- 30b. Heads small on short peduncles.
- 32a. Stem hoary or woolly. *Gnaphalium* 21
- 32b. Stem glabrous or pubescent.
- 33a. Pappus absent. *Artemisia* 5
- 33b. Pappus present.
- 34a. Achenes compressed, style arms flattened or planoconvex. *Conyza* 13
- 34b. Achenes subterete or angled, style arms filiform or subulate.
- 35a. Flowers usually yellow (excepting purple in *Blumea mollis*); anthers tailed. *Blumea* 8
- 35b. Flowers purple pink, never yellow, anthers not tailed, cleft at base. *Vernonia* 34
- 1b. Small sized trees with thick corky bark. *Gochnatia* 22

### 1. ACANTHOSPERMUM Schrank

**A. hispidum** DC. Prodr. 5:522. 1836; Raizada suppl. Duthie's, F.U.G.P. 99-100. 1976.

Hispid herbs. Leaves ovate, entire or serrate. Heads heterogamous, yellow. Achenes prickly, with paired horn-like spines at top.

Abundant; fl. & fr. : Feb. - Dec.; Dhandgadi nallaha, Dhulwa East (12); P.C. Pant. 43069.



## 2. ADENOSTEMMA J.R. &amp; G. Forst.

**A. lavenia** (L.) O. Kuntze. Rev. Gen. Pl. 1:304. 1891.

*Verbesina lavenia* L. Sp. Pl. 902. 1753. *Adenostemma viscosum* Forst. Char. Gen. Pl. 90. 1776; Duthie, F.U.G.P. 1:405. 1960 (Rep. ed.).

Herbs. Leaves narrowing downwards, crenate or serrate. Heads discoid, white, flowers tubular. Achenes glandular, angled.

Few; fl. & fr.: Oct. - Feb.; Birjani (18); *P.C. Pant* 72304.

## 3. AGERATUM L.

1a. Involucre glabrous; heads 60-70 flowered. *A. conyzoides* 1

1b. Involucre hirsute; heads 80-100 flowered. *A. houstonianum* 2

1. **A. conyzoides** L. Sp. Pl. 839. 1753; Duthie, F.U.G.P. 1:405. 1960 (Rep. ed.).

Pubescent, aromatic herbs. Leaves ovate, rhomboid-ovate. Heads discoid, mauve or white, flowers tubular. Achenes angled.

Abundant; fl. & fr.: Oct. - Feb.; Between Dhangadi and Panod nallaha (12); *P.C. Pant* 43080.

2. **A. houstonianum** Mill. Gard. Dict. ed. 8, No. 2. 1768; Raizada Suppl. Duthie's, F.U.G.P. 101. 1976.

Hispidly hairy herbs. Leaves deltoid, upper ones ovate. Heads many, discoid, mauve, flowers tubular. Achenes black, hairy.

Scattered; fl. & fr.: Oct. - Apr.; Sultan (11); *K.P. Janardhanan* 50123.

## 4. ANAPHALIS DC.

**A. busua** (Buch. Ham. ex D. Don) DC. Prodr. 6:275. 1838; Raizada Suppl. Duthie's F.U.G.P. 103. 1976. *Gnaphalium busua* Buch. - Ham. ex D. Don Prodr. Fl. Nep. 173. 1825.

Tall, much branched, white felted herbs. Leaves, radical ones oblanceolate, cauline linear. Heads discoid, white, flowers tubular. Achenes smooth, oblong.

Rare; fl. & fr.: Sept. - Dec.; Kanda (3); *P.C. Pant* 43325.

## 5. ARTEMISIA L.

1a. Cauline leaves finely segmented, needle like. *A. capillaris* 1

1b. Cauline leaves wedge shaped, or pinnately lobed or pinnatifid.

2a. Undersurface of leaves white tomentose. *A. nitagirica* 3

2b. Undersurface of leaves glaucous. *A. japonica* 2

1. **A. capillaris** Thunb. Fl. Jap. 309. 1784. *A. scoparia* Waldst. & Kit. Deser. Pl. Rar. Hung. 1:66.t. 65. 1801; Duthie. F.U.G.P. 1:435. 1960 (Rep. ed.).

Medium sized, stout herbs, stem purple. Leaves, radical ones broadly ovate, cauline thread like. Heads discoid, greenish yellow, flowers tubular. Achenes small.

Scattered; fl. & fr.: Sept. Dec.; Sarpaduli (10); *P.C. Pant* 43248.

2. *A. japonica* Thunb. Fl. Jap. 310. 1784. *A. parviflora* Roxb. [Hort. Beng. 61(1814) *nom. nud.*] ex D. Don Prodr. Fl. Nep. 181. 1825; Raizada Suppl. Duthie's, F.U.G.P. 104. 1976.

Erect, glabrous or villous herbs. Leaves sessile, linear-cuneate or flabellately lobulate. Heads discoid, greenish, flowers tubular. Achenes smooth, ellipsoid.

Rare; fl. & fr.: Sept. Dec.; Paterpani Environs (14); *K.P. Janardhanan* 51485.

3. *A. nilagirica* (C.B. Clarke Cl.) Pamp. Nuov. Giorn. Bot. Ital. N.S. 33:452. 1926. *A. vulgaris* L. var. *nilagirica* C.B. Clarke Comp. Ind. 161. 1876. *A. vulgaris auct. pl. non L.* 1753; Duthie, F.U.G.P. 1:435. 1960. (Rep. ed.).

Medium to large, aromatic shrubs. Leaves ovate, lacinate or 1-2 pinnatifid. Heads discoid, brownish yellow, flowers tubular. Achenes minute.

Scattered; fl. & fr.: Oct. - Feb.; Arngadi - Dhangadi (12); *P.C. Pant* 72389.

## 6. BIDENS L.

*B. biternata* (Lour.) Merr. & Sherff. in Bot. Gaz. 88:293. 1929. *Coreopsis biternata* Lour. Fl. Cochinch. 508. 1790. *Bidens pilosa auct. non L.* 1753; Duthie, F.U.G.P. 1:430. 1960 (Rep. ed.).

Glabrous or pubescent herbs. Leaves variable, entire, 3-fid, 3-foliolate or 1-2 pinnatifid, ovate. Heads simple and radiate, with white ray flowers and yellow disc flowers. Achenes 4-angular.

Few; fl. & fr.: Oct. Mar.; Ghilmodya Sot (11); *P.C. Pant* 43162.

## 7. BLAINVILLEA Cass.

*B. acmella* (L.) Philip. in Blumea 6:350. 1950; *Verbesina acmella* L. Sp. Pl. 901. 1753. *Blainvillea rhomboidea* Cass. Dict. Sci. Nat. 29:493. 1823; Duthie, F.U.G.P. 1:428. 1960 (Rep. ed.).

Hispidly hairy herbs. Leaves ovate-lanceolate, acuminate. Heads radiate, with disc and ray florets, yellow or white. Achenes flattened.

Scattered; fl. & fr.: Aug. - Jan.; Dhulwa East (12); *P.C. Pant* 43058.

## 8. BLUMEA DC.

1a. Prostrate or decumbent herbs.

*B. oxyodonta* 6

1b. Erect herbs or undershrubs.

- 2a. Shrubby, stem pinkish brown, leaves 10-26 cm long *B. lanceolaria* 3  
 2b. Herbs, stem green; leaves 3-15cm long.  
 3a. Densely villous herbs. *B. mollis* 5  
 3b. Hairy or glabrous herbs.  
 4a. Leaves thin, membranous. *B. membranacea* 4  
 4b. Leaves thick.  
 5a. Heads corymbose, dense. *B. laciniata* 2  
 5b. Heads spiciform, lax. *B. fistulosa* 1

1. **B. fistulosa** (Roxb.) Kurz in Jour. Asiat. Soc. Beng. 46(2): 187. 1877. *Conyza fistulosa* Roxb. Fl. Ind. ed. 2, 3:429. 1832. *Blumea glomerata* DC. in Wight Contrib. Bot. Ind. 15. 1834; Duthie, F.U.G.P. 1:414. 1960 (Rep. ed.). Herbs with slender branches. Leaves obovate, elliptic. Heads discoid, yellow, flowers tubular. Achenes ribbed.

Rare; fl. & fr.: Feb. - June; Dhulwa East - Gairal (12-10); P.C. Pant 43613.

2. **B. laciniata** (Roxb.) DC. prodr. 5:436. 1836; Duthie, F.U.G.P. 1:415. 1960 (Rep. ed.). *Conyza laciniata* Wall. ex. Roxb. Fl. Ind. ed. 2, 3:427. 1832. Grey tomentose herbs. Leaves runcinate-lyrate or pinnatifid. Heads many, discoid, yellow, flowers tubular. Achenes ribbed, silky.

Scattered; fl. & fr.: Feb. - May; Dhulwa East - Gairal (12-10); P.C. Pant 43501.

\*3. **B. lanceolaria** (Roxb.) Druce Rep. Bot. Exch. Club. Brit. Isles 4:609. 1917. *Conyza lanceolaria* Roxb. Fl. Ind. ed. 2, 3:432. 1832. *Blumea myriocephala* DC. Prodr: 5:455. 1836; Hook.f. Fl. Brit. Ind. 3:269. 1881.

Stem stout. Leaves oblong. - lanceolate. Heads many, discoid, yellow, flowers tubular. Achenes ribbed, hairy.

Scarce; fl. & fr.: Dec. May; Sarpaduli (10); K.P. Janardhanan 51395.

4. **B. membranacea** DC. Prodr. 5:440. 1836; Duthie, F.U.G.P. 1:415. 1960 (Rep. ed.).

Glandular herbs, stem sulcate. Leaves ovate or lyrate or runcinate. Heads discoid, many, yellow, flowers tubular. Achenes ribbed, hairy.

Scarce; fl. & fr.: Nov. May; Kanda (3); P.C. Pant. 43293.

5. **B. mollis** (D. Don) Merr. in Philip. Journ. Sci. (Bot.) 5:395. 1910. *Erigeron mollis* D. Don. Prodr. Fl. Nepal 172. 1825. *Blumea wightiana* DC. in Wight Contrib. Bot. Ind. 14. 1834; Duthie, F.U.G.P. 1:413. 1960 (Rep. ed.).

Glandular herbs. Leaves obovate, ovate or lanceolate. Heads many, discoid, purple, flowers tubular. Achenes circular, sparsely hairy.

Scattered; fl. & fr.: Dec. - May; Bijrani, Mailani (18, 17); P.C. Pant 43612.

6. **B. oxydonta** DC. in Wight Contrib. Bot. Ind. 15. 1834; Duthie, F.U.G.P. 1:413. 1960 (Rep. ed.).

Pubescent, slender herbs. Leaves obovate, spinulose-toothed. Heads discoid, yellow, flowers tubular. Achenes silky.

Scattered; fl. & fr.: Mar. - June; Bijrani (18); *P.C. Pant* 43584.

#### 9. BLUMEOPSIS Gagnep.

**B. flava** (DC.) Gagnep. Bull. Mus. Hist. Nat. Paris 26:76. 1920. *Blumea flava* DC. Prodr. 5:439. 1836. *Laggera flava* Benth. & Hook.f. Gen. Pl. 2:290. 1873; Duthie, F.U.G.P. 1:417. 1960 (Rep. ed.).

Slender herbs. Leaves ovate-lanceolate or obovate. Heads discoid, yellow, flowers tubular. Achenes minute, smooth.

Scattered; fl. & fr.: Sept. - Jan.; Mailani (17); *P.C. Pant* 43416.

#### 10. CENTIPEDA Lour.

**C. minima** (L.) A. Br. et Aeschers Ind. Sm. Hort. Berol. App. 6. 1867. *Artemisia minima* L. Sp. Pl. 844. 1753; *Centipeda orbicularis* Lour. Fl. Cochinch. 493. 1790; Duthie, F.U.G.P. 1:406. 1960 (Rep. ed.).

Weak, branched herbs. Leaves obovate oblong. Heads subsessile, heterogamous, yellow, disciform. Achenes 4-angled.

Few; fl. & fr.: Nov. - Apr.; Mailani Tal (17); *P.C. Pant* 43629.

#### 11. CHRYSANTHELLUM L.C. Rich.

**C. indicum** DC. Prodr. 5:631. 1836; Duthie, F.U.G.P. 1:432. 1960 (Rep. ed.).

Glabrous herbs. Leaves ovate or ovate-lanceolate, 2-pinnatifid. Heads heterogamous, yellow, ray flowers with spreading ligules and disc flowers with short tube. Achenes cuneate-oblong.

Scattered; fl. & fr.; Sept. - Feb.; Bijrani (18); *P.C. Pant* 72319.

#### 12. CIRSIUM Miller.

**C. arvense** (L.) Scop. Fl. Carn. 2:126. 1722. *Serratula arvensis* L. Sp. Pl. 820. 1753. *Cnicus arvensis* (L.) Hoffm. Deutschl Fl. ed. 2, 2:130. 1804; Duthie, F.U.G.P. 1:438. 1960 (Rep. ed.).

Erect herbs, stem striate. Leaves oblong or obovate. Heads discoid, dioecious, purple, male globose, female ovoid, longer, flowers tubular. Achenes smooth, shining.

Rare; fl. & fr.: Dec. - May; Aam Sot Mailani (17); *P.C. Pant* 43633.

#### 13. CONYZA Less nom. cons.

1a. Leaves spatulate-obovate; peduncles hoary or roughly pubescent.

*C. stricta* 2

1b. Leaves lanceolate; peduncles sticky with glands. *C. leucantha* 1

1. *C. leucantha* (D. Don) Ludlow & Raven in Kew Bull. 17:71. 1963. *Erigeron leucanthum* D. Don Prodr. Fl. Nep. 171. 1825. *Conyza viscidula* Wall. ex DC. Prodr. 5:383. 1836; Duthie, F.U.G.P. 1:410. 1960 (Rep. ed.).

Large herbs. Leaves narrowed at both ends. Heads heterogamous, disciform, pink or pale yellow. Achenes small, obovoid.

Few; fl. & fr.: Mar. May; On Way to Mailani (17); *P.C. Pant* 43625.

2. *C. stricta* Willd. Sp. Pl. 3:1922. 1803; Duthie, F.U.G.P. 1:410. 1960 (Rep. ed.).

Herbs, corymbosely branched towards the apex. Leaves sessile. Heads heterogamous, yellowish white. Achenes narrowly elliptic.

Scattered; fl. & fr.: Sept. Mar.; Mailani (17); *P.C. Pant* 43412.

#### 14. COTULA L.

*C. anthemoides* L. Sp. Pl. 891. 1753; Duthie, F.U.G.P. 1:434. 1960 (Rep. ed.).

Much branched herbs. Leaves pinnatisect. Heads disciform, greenish-yellow. Achenes ovate, narrowly winged.

Few; fl. & fr.: Jan. Apr.; Bijrani (18); *P.C. Pant* 43635.

#### 15. CYATHOCLINE Cass.

*C. purpurea* (D. Don) O. Kuntze Rev. Gen. Pl. 1:333. 1891. *Tanacetum purpureum* D. Don. Prodr. 181. 1825. *Cyathocline lyrata* Cass. in Ann. Sci. Nat. Ser. 1. 17:420. 1829; Duthie, F.U.G.P. 1:407. 1960 (Rep. ed.).

Sweet scented herbs. Leaves pinnatisect, lobes narrow, toothed. Heads discoid, rose purple. Achenes minute.

Few; fl. & fr.: Oct. Apr.; Sarpaduli along Ramganga River Bank (10); *P.C. Pant* 43244.

#### 16. ECLIPTA L.

*E. prostrata* (L.) L. Mant. Pl. 2:286. 1771. *Verbesina prostrata* L. Sp. Pl. 902. 1753. *Eclipta erecta* L. Mant. Pl. 2:286. 1771; Duthie, F.U.G.P. 1:427. 1960. (Rep. ed.).

Strigose herbs. Leaves narrowly lanceolate. Heads heterogamous, radiate, solitary or 2-3 on unequal peduncles. Achenes oblong, ribbed.

Scattered; fl. & fr.: Almost round the year; Boxar along Ramganga River (7); *P.C. Pant* 43839.

#### 17. ELEPHANTOPUS L.

*E. scaber* L. Sp. Pl. 814. 1753; Duthie, F.U.G.P. 1:404. 1960 (Rep. ed.).

Dichotomously branched herbs. Leaves obovate-oblong, clustered at base, alternate upwards. Heads homogamous, discoid, violet or purple, flowers tubular. Achenes hairy.

Scattered; fl. & fr.: Sept. Dec.; Mailani (17); *P.C. Pant* 43363.

#### 18. EMILIA Cass.

*E. sonchifolia* (L.) DC. in Wight Contr. Bot. Ind. 24. 1834; Duthie, F.U.G.P. 1:436. 1960 (Rep. ed.). *Cacalia sonchifolia* L. Sp. Pl. 835. 1753.

Glabrous or puberulous herbs. Leaves lyrate-pinnatifid, or obovate. Heads homogamous, discoid, pinkish-violet, flowers tubular. Achenes ribbed.

Few; fl. & fr.: Oct. - Feb.; Between Dhangadi and Panod (12); *P.C. Pant* 43072.

#### 19. ERIGERON L.

*E. sublyratus* DC. in Wight Contr. Bot. Ind. 9. 1834. *E. asteroides* Roxb. Fl. Ind. ed. 2, 3:432. 1832.; Duthie F.U.G.P. 1:408. 1960 (Rep. ed.).

Erect-decumbent herbs with sticky glands. Leaves oblong, ovate, lobulate. Heads heterogamous with ligulate and disk flowers, pink and yellow respectively. Achenes compressed.

Rare; fl. & fr.: Apr. - Feb.; Sarpaduli along Ramganga River (10); *P.C. Pant* 43698.

#### 20. GALINSOGA Ruiz & Pav.

*G. parviflora* Cav. Ic. Descr. Pl. 3:41.t. 281. 1796; Duthie, F.U.G.P. 1:432. 1960 (Rep. ed.).

Flaccid herbs. Leaves ovate or ovate-lanceolate, 3-nerved from base, sub entire. Heads heterogamous with dentate ligulate white and disc yellow ones. Achenes black, viscid.

Few; fl. & fr.: July & Sept. Jan.; Sarpaduli, Dhikala road (10); *K.P. Janardhanan* 51258.

#### 21. GNAPHALIUM L.

*G. luteo-album* L. Sp. Pl. 851. 1753; Duthie, F.U.G.P. 1:421. 1960 (Rep. ed.).

Erect, branched herbs. Leaves oblong -spathulate. Heads heterogamous, yellow. Achenes rough, tubercled.

Few; fl. & fr.: Dec. - May; Boxar along Ramganga river bank (7); *P.C. Pant* 43846.

#### 22. GOCHNATIA kunth.

*G. spectabilis* (D. Don) Less in Linnaea 5:261. 1830. *Leucomeris*

*spectabilis* D. Don Prodr. Fl. Nep. 170. 1825; Duthie, F.U.G.P. 1:443. 1960 (Rep. ed.).

Evergreen or subdeciduous trees, with stout grooved branches. Bark pale brown, corky, rough. Leaves elliptic-lanceolate or oblanceolate, densely tomentose underneath. Heads homogamous with tubular flowers. Achenes slender, densely hairy.

Frequent; fl. & fr.: Apr. - May; Kanda - Hathipani Environs (3); *P.C. Pant* 43766.

### 23. INULA L.

1a. Glabrous.

*I. cuspidata* 2

1b. Densely woolly

*I. cappa* 1

1. *I. cappa* (Buch. Ham. ex D. Don) DC. Prodr. 5:469. 1836; Duthie, F.U.G.P. 1:423. 1960 (Rep. ed.). *Conyza Cappa* Buch. Ham. ex D. Don Prodr. Fl. Nep. 176. 1825.

Shrubs or undershrubs. Bark purple brown. Leaves oblong-lanceolate. Heads heterogamous, pale-yellow, with ligulate and tubular flowers. Achenes silky.

Scattered; fl. & fr.: Sept. - Nov. & Nov. - Apr.; Mailani Tal (17); *P.C. Pant* 43418.

2. *I. cuspidata* (DC.) C.B. Clarke Comp. Ind. 125. 1876; Raizada Suppl. Duthie's, F.U.G.P. 121. 1976. *Amphiraphus cuspidata* DC. Prodr. 5:343. 1836. "TUSAR"

Medium sized shrubs. Bark smooth, purple brown. Leaves elliptic-lanceolate. Heads heterogamous, yellow, with ligulate and tubular flowers. Achenes silky.

Rare; fl. & fr.: Sept. Nov. & Nov. Feb.; Kanda (3); *P.C. Pant* 43268.

### 24. LACTUCA L.

*L. dissecta* D. Don Prodr. Fl. Nep. 164. 1825; Duthie, F.U.G.P. 1:446. 1960 (Rep. ed.).

Herbs, dichotomously branched at base. Leaves very variable, lyrate, runcinate-pinnatifid. Heads ligulate, blue or mauve. Achenes oblanceolate, 3-nerved.

Few; fl. & fr.: Feb. May; Mailani (17); *P.C. Pant* 43610.

### 25. LAUNAEA Cass.

1a. Leaves linear or lanceolate, distantly toothed.

*L. acaulis* 1

1b. Leaves sinuate-lobed or runcinate, closely toothed

*L. procumbens* 2

1. *L. acaulis* (Roxb.) Babcock ex Craib. Fl. Siam. Enum. 2:299. 1936. *Prenanthes acaulis* Roxb. Fl. Ind. ed. 2, 3:403. 1832; *Crepis acaulis* (Roxb.) Hook.f. fl. Brit. Ind. 3:396. 1881; Duthie, F.U.G.P. 1:445. 1960 (Rep. ed.).

Stemless herbs. Leaves mostly radical. Heads narrow, ligulate, yellow. Achenes ellipsoid, subcompressed.

Scattered; fl. & fr.: Feb. May; Dhikala Chaur (8); *P.C. Pant* 43722.

2. *L. procumbens* (Roxb.) Ramayya & Rajgopal in Kew Bull. 23: 465.t.1. 1969. *Prenanthes procumbens* Roxb. Fl. Ind. ed. 2, 3:404.t.1. 1832. *Launaea nudicaulis* (L.) Hook.f. Fl. Brit. Ind. 3:416. 1881; Duthie. F.U.G.P. 1:450. 1960 (Rep. ed.).

Glabrous herbs. Leaves sessile, arising in clusters from the base. Heads ligulate, yellow. Achenes ribbed.

Few; fl. & fr.: Mar. Nov.; Boxar Environs (8); *P.C. Pant* 43798.

## 26. PENTANEMA Cass.

1a. Softly villous.

*P. vestitum* 2

1b. Roughly pubescent.

*P. indicum* 1

1. *P. indicum* (L.) Ling in Acta Phyt. Sin. 10:179. 1965. *Inula indica* L. Sp. Pl. ed. 2, 1237. 1763; Duthie, F.U.G.P. 1:423. 1960 (Rep. ed.).

Slender, branched herbs. Leaves lanceolate. Heads heterogamous with ligulate and disk flowers, yellow. Achenes silky, cylindrical.

Frequent; fl. & fr.: Sept. - June; Dhikala (8); *P.C. Pant* 43723.

2. *P. vestitum* (Wall. ex DC.) Ling. in Acta Phyt. Sin. 10:180. 1965. *Inula vestita* Wall. ex DC. Prodr. 5:470. 1836; Duthie, F.U.G.P. 1:424. 1960 (Rep. ed.).

Small, stout herbs. Leaves elliptic-oblong. Heads heterogamous with ligulate ray and disc flowers, yellow. Achenes small with rounded tips.

Rare; fl. & fr.: Mar. - June; Gairal along Ramganga River Bank (10); *P.C. Pant* 43663.

## 27. SAUSSUREA DC. *nom. cons.*

*S. heteromalla* (D. Don) Hand. - Mazz. Symb. Sin. 7:1152. 1936. *Cnicus heteromallus* D. Don Prodr. 166. 1825. *Saussurea candicans* (DC.) C.B. Clarke Comp. Ind. 232. 1876; Duthie, F.U.G.P. 1:440. 1960 (Rep. ed.).

Erect, cottony herbs. Leaves obovate-oblong, entire or sinuately lobed. Heads discoid, pale red, flowers tubular. Achenes angled, murcate.

Scattered; fl. & fr.: Feb. May; Gairal (10); *P.C. Pant* 43670.

## 28. SENECIO L.

*S. nudicaulis* Buch. - Ham. ex D. Don Prodr. Fl. Nep. 178. 1825; Duthie, F.U.G.P. 1:436. 1960 (Rep. ed.).



Herbs, stem ribbed. Leaves obovate, radical in rosette. Heads heterogamous with ligulate ray and tubular disc flowers, yellow. Achenes puberulous.

Scattered; fl. & fr.: Mar. - June; Dhikala Chaur (8); *P.C. Pant* 43710.

### 29. SIEGESBECKIA L.

*S. orientalis* L. Sp. Pl. 900. 1753; Duthie, F.U.G.P. 1:426. 1960 (Rep. ed.).

Branched, pubescent herbs Undershrubs. Leaves irregularly toothed. Heads heterogamous, radiate, flowers yellow. Achenes curved.

Few; fl. & fr.: Mar. - Nov.; Dhara Block, Mailani (17); *P.C. Pant* 72373.

### 30. SOLIVA Ruiz. et. Pav.

*S. anthemifolia* (Juss.) R. Br. in Trans. Linn. Soc. Lond. 12:102. 1818; Raizada suppl. Duthie's F.U.G.P. 133. 1976. *Gymnostylus anthemifolia* Juss. Ann. Mus. Paris. 4:262.t.61. f. 1. 1804.

Herbs, with tufted growth. Stem short, creeping. Leaves radical, pinnatifid, segments lanceolate-oblong. Heads discoid, greenish yellow. Achenes truncate and with transversely wrinkled wings.

Abundant; fl. & fr.: Feb. - May; Dhikala along Ramganga River Bank (8); *P.C. Pant* 61764.

### 31. SONCHUS L.

*S. wightianus* DC. Prodr. 7:187. 1832. *S. arvensis auct. pl. non L.* 1753; Duthie, F.U.G.P. 1:449. 1960 (Rep. ed.).

Herbs, with stoloniferous rootstock. Leaves runcinate and pinnatifid. Heads ligulate, yellow. Achenes narrow, ribbed.

Scarce; fl. & fr.: Mar. - Nov.; Kalagarh Dhikala Road (14); *K.P. Janardhanan* 51479.

### 32. SPHAERANTHUS L.

*S. senegalensis* DC. Prodr. 5:370. 1836. *S. indicus auct. pl. non L.* 1753; Duthie, F.U.G.P. 1:419. 1960 (Rep. ed.).

Prostrate-decumbent, branched herbs. Leaves obovate-oblong with bases running down on stem as wing, teeth spinescent. Heads heterogamous, flowers pink. Achenes stalked.

Scattered; fl. & fr.: Mar. - July.; On Way to Kichar Sot, Bijrani (18); *P.C. Pant* 43579.

### 33. TRIDAX L.

*T. procumbens* L. Sp. Pl. 900. 1753; Duthie, F.U.G.P. 1:433. 1960 (Rep. ed.).

Erect or straggling herbs. Leaves ovate or lanceolate, coarsely serrate or lobed. Heads radiate, white or yellow. Achenes brown.

Scattered; fl. & fr.: Jan. - Dec.; Ratapani Sot Bijrani (18); *P.C. Pant* 43373.

### 34. VERNONIA Schreb.

1a. Tall, erect herbs; leaves large, ca 9 cm x 4 cm.

2a. Leaves thick with scabrid surfaces.

*V. squarrosa* 3

2b. Leaves thin, membranous, with hoary pubescent surfaces.

*V. anthelmintica* 1

1b. Small, erect-decumbent herbs; leaves small, ca. 2cm x 6cm.

*V. cinerea* 2

1. *V. anthelmintica* (L.) Willd. Sp. Pl. 3:1634. 1803; Duthie, F.U.G.P. 1:402. 1960 (Rep. ed.). *Conyza anthelmintica* L. Sp. Pl. ed. 2. 1207. 1763.

Robust, glandular herbs. Leaves ovate-lanceolate. Heads discoid, purple, flowers tubular. Achenes ribbed, black.

Rare; fl. & fr.: Oct - Apr.; Sarpaduli Environs (10); *P.C. Pant* 43212.

2. *V. cinerea* (L.) Less in Linnaea 4:291. 1829; Duthie, F.U.G.P. 1:404. 1960 (Rep. ed.) *Conyza cinerea* L. Sp. Pl. 862. 1753.

Much branched, pubescent, variable herbs. Leaves ovate or lanceolate. Heads discoid, pinkish purple, flowers tubular. Achenes appressed white hairy.

Scattered; fl. & fr.: Greater part of year; Phulai (2); *P.C. Pant* 43275.

3. *V. squarrosa* (D. Don) Less in Linnaea 6:627. 1831. *Acilepis squarrosa* D. Don Prodr. Fl. Nep. 169. 1825. *Vernonia teres* Wall. ex DC. Prodr. 5:15. 1836; Hook. f. Fl. Brit. Ind. 3:229. 1881.

Erect herbs. Leaves elliptic or oblong-lanceolate. Heads discoid, pink, flowers tubular. Achenes silky, ribbed.

Rare; fl. & fr.: Nov - Dec.; Mailani (17); *P.C. Pant* 43468.

### 35. YOUNGIA Cass

*Y. japonica* (L.) DC. Prodr. 7:194. 1838. *Prenanthes japonica* L. Mant. Pl. 1:107. 1767. *Crepis japonica* (L.) Benth. Fl. Hongk. 194. 1861; Duthie, F.U.G.P. 1:445. 1960 (Rep. ed.).

Weak herbs. Leaves rosulate at base, obovate, runcinate-pinnatifid. Heads ligulate, yellow. Achenes smoothly ribbed.

Frequent; fl. & fr.: Feb. - May; Dhikala (8); *P.C. Pant* 43705.

### 36. XANTHIUM L.

*X. strumarium* L. Sp. Pl. 987. 1753; Duthie, F.U.G.P. 1:426. 1960 (Rep. ed.).

Unarmed stout herbs - undershrubs. Leaves scabrous, lobes irregularly

toothed. Heads heterogamous or unisexual, green. Achenes obovoid, with hardened involucre bracts.

Few; fl. & fr.: Jan. July; Boxar along Ramganga River Bank (8); *K.P. Janardhanan* 51329.

#### 49. CAMPANULACEAE (Bell Flower Family)

1a. Glabrous herbs.

*Lobelia* 2

1b. Hispidly hairy herbs.

*Campanula* 1

#### 1. CAMPANULA L.

*C. wallichii* Babu, Jour. Bomb. nat. Hist. Soc. 65:805. 1969. *C. canescens* Wall. [*Cat.n.* 1284. (1829) *nom. nud.*] ex DC. Prodr 7:473. 1839; Duthie, F.U.G.P. 1:454. 1960 (Rep. ed.).

Erect, hispid herbs. Leaves, lower ones obovate - spatulate, upper ones linear-lanceolate. Flowers pale-purple or lilac. Capsules hemispheric, hispid.

Rare; fl. & fr.: Jan. Apr.; Dhangadi-Sultan (12); *P.C. Pant* 43547.

#### 2. LOBELLIA L.

1a. Small herbs; leaves small, subrhomboidal or ovate; flowers in lax racemes.

2a. Stem succulent; seeds trigonous.

*L. alsinoides* 2

2b. Stem not succulent; seeds ellipsoid.

*L. heyneana* 2

1b. Tall herbs; leaves large linear-lanceolate; flowers in dense racemes.

*L. pyramidalis* 3

1. *L. alsinoides* Lamk. Encycl. Meth. Bot. 3:588. 1791-92. *L. trigona* Roxb. Fl. Ind. 2:111. 1824; Duthie, F.U.G.P. 1:452. 1960 (Rep. ed.).

Annual herbs. Leaves ovate, glaucous. Flowers blue, on thin pedicels. Capsules ellipsoid.

Few; fl. & fr.: Sept. - Dec.; Phulai (2); *P.C. Pant* 43283A.

2. *L. heyneana* Roem. & Schult. Syst. Veg. 5:50. 1819. *L. trialata* Buch. Ham. ex D. Don Prodr. 157. 1825; Duthie, F.U.G.P. 1:453. 1960 (Rep. ed.).

Herbs with 3-angled stem. Leaves subrhomboidal. Flowers pale blue or pink. Capsules lanceolate-triangular.

Scarce; fl. & fr.: Sept. - Dec.; Bijrani (18); *P.C. Pant* 43393.

\*3. *L. pyramidalis* Wall. in As. Res. 13:376. 1820; C.B. Clarke in Hook. f. Fl. Brit. Ind. 3:426. 1881, (p.p.).

Tall herbs, stem hollow. Leaves surfaces with glistening glands, margins finely serrulate. Flower purple rose-mauve coloured, showy. Capsules subglobose.

Rare; fl. & fr.: Apr. - Nov.; Sulatan Sot (11); *P.C. Pant* 61738.

## 50. PLUMBAGINACEAE (Leadwort Family)

### PLUMBAGO L.

*P. zeylanica* L. Sp. Pl. 151. 1753; Duthie, F.U.G.P. 1:457. 1960 (Rep. ed.).  
Diffused undershrubs. Leaves ovate, entire. Flowers white. Capsules oblong, enveloped in calyx.

Few; fl. & fr.: July - Mar.; Gairal (10); *P.C. Pant* 43652.

## 51. PRIMULACEAE (Primrose Family)

1a. Leaves scattered on aerial stem.

*Anagallis* 1

1b. Leaves clustered at base of stem, all radical.

*Androsace* 2

### 1. ANAGALLIS L.

*A. pumila* Sw. Prodr. Veg. Ind. Occ. 1:40. 1788. *Centunculus pentandrus* R. Br. Prodr. 427. 1810; Duthie, F.U.G.P. 1:461. 1960 (Rep. ed.).

Erect herbs. Leaves ovate, orbicular or obovate. Flowers white or pink. Capsules globose.

Rare; fl. & fr.: Sept. - Dec.; Phulai (2); *P.C. Pant* 43283 B.

### 2. ANDROSACE L.

*A. umbellata* (Lour.) Merr. in Philipp. J. Sci. 15:237. 1919. *Drosera umbellata* Lour. Fl. Cochinch. 186. 1790. *Androsace saxifragifolia* Bunge Enum. Pl. Chin. Bor. 53. 1833; Duthie, F.U.G.P. 1:460. 1960 (Rep. ed.)

Small herbs. Leaves orbicular subreniform. Flowers white. Capsules globose.

Few; fl. & fr.: Dec. - May; Sultan (11) *P.C. Pant* 61736.

## 52. MYRSINACEAE (Myrsine Family)

1a. Leaves subcoriaceous and fleshy.

*Ardisia* 1

1b. Leaves thin, not fleshy.

2a. Leaves obovate or elliptic, margins entire or obscurely serrulate; fruits 1-seeded.

*Embelia* 2

2b. Leaves elliptic or lanceolate-oblong, margins coarsely toothed; fruits many seeded.

*Maesa* 3

### 1. ARDISIA Swartz. *nom. cons.*

*A. solanacea* Roxb. Pl. Cor. 1:27.t. 27. 1795; Duthie, F.U.G.P. 1:464. 1960 (Rep. ed.).

Evergreen shrubs or small trees. Bark yellowish-brown, smooth. Leaves obovate or lanceolate. Flowers pink. Berries subglobose.

Frequent; fl. & fr.: May - June & Oct. - Apr.; On Way to Sultan (11);  
P.C. Pant 43536.

## 2. EMBELIA Burm. f. *nom. cons.*

**E. tsjeriam-cottam** (Roem. et schult.) DC. in Trans Linn. Soc. Lond. 17:131. 1834. *Ardisia tsjeriam-cottam* Roem. et Schult. Syst. Veg. 5:518. 1819. *Embelia robusta* Roxb. Fl. Ind. 2:287. 1824; Duthie, F.U.G.P. 1:463. 1960. (Rep. ed.).

Scrambling shrubs. Bark brown with horizontal cracks and lenticels. Leaves rusty-velvety beneath. Flowers greenish. Capsules subglobose, red. Scattered; fl. & fr.: July - Sept. & Oct. - Dec.; Mailani (17); P.C. Pant 72363

## 3. MAESA Forssk.

**\*\*M. indica** (Roxb.) A. DC. in Trans. Linn. Soc. Lond. 17:134. 1834; Raizada, Suppl. Duthie's F.U.G.P. 143. 1976. *Baeobotrys indica* Roxb. [Hort. Beng. 16. (1814) *nom. nud.*] Fl. Ind. ed. 2, 1:557. 1832.

Evergreen shrubs, with straggling branches. Bark pale-brown. Leaves glabrous. Flowers white. Berries fleshy, round.

Few; fl. & fr.: Feb. Mar. & Sept. - Dec.; Bijrani (18); P.C. Pant 43401.

## 53. SAPOTACEAE (Sapodilla Family)

### MADHUCA Buch. Ham. ex J.F. Gmelin

**M. longifolia** (Koenig) Macbride in Contr. Gray Herb. 53:17. 1918. *Bassia longifolia* Koenig in L. Mant. Pl. 2:563. 1771. *B. latifolia* Roxb. Pl. Cor. 1:20, t. 19. 1795; Duthie, F.U.G.P. 1:465. 1960 (Rep. ed.). 'MAHUWA'

Deciduous trees. Bark dark grey or black. Leaves elliptic-obovate to oblong. Flowers cream coloured. Berries ovoid, fleshy.

Scattered; fl. & fr.: Mar. - Apr. & June - July; Dubriya chaur Gairal (10); P.C. Pant 43688.

## 54. EBENACEAE (Ebony Family)

### DIOSPYROS L.

**D. exsculpta** Buch. Ham. in Trans. Linn. Soc. Lond. 15:110. 1827. *D. tomentosa* Roxb. Fl. Ind. ed. 2, 2:532. 1832; Duthie, F.U.G.P. 1:469. 1960 (Rep. ed.). 'TENDU'

Deciduous trees. Bark black. Leaves broadly ovate, oblong. Flowers dioecious, white. Berries globose, smooth.

---

**\*\*Hara et al** has made a treatment like *Maesa montana* A. DC. in DC. Prodr. 8:79. 1844. *Baeobotrys indica auct non.* Roxb. *Maesa indica* Wall ex C.B. Clarke in Fl. Brit. Ind. 3:509. 1882, p.p. [An enumeration of the Flowering plants of Nepal 3:76. 1982].

Frequent; fl. & fr.: Apr.-May & May- June of the following year; Bijrani-Mailani (18-17); *P.C. Pant* 43616.

### 55. OLEACEAE (Olive Family)

- |   |                     |
|---|---------------------|
| 1a. Leaves very rough on upper surface, branchlets quadrangular.  | <i>Nyctanthes</i> 2 |
| 1b. Leaves pubescent, tomentose or glabrous, branchlets circular. |                     |
| 2a. Leaves glabrous, glandular underneath                         | <i>Olea</i> 3       |
| 2b. Leaves tomentose or pubescent, glands absent                  | <i>Jasminum</i> 1   |

#### 1. JASMINUM L.

**J. arborescens** Roxb. [Hort. Beng. 3 (1814) *nom. nud.*] Fl. Ind. 1:94. 1820; Duthie, F.U.G.P. 1:475. 1960 (Rep. ed.)

Deciduous, scandent shrubs. Bark pale-brown. Leaves broadly ovate or ovate-lanceolate, softly tomentose or glabrescent. Flowers white, fragrant. Berries ellipsoid, black.

Scattered; fl. & fr.: Apr. May & June - July; Gaujpani-Paterpani (8); *P.C. Pant* 43810.

#### 2. NYCTANTHES L.

**N. arbor-tristis** L. Sp. Pl. 6. 1753; Duthie, F.U.G.P. 1:477. 1960 (Rep. ed.)

Deciduous shrubs or small trees. Bark brown or grey somewhat rough. Leaves ovate. Flowers white-orange at the centre, pleasantly fragrant. Capsules orbicular, compressed.

Few; fl. & fr.: Aug. Oct. & Feb. Mar.; Kanda Dhikala (3-8); *K.P. Janardhanan* 51447.

#### 3. OLEA L.

**O. glandulifera** Wall. [Cat. 96n. 2811. (1831) *nom nud.*] ex G. Don Gen. Syst. 4:49. 1837; Duthie, F.U.G.P. 1:479. 1960 (Rep. ed.).

Medium sized, evergreen trees. Bark dark brown, rough. Leaves ovate, acuminate. Flowers cream coloured. Drupes ovoid.

Few; fl. & fr.: Apr. - May & Oct. - Feb.; On Way to Sultan (12); *P.C. Pant* 72416.

### 56. APOCYNACEAE (Doghane Family)

- |  |                   |
|--|-------------------|
| 1a. Erect shrubs or trees.   |                   |
| 2a. Armed  | <i>Carissa</i> 1  |
| 2b. Unarmed.   |                   |
| 3a. Leaves distichous; corolla tube with scales; fruit laterally compressed. | <i>Wrightia</i> 5 |

- 3b. Leaves not distichous; corolla tube without scales; fruit cylindrical. *Holarrhena* 2
- 1b. Twining or climbing shrubs.
- 4a. Leaves gland dotted, undersurface with parallel venation. *Vallaris* 4
- 4b. Leaves without glands, undersurface with finely reticulate venation. *Ichnocarpus* 3

### 1. CARISSA L. *nom. cons.*

*C. congesta* Wight. Icon 4(2): t.t. 1289. 1848. *C. carandas auct. pl. non L.* 1767; Duthie, F.U.G.P. 1:483. 1960 (Rep. ed.). "KARAUNDA"

Evergreen shrubs. Bark pale brown or grey. Leaves ovate, elliptic or suborbicular. Flowers white, fragrant. Berries subglobose or ellipsoid.

Frequent; fl. & fr.: Jan. - Apr. & May. - Nov.; Gairal (10); *P.C. Pant* 43655.

### 2. HOLARRHENA R.Br.

*H. pubescens* (Buch.-Ham.) Wall. ex G. Don Gen. Syst. 4:78. 1837.

*Echites pubescens* Buch. Ham. in Tr. Linn. Soc. Lond. 13:521. 1821.

*Holarrhena antidysenterica* Wall. ex DC. Prodr. 8:413. 1844; Duthie, F.U.G.P. 1:487. 1960 (Rep. ed.). "INDRAJAU" or "KURA"

Deciduous trees. Bark brown, rough, leaves broadly ovate or elliptic. Flowers white. Follicles divergent.

Frequent; fl. & fr.: Apr. - June & Nov. Mar.; Mailani Bijrani (16-17); *P.C. Pant* 43367.

### 3. ICHNOCARPUS R. Br. *nom. cons.*

*I. frutescens* (L.) R. Br. in Mem. Wern. Nat. Hist. S. 1:62. 1810; Duthie, F.U.G.P. 1:492. 1960 (Rep. ed.). *Apocynum frutescens* L. Sp. Pl. 213. 1753.

Evergreen, climbing shrubs. Bark reddish-brown, slightly rough. Leaves elliptic - oblong or ovate-lanceolate. Flowers white, fragrant. Follicles linear.

Scattered; fl. & fr.: Aug. - Dec. & Jan. - Apr.; Gairal (10); *P.C. Pant* 43166.

### 4. VALLARIS Burm. f.

*V. solanacea* (Roth) O. Kuntze Rev. Gen. Pl. 2:417. 1891. *Peltanthera solanacea* Roth. Nov. Pl. Sp. 132. 1821. *Vallaris heynei* Spreng. Syst. Veg. 1:635. 1824; Duthie, F.U.G.P. 1:488. 1960 (Rep. ed.).

Twining shrubs. Bark ash coloured, slightly corky. Leaves elliptic or

oblong lanceolate. Flowers white, fragrant. Follicles oblong.

Scattered; fl. & fr.: Feb. - May & May - Jan; Dhikala (8); *P.C. Pant* 43707.

### 5. WRIGHTIA R. Br.

**W. arborea** (Dennst.) Mabb. in *Taxon*. 26:533. 1977. *Periploca arborea* Dennst. *Schluss. H. Malabar*. 13, 23 & 25. 1818. *Wrightia tomentosa* Roem. & Schult. *Syst. Veg.* 4:414. 1819; Duthie, *F.U.G.P.* 1:490. 1960 (Rep. ed.)

Deciduous trees. Bark dark grey or plaе-brown, rough and corky. Leaves elliptic-oblong. Flowers white, tinged with pink turning to yellow. Follicles cylindrical, connate, white tubercled.

Few; fl. & fr.: May - June & Dec. - May; On Way to Kothi Rau (15); *P.C. Pant* 43831.

## 57. ASCLEPIADACEAE (Milkweed Family)

1a. Erect herbs, shrubs or undershrubs.

2a. Leafless or if present, minute linear.

*Orthanthera* 4

2b. Leaves always present, large, broadly elliptic.

*Calotropis* 1

1b. Twining shrubs.

3a. Leaves elliptic-oblong, intramarginal vein present.

*Cryptolepis* 2

3b. Leaves ovate-lanceolate, intramarginal vein absent.

*Leptadenia* 3

### 1. CALOTROPIS R. Br.

1a. Leaves petioled.

*C. acia* 1

1b. Leaves sessile.

2a. Corolla uniformly coloured, flower buds ovoid.

*C. gigantea* 2

2b. Corolla not uniformly coloured, flower buds hemispheric, depressed.

*C. procera* 3

1. **C. acia** Buch. *Ham. Trans. Linn. Soc. Lond.* 14:247. 1824; Duthie, *F.U.G.P.* 1:498. 1960 (Rep. ed.).

Stout herbs or undershrubs. Leaves obovate, oblanceolate or oblong. Flowers purplish. Follicles subglobose.

Few; fl. & fr.: Apr. - Aug.; Mailani Environs (17); *P.C. Pant* 43624.

2. **C. gigantea** (L.) Dryand. in *Ait. Hort. Kew.* ed. 2, 2:78. 1811; Duthie, *F.U.G.P.* 1:497. 1960 (Rep. ed.). *Asclepias gigantea* L. *Sp. Pl.* 214. 1753.

Evergreen shrubs. Bark pale yellowish-brown. Leaves obovate or oblong or elliptic-oblong. Flowers white, purple or bluish. Follicles obliquely ovoid.

Scattered; fl. & fr.: Larger part of the year; Mailani (17); *P.C. Pant* 43624.

3. **C. procera** (Ait.) Dryand in *Ait. Hort. Kew.* ed. 2, 2:78. 1811; Duthie,



F.U.G.P. 1:498. 1960 (Rep. ed.). *Asclepias procera* Ait. Hort. Kew. 1:305. 1789.

Evergreen shrubs. Leaves broadly elliptic, oblong or obovate. Flowers purplish pink. Follicles recurved, slightly oblong.

Few; fl. & fr.: Mar. Dec.; Dhara, Jhirna (21); *P.C. Pant* 43429.

### 2. CRYPTOLEPIS R. Br.

*C. buchamani* Roem. & Schult. Syst. Veg. 4:409. 1819; Duthie, F.U.G.P. 1:495. 1960 (Rep. ed.). "MEDA - SINHP".

Deciduous shrubs. Bark pale-yellowish brown. Leaves subcoriaceous. Flowers greenish-white or yellow. Follicles terete, pointed at apex.

Frequent; fl. & fr.: May - June & Aug. - Apr.; Hathipani, on Way to Kanda (2); *P.C. Pant* 43746.

### 3. LEPTADENIA R. Br.

*L. reticulata* (Retz.) Wight & Arn. in Wight Contr. Bot. Ind. 47. 1834; Duthie, F.U.G.P. 1:511. 1960 (Rep. ed.). *Cynanchum reticulatum* Retz. Obs. B. 2:15. 1781.

Deciduous shrubs. Bark pale-yellowish brown. Leaves subcoriaceous. Flowers greenish-white or yellow. Follicles slightly inflated, apex with obtuse, curved beak.

Scarce; fl. & fr.: Apr. - July & Dec. - Jan.; Kalagarh on Dhikala Road (13); *K.P. Janardhanan* 51471.

### 4. ORTHANTHERA Wight

*O. viminea* Wight. & Arn. in Wight Contr. Bot. Ind. 48. 1834; Duthie, F.U.G.P. 1:513. 1960 (Rep. ed.).

Shrubs. Bark pale ash. Leaves rarely present. Flowers dull brown. Follicles linear, tapering upwards.

Scarce; fl. & fr.: Feb. Apr. & Sept.; Mailani (17); *P.C. Pant* 43619.

## 58. LOGANIACEAE *Sensu lat.* (Logania Family)

1a. Herbs.

*Mitreola* 2

1b. Shrubs.

*Buddleja* 1

### 1. BUDDLEJA L.

*B. asiatica* Lour. Fl. Cochinch. 72. 1790; '*Buddleia*' *asiatica* Lour. Fl. Cochinch. 72. 1790; Duthie, F.U.G.P. 1:516. 1960 (Rep. ed.).

Large, evergreen shrubs. Bark grey. Leaves lanceolate. Flowers white fragrant. Capsules ellipsoid glabrous.

Few; fl. & fr.: Nov. - Apr.; Dhangadi Environs (12); *P.C. Pant* 43540.

## 2. MITREOLA L.

**M. petiolata** (Walter ex. J.F. Gmel.) Torr. & A. Gray Fl. N. Amer. 2:45. 1841. *Cynoctonum petiolatum* Walter ex. J.F. Gmel. Syst. Nat. ed. 13, 2:443. 1791. *Mitreola oldenlandioides* G. Don Gen. Syst. 4:172. 1837; Duthie, F.U.G.P. 1:515. 1960 (Rep. ed.).

Erect herbs. Leaves ovate or ovate-oblong. Flowers white. Capsules laterally compressed, two horned.

Rare; fl. & fr.: Sept. Dec.; Bijrani Environs (18); *P.C. Pant* 72267.

## 59. GENTIANACEAE (Gentian Family)

- 1a. Small herbs; leaves .3 - .4cm x .1 - .3cm *Hoppea* 2  
 1b. Large herbs; leaves 1-3cm x .3-1.5cm *Canscora* 1

## 1. CANSCORA Lamk.

- 1a. Flowers on slender stalks, white. *C. diffusa* 2  
 1b. Flowers on broader winged stalks, pink. *C. decussata* 1

1. **C. decussata** (Roxb.) J.A. Schult. & J.H. Schult. Syst. Veg. 3:229. 1827; Duthie, F.U.G.P. 1:523. 1960 (Rep. ed.). *Pladera decussata* Roxb. Fl. Ind. 1:418. 1820.

Erect herbs. Stem quadrangular, winged. Leaves oblong, lanceolate. Flowers on winged pedicels. Capsules oblong.

Few; fl. & fr.: Aug. Nov.; Sultan (11); *P.C. Pant* 43126.

2. **C. diffusa** (Vahl) R. Br. Prodr. Fl. Nov. Holl. 451. 1810; Duthie, F.U.G.P. 1:522. 1960 (Rep. ed.). *Gentiana diffusa* Vahl Symb. Bot. 13. 3:47. 1794.

Herbs, profusely branched upwards. Leaves thin, lower ones lanceolate or oblong, upper ones ovate. Flowers in lax panicles. Capsules oblong.

Scattered; fl. & fr.: Sept. Mar.; Sarpaduli Along Ramganga River Bank (10); *P.C. Pant* 43243.

## 2. HOPPEA Willd.

**H. dichotoma** Hayne ex Willd. Ges. Naturf. Fr. Neue Schrift. 3:435. 1801; Duthie, F.U.G.P. 1:522. 1960 (Rep. ed.).

Erect herbs, dichotomously branched from base. Leaves ovate. Flowers white. Capsules subglobose, minute.

Few; fl. & fr.: Sept. Dec.; Mailani Sot (17); *K.P. Janardhanan* 51359.

## 60. BORAGINACEAE (Borage Family)

- 1a. Leaves alternate or subopposite, base acute, flowers small, ca 5 mm across.

- 2a. Diffused prostrate herbs.  
 3a. Leaves narrow, linear. *Heliotropium* 3  
 3b. Leaves broader, ovate-oblong. *Bothriospermum* 1  
 2b. Erect herbs. *Cynoglossum* 2  
 1b. Leaves opposite, few upper ones alternate, base amplexicaul  
 and subcordate; flowers large, ca 1.5cm across. *Trichodesma* 4

### 1. BOTHRIOSPERMUM Bunge

**B. tenellum** (Hornem.) Fisch. & Mey Ind. Sem. Hort. Petrop. 1:23. 1835; Duthie, F.U.G.P. 1:540. 1960 (Rep. ed.). *Anchusa tenella* Hornem. Hort. Hafn. 1:176. 1815.

Strigose herbs. Leaves with bulbous based soft hairs. Flowers white. Nutlets ellipsoid, tuberculate.

Few; fl. & fr.: Feb. - Mar. & Apr.; Paternallaha, Kalagarh (14); *P.C. Pant* 61795.

### 2. CYNOGLOSSUM L.

- 1a. Inflorescence stalk long ca.5 - 16cm with distantly set flowers.  
 2a. Stem and leaf surfaces with tubercled hairs. *C. lanceolatum* 1  
 2a. Stem and leaf surfaces without tubercled hairs. *C. zeylanicum* 3  
 1b. Inflorescence stalk short ca.2 - .3cm with closely set flowers. *C. wallichii* 2

1. **C. lanceolatum** Forsk. Pl. Aegypt.-Arab. 41. 1775; Duthie, F.U.G.P. 1:540. 1960 (Rep. ed.).

Hispid herbs. Leaves, radical ones oblong-obovate, cauline lanceolate. Flowers white. Nutlets glochidiate.

Few; fl. & fr.: July - Nov.; Bijrani (18); *P.C. Pant* 43398.

\*2. **C. wallichii** G. Don. Gen. Syst. 4;354. 1837; C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:157. 1883. p. p.

Erect herbs. Leaves lanceolate-obovate. Flowers pale to deep blue. Nutlets strongly margined, glochidiate.

Rare; fl. & fr.: Sultan (11); *K.P. Janardhanan* 50116.

3. **C. zeylanicum** (Vahl) Thunb. ex Lehm Neue Schriften Natur. Ges. Halle 3(2):20 1817. *Anchusa zeylanica* Vahl ex Hornem. Enum Haf. in 3. 1807. *Cynoglossum denticulatum* var. *zeylanica* C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:157. 1883; Duthie, F.U.G.P. 1:540. 1960 (Rep. ed.)

Erect pubescent herbs. Leaves narrowly lanceolate. Flowers white. Nutlets glochidiate.

Few; fl. & fr.: Oct. Apr.; Dhikala Chaur (8); *P.C. Pant* 43732.

## 3. HELIOTROPIUM L.

**H. strigosum** Willd. Sp. Pl. 1:743. 1798; Duthie F.U.G.P. 1:537. 1960 (Rep. ed.).

Much branched, strigose herbs. Leaves diminishing in size upwards. Flowers white. Fruits globose.

Scattered; fl. & fr.: Mar. Dec.; Machan Chaur, Bijrani (18); P.C. Pant 43590.

4. TRICHODESMA R. Br. *nom. cons.*

**T. indicum** (L.) R. Br. Prodr. Fl. Nov. Holl. 496. 1810; Duthie, F.U.G.P. 1:538. 1960 (Rep. ed.) *Borago indica* L. Sp. Pl. 137. 1753.

Herbs with bulbous based hairs. Leaves ovate-oblong or lanceolate. Flowers blue or pinkish white. Fruits oblong.

Frequent; fl. & fr.: Mar. Nov.; Dhikala Chaur (8); P.C. Pant 43717.

## 61. EHRETIACEAE

1a. Flowers distinctly pedicelled; calyx tubular or campanulate.

*Cordia* 1

1b. Flowers sessile or subsessile; calyx partite.

*Ehretia* 2

## 1. CORDIA L.

1a. Leaves rough above; flowers in dense cymes.

*C. vestita* 2

1b. Leaves not rough; flowers in lax cymes.

*C. dichotoma* 1

1. **C. dichotoma** Forst. f. Prodr. 18. 1786. *C. myxa auct. pl. non L.* 1753; Duthie, F.U.G.P. 1:528. 1960 (Rep. ed.).

Deciduous trees. Bark grey or brown. Leaves variable, ovate-elliptic-oblong to sub orbicular or ovate. Flowers white. Drupes ovoid.

Scattered; fl. & fr.: Mar. - Apr. & July - Dec.; Dhikala (8); P.C. Pant 43714.

2. **C. vestita** Hook. f. & Thom. in Journ. Linn. Soc. 2:128. 1858; Duthie, F.U.G.P. 1:529. 1960 (Rep. ed.)

Deciduous trees. Bark greenish grey or tinged with red. Leaves elliptic-oblong to orbicular. Flowers yellowish white. Drupes globose.

Few; fl. & fr.: Mar. May & June - July; Kanda (3); P.C. Pant 43789.

## 2. EHRETIA L.

1a. Leaves with entire margin.

*E. laevis* 2

1b. Leaves with serrate margin.

*E. acuminata* var. *serrata* 1

1. **E. acuminata** R. Br. Var *serrata* (Roxb.) I.M. Johnston in Journ. Arn. Arb. 32:23. 1951. *E. acuminata auct. non R. Br.* C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:141. 1883, p.p.; Duthie, F.U.G.P. 1:531. 1960 (Rep. ed.).

Subdeciduous trees. Bark brown or dark grey. Leaves elliptic or ovate-oblong. Flowers white, fragrant. Drupes obtuse.

Few; fl. & fr.: Mar. Dec.; Dhikala (2); *P.C. Pant* 43790.

*E. laevis* Roxb. Pl. Cor. 1:42, t. 55. 1795; Duthie, F.U.G.P. 1:531. 1960 (Rep. ed.). 'CHAMROR'

Deciduous trees. Bark ash grey. Leaves elliptic or obovate. Flowers white. Drupes round, red on ripening.

Scattered; fl. & fr.: Dec.-Mar. & Apr.-June; Dhikala (8); *P.C. Pant* 43739.

## 62. CONVULVULACEAE (Convolvulus Family)

- |   |                    |
|---|--------------------|
| 1a. Succulent, leafless herbs.  | <i>Cuscuta</i> 2   |
| 1b. Non succulent, leaves present.  |                    |
| 2a. Trailing or prostrate herbs; leaves small ca 0.5 - 2 x 0.5-1.5cm.               | <i>Evolvulus</i> 3 |
| 2b. Climbing, twining or erect plants; leaves large ca 3 - 15 x 0.5 -12cm.          |                    |
| 3a. Flowers numerous in panicles, small ca 0.5cm across.                            | <i>Porana</i> 5    |
| 3b. Flowers solitary or upto 5, in cymes, large ca 5.0cm across.                    |                    |
| 4a. Leaf surfaces with appressed bulbous hairs, mid rib with gland pits underneath. | <i>Argyreia</i> 1  |
| 4b. Leaf surfaces puberulous or hairy gland pits not present.                       | <i>Ipomoea</i> 4   |

### 1. ARGYREIA Lour.

*A. nasirii* D. Austin in Fl. W. Pak. 126: 4. 1979. *Lettsomia thomsonii* C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:193. 1883; Duthie, F.U.G.P. 1:561. 1960 (Rep. ed.).

Large climbing shrubs. Bark pale brown. Leaves ovate with cordate base. Flowers purple. Berries ovoid.

Few; fl. & fr.: Sept. Oct.; Dhara Block Mailani (17); *P.C. Pant* 72374.

### 2. CUSCUTA L.

*C. reflexa* Roxb. Pl. Corm. 2:3, t. 104. 1798; Duthie, F.U.G.P. 1:543. 1960 (Rep. ed.).

Parasitic, cord like twiners. Flowers white. Capsules globose.

Rare; fl. & fr.: sept. Dec. Jhirha (15); *K.P. Janardhanan* 51498.

### 3. EVOLVULUS L.

- |  |                         |
|--|-------------------------|
| 1a. Leaves orbicular; stem rooting at nodes.               | <i>E. nummularius</i> 2 |
| 1b. Leaves lanceolate to ovate; stem not rooting at nodes. | <i>E. alsinoides</i> 1  |

1. **E. alsinoides** (L.) L. Sp. Pl. ed. 2, 392. 1762; Duthie, F.U.G.P. 1:546. 1960 (Rep. ed.). *Convolvulus alsinoides* L. Sp. Pl. 157. 1753.

Prostrate branched herbs. Leaves with appressed hairs. Flowers blue. Capsules globose.

Frequent; fl. & fr.: Jan. - Dec.; Dhikala (8); P.C. Pant 43718.

2. **E. nummularius** (L.) L. Sp. Pl. ed. 2, 391. 1762. *Convolvulus nummularius* L. sp. Pl. 157. 1753. *Volvulopsis nummularia* (L.) Roberty, in *candollea* 14:28. 1952; Raizada Suppl. Duthie's, F.U.G.P. 166. 1976.

Trailing, branched herbs. Leaves alternate, shortly petioled. Flowers white. Capsules globular.

Few; fl. & fr.: Mar. - Nov.; Dhara Block Kalagarh (14); P.C. Pant 43886.

#### 4. IPOMOEA L.

1a. Erect or sub erect shrubs. *I. carnea* 1

1b. Twining or climbing plants.

2a. Leaves finely pinnetisect. *I. quamoclit* 6

2b. Leaves entire or lobed.

3a. Flowers subsessile, small ca. .2 - .3cm across. *I. eriocarpa* 2

3b. Flowers stalked large ca 1.1 - 2cm across.

4a. Sepals with long, ligulate tips. *I. nil* 4

4b. Sepals without ligulate tips.

5a. Stem and leaves with long spreading hairs. *I. pes-tigridis* 5

5b. Stem and leaves glabrous. *I. hederifolia* 3

1. **I. carnea** Jacq. Enum. Pl. Carib. 13. 1760. *I. fistulosa* Mart. ex Choisy in DC. Prodr. 9:349. 1845; Raizada Suppl. Duthie's, F.U.G.P. 163. 1976.

Tall shrubs, with milky juice. Leaves ovate, cordate. Flowers bluish-purple or pale lilac. Capsules ovoid.

Abundant; fl. & fr.: Jan. - Dec.; Around Dhara Sot (14); K.P. Janardhanan 51493.

2. **I. eriocarpa** R. Br. Prodr. Fl. Nov. Holl. 484. 1810. *I. hispida* Roem. & Schult. Syst. Veg. 4:238. 1819; Duthie, F.U.G.P. 1:554. 1960 (Rep. ed.)

Twining villous herbs. Leaves ovate-cordate. Flowers pink. Capsules globose, hairy.

Few; fl. & fr.: Mar. - Nov.; Lakkar Ghat, Kalagarh (14); P.C. Pant 72211.

3. **I. hederifolia** L. Syst. Nat. ed. 10, 925. 1759. *Quamoclit phoenicia* Choisy in Mem. Soc. Phys. Genev 6. 1833; Duthie, F.U.G.P. 1:562. 1960 (Rep. ed.).

Slender climbers. Leaves ovate-cordate, entire or three lobed. Flowers

crimson, orange or yellow. Capsules globose, glabrous.

Few; fl. & fr.: July - Dec.; Jhirna (15); *P.C. Pant* 43441.

4. **I. nil** (L.) Roth. Cat. Bot. 1:36. 1797. *Convolvulus nil* L. Sp. Pl. ed. 2. 1:219. 1762. *Ipomoea hederacea auct. pl. non Jacq.* 1786; Duthie, F.U.G.P. 1:556. 1960 (Rep. ed.).

Twining shrubs. Leaves ovate-cordate, three lobed or entire. Flowers blue tinged with pink. Capsules subglobose, smooth.

Few; fl. & fr.: Mar. - Dec.; Jhirna (15); *P.C. Pant* 43469.

5. **I. pesti-gridis** L. Sp. Pl. 162. 1753; Duthie, F.U.G.P. 1:557. 1960. (Rep. ed.).

Diffused or twining herbs. Leaves palmately lobed or entire. Flowers white or pink. Capsules ovoid, glabrous.

Scattered; fl. & fr.: Aug. - Feb.; Bijrani Environs (18); *P.C. Pant* 72269.

6. **I. quamoclit** L. Sp. Pl. 159. 1753; *Quamoclit pinnata* Boj. Hort. Maurit. 224. 1837; Duthie, F.U.G.P. 1:563. 1960 (Rep. ed.).

Slender twining herbs. Leaves pinnately segmented filiform. Flowers red. Capsules globose.

Few; fl. & fr.: Aug. - Mar.; Amgadi Sot (11); *P.C. Pant* 43140.

#### 5. PORANA *Burm. f.*

**P. paniculata** Roxb. Pl. Cor. 3:31, t. 235. 1819; Duthie, F.U.G.P. 1:544. 1960 (Rep. ed.).

Large, evergreen, woody, climbing shrubs. Bark dull brown. Leaves ovate, cordate. Flowers white. Capsules ovoid, supported by membranous sepals.

Scattered; fl. & fr.: Nov. - Apr.; Sarpaduli Environs (10); *P.C. Pant* 43194.

### 63. SOLANACEAE (Potato Family)

1a. Corolla small, rotate.

2a. Stem striate; flowers yellow; fruits enclosed within inflated calyx.

*Physalis* 2

2b. Stem not striate; flowers white or mauve; fruits not enclosed within calyx.

*Solanum* 3

1b. Corolla large, funnel shaped.

*Datura* 1

#### 1. DATURA L.

**D. stramonium** L. Sp. Pl. 179. 1753; Duthie, F.U.G.P. 2:8. 1960 (Rep. ed.)

Herbs or undershrubs. Leaves ovate, sinuately toothed. Flowers white. Capsules ovoid, covered with sharp prickles.

Rare; fl. & fr.: Dec. - May; Takia Sot, Boxar (7); *P.C. Pant* 43824.

2. **PHYSALIS L.**

- P. minima** L. Sp. Pl. 183. 1753; Duthie, F.U.G.P. 2:5 1960 (Rep. ed.).  
Erect or decumbent herbs. Leaves ovate, sinuate or lobed. Flowers on slender pedicels. Berries globular.  
Scarce; fl. & fr.: July - Dec.; Domunda near Bridge (8); *K.P. Janardhanan* 51430.

3. **SOLANUM L.**

- 1a. Plants armed.
- 2a. Diffused herbs; leaves dark green. *S. surattense* 5
- 2b. Erect or decumbent, ascending shrubs or undershrubs, leaves dull green.
- 3a. Leaves thick, surfaces beset with stellate hairs only.
- 4a. Bark pale greenish-grey or white, berry ca 2-3cm in diameter. *S. incanum* 3
- 4b. Bark pale brown, berry ca 1-1.5cm in diameter. *S. anguivi* 1
- 3b. Leaves thin, surfaces beset with both simple and stellate hairs. *S. viarum* 6
- 1b. Plants unarmed.
- 5a. Leaves membranous, glabrous or pubescent. *S. nigrum* 4
- 5b. Leaves thick scurfy tomentose. *S. erianthum* 2

1. **S. anguivi** Lamk. Tabl. Encycl. 2:23. 1794. *S. indicum auct. non L.* 1753; Duthie, F.U.G.P. 2:3. 1960 (Rep. ed.).

Erect, stellately tomentose shrubs. Leaves ovate-oblong, sinuate-lobed. Flowers blue. Berries orange-yellow, globose.

Few; fl. & fr.: Mar. - Nov.; Kanda - Hathipani (3); *P.C. Pant* 43795.

2. **S. erianthum** D. Don. Prodr. Fl. Nep. 96. 1825. *S. verbascifolium auct. pl. non L.* 1753; Duthie, F.U.G.P. 2:2. 1960 (Rep. ed.).

Small trees or shrubs. Bark pale-brown. Leaves elliptic-lanceolate or ovate. Flowers white. Berries globose, resting in calyx.

Scattered; fl. & fr.: Jan. - Dec.; Jhirna (15); *P.C. Pant* 43434.

3. **S. incanum** L. Sp. Pl. 188. 1753; Duthie, F.U.G.P. 2:4. 1960 (Rep. ed.).

Shrubs, densely clothed with yellow stellate pubescens. Leaves ovate-elliptic. Flowers blue. Berries ovoid or subglobose, yellow.

Few; fl. & fr.: Jan. - May & Oct. - Dec.; On Way to Bijrani Machan (18); *P.C. Pant* 43404.

4. **S. nigrum** L. Sp. Pl. 186. 1753; Duthie, F.U.G.P. 2:2. 1960 (Rep. ed.).

Small, branched herbs. Leaves ovate, sinuate or entire. Flowers white.



Berries globose, red or black, smooth.

Rare; fl. & fr.: Mar. Dec., Babalmunda (14); *P.C. Pant* 43450.

5. *S. surattense* Burm. f. Fl. Ind. 57. 1768. *S. xanthocarpum* Schrad. & Wendl. in Schrader Sert. Hanov. 1:8, t. 2. 1795; Duthie, F.U.G.P. 2: 3. 1960 (Rep. ed.).

Diffused herbs. Leaves ovate-lanceolate, deeply lobed. Flowers mauve. Berries white or yellow, with green reticulations.

Frequent; fl. & fr.: Mar. Dec.; Boxar (7); *P.C. Pant* 43843.

6. *S. viarum* Dunal in DC Prodr. 13(1): 240. 1852; Raizada Suppl. Duthie's F.U.G.P. 178. 1976.

Erect or diffused shrubs. Leaves broadly ovate-cordate, sparsely prickly on both sides. Flowers white. Berries globose, yellow.

Few; fl. & fr.: Jan. Dec.; Mailani (17); *P.C. Pant* 43609.

#### 64. SCROPHULARIACEAE (Figwort Family)

- |   |                       |
|---|-----------------------|
| 1a. Scabrid herbs.  | <i>Striga</i> 8       |
| 1b. Non scabrid herbs or undershrubs.                                 |                       |
| 2a. Leaves alternate.   | <i>Verbascum</i> 10   |
| 2b. Leaves all or at least some opposite or whorled.                  |                       |
| 3a. Succulent herbs.  |                       |
| 4a. Leaves small ca. 4-8cm obovate-oblong or spatulate.               | <i>Bacopa</i> 1       |
| 4b. Leaves large ca. 1.4-8cm oblong-lanceolate or linear-oblong.      | <i>Veronica</i> 11    |
| 3b. Non succulent herbs.  |                       |
| 5a. Leaves on basal rosette and on aerial branches.                   | <i>Mazus</i> 5        |
| 5b. Leaves on aerial branches.  |                       |
| 6a. Stout herbs or undershrubs, stem subwoody.                        | <i>Scoparia</i> 7     |
| 6b. Weak herbs, stem herbaceous.                                      |                       |
| 7a. Corolla saccate or spurred at base.                               | <i>Misopates</i> 6    |
| 7b. Corolla neither saccate nor spurred.                              |                       |
| 8a. Leaves with obliquely truncate base; calyx winged.                | <i>Torenia</i> 9      |
| 8b. Leaves with acute, sub-cordate or rounded base; calyx not winged. |                       |
| 9a. Fertile stamens 4.  |                       |
| 10a. Leaves glandular-punctate; flowers pink-white or mauve or blue.  | <i>Limnophila</i> 2   |
| 10b. Leaves not glandular-punctate; flowers yellow.                   | <i>Lindenbergia</i> 3 |
| 9b. Fertile stamens 2.  | <i>Lindernia</i> 4    |

1. **BACOPA** Aublet *nom cons.*

**B. monnieri** (L.) Pennell in Proc. Acad. Nat. Sci. Philad. 98:94. 1946. *Lysimachia monnieri* L. Cent. Pl. 2:9. 1756. *Moniera cuneifolia* Michx. Fl. Bor. Amer. 2:22. 1803; Duthie, F.U.G.P. 2:17. 1960 (Rep. ed.).

Prostrate, creeping herbs. Leaves obovate-oblong or spatulate. Flowers pale-blue or white. Capsules ovoid, glabrous.

Rare; fl. & fr.: May Dec; Boxar (8); P.C. Pant 43851.

2. **LIMNOPHILA** R. Br. *nom. cons.*

1a. Leaves heterophyllous, lower dissected, upper ones entire. *L. indica* 1

1b. Leaves all similar.

2a. Creeping, rooting at nodes. *L. rugosa* 3

2b. Erect, not rooting at nodes. *L. repens* 2

1. **L. indica** (L.) Druce Rep. Bot. Exch. Club. Brit. Isles 3:420. 1914. *Hottonia indica* L. syst. Nat. ed. 10, 919. 1759. *Limnophila gratioloides* R. Br. Prodr. Fl. Nov. Holl. 442. 1810; Duthie, F.U.G.P. 2:21. 1960. (Rep. ed.).

Aquatic or marshy herbs. Leaves variable, pinnatifid-multifid lower ones and linear oblong upper ones. Flowers pink or white. Capsules subglobose.

Few; fl. & fr.: Sept. Dec.; Sarpaduli, along Ramganga River Bank (10); P.C. Pant 43242.

\*2. **L. repens** (Benth.) Benth. in DC Prodr. 10:387. 1846. *Stemodia repens* Benth. in Lindl. Bot. Reg. 17 Sub t. 1470. 1832. *Limnophila conferta* Benth. in Hook. f. Fl. Brit. Ind. 4:266. 1884.

Glabrous herbs. Leaves elliptic-oblong, subpetioled, under surface gland dotted. Flowers mauve. Capsules ovoid.

Few; fl. & fr.: Sept. Dec.; Mailani Environs (17); K.P. Janardhanan 51366.

3. **L. rugosa** (Roth) Merr. Interpr. Rumph. Herb. Amb. 466. 1917. *Herpestis rugosa* Roth Nov. Pl. Spec. 290. 1821; Raizada Suppl. Duthie's F.U.G.P. 184. 1976.

Stoloniferous, somewhat succulent herbs. Leaves ovate-elliptic, emitting pleasant aroma when bruised. Flowers blue. Capsules ovoid.

Rare; fl. & fr.: Aug. Nov.; Mailani (17); P.C. pant 72340.

3. **LINDENBERGIA** Lehm.

**L. indica** (L.) Vatke in Oesterr. Zeits 25:10. 1875. *Dodartia indica* L. Sp. Pl. 633. 1753. *Lindenbergia urticaefolia* Lehm. in Link. & Otto. Ic. Pl. Rar.

95.t. 48. 1831; Duthie, F.U.G.P. 2:33. 1960 (Rep. ed.).

Erect or creeping, slender herbs. Leaves broadly ovate. Flowers yellow. Capsules oblong, hairy.

Few; fl. & fr.: Oct. - Jan; Ghilmodya Sot (11); *P.C. Pant* 43168.

4. LINDERNIA All.

1a. Leaves oblong, oblong-lanceolate or elliptic.

2a. Leaf base 2-5 nerved.

3a. Capsule larger than calyx; fertile stamens 2. *L. parviflora* 6

3b. Capsules equalling the calyx; fertile stamens 4. *L. procumbens* 7

2b. Leaf base pinnately nerved.

4a. Leaf margin closely spinulose althrough; corolla white *L. ciliata* 3

4b. Leaf margin distantly serrate or sometimes lower portion subentire; corolla bluish purple. *L. antipoda* 2

1b. Leaves ovate or sub orbicular.

5a. Diffused herbs; Capsules shorter or equalling the calyx.

6a. Upper leaves sessile, lower tapering to a petiolar base; flowers white, in lower axils and terminal racemes. *L. viscosa* 9

6b. All leaves petioled; flowers purplish, in terminal ends of the branches. *L. crustacea* 4

5b. Erect, decumbent herbs; capsules, longer than calyx.

7a. Stem and branches capillary tube like; calyx divided half way down.

8a. Flowers subsessile; capsule acuminate. *L. sessiliflora* 8

8b. Flowers pedicelled, capsules apiculate. *L. nummularifolia* 5

7b. Stem and branches thicker; calyx divided to the base. *L. anagallis* 1

1. *L. anagallis* (Burm. f.) Pennell in Journ. Arn. Arb. 24:253. 1943. *Ruellia anagallis* Burm. f. Fl. Ind. 135. 1768. *Vandellia pedunculata* Benth. Scroph. Ind. 37. 1835; Duthie, F.U.G.P. 2:24. 1960 (Rep. ed.).

Glabrous, barnached herbs, stem hollow. Leaves ovate, shortly stalked. Flowers mauve coloured. Capsules linear-lanceolate.

Scattered; fl. & fr.: Apr. - June; Boxar (8); *P.C. Pant* 43835.

2. *L. antipoda* (L.) Alston in Trimen Handb. Fl. Cey. 6 Suppl. 214. 1931. *Ruellia antipoda* L. Sp. Pl. 635. 1753. *Bonnaya veronicaefolia* (Retz.) Spreng. Syst. Veg. 1:41. 1824; Duthie, F.U.G.P. 2:26. 1960 (Rep. ed.).

Creeping or decumbent herbs. Leaves oblong-lanceolate or elliptic.

Flowers bluish or pink. Capsules slender.

Few; fl. & fr.: Sept. Nov.; Sarpaduli environs (10); *P.C. Pant* 43220.

3. *L. ciliata* (Colsm.) Pennell in *Brittonia* 2:182. 1936. *Gratiola ciliata* Colsm. Prodr. Descr. Grat. 14. 1793. *Bonnaya brachiata* Link. & Otto, IC. Pl. Sel. Berol. 1:25, t. 11. 1820; Duthie, F.U.G.P. 2:26. 1960 (Rep. ed.).

Erect or prostrate, small herbs. Leaves oblong. Flowers white, tinged with pink. Capsules narrow, cylindrical.

Few; fl. & fr.: Aug. Nov.; Sarpaduli (10); *K.P. Janardhanan* 51220.

4. *L. crustacea* (L.) F. Muell. Syst. Census Austr. Pl. 1:97. 1882. *Capraria crustacea* L. Mant. Pl. 1:87. 1767. *Vandellia crustacea* (L.) Benth. Scroph. Ind. 35. 1835; Duthie, F.U.G.P. 2:23. 1960 (Rep. ed.).

Glabrous-sparsely hairy, branched herbs. Leaves ovate. Flowers purple or white. Capsules oblong-ovate.

Scattered; fl. & fr.: Sept. Dec.; Sarpaduli (10); *P.C. Pant* 43219.

5. *L. nummularifolia* (D. Don) Wettst. Pflanzenfam. 4. 3b:79. 1891. *Vandellia nummularifolia* D. Don Prodr. Fl. Nep. 86. 1825; Duthie, F.U.G.P. 2:24. 1960 (Rep. ed.).

Glabrous herbs. Leaves broadly ovate or suborbicular, sessile or shortly stalked. Flowers reddish-purple. Capsules cylindrical.

Frequent; fl. & fr.: Aug. Dec.; Kanda (3); *P.C. Pant* 43340.

6. *L. parviflora* (Roxb.) Haines Bot. Bihar & Orissa 4:635. 1922. *Gratiola parviflora* Roxb. Pl. Cor. 3:3, t. 204. 1819. *Ilysanthes parviflora* (Roxb.) Benth. in DC. Prodr. 10:419. 1846; Duthie, F.U.G.P. 2:25. 1960 (Rep. ed.).

Small, erect herb. Leaves oblong or oblong-lanceolate. Flowers white. Capsules ovoid-oblong.

Rare; fl. & fr.: Oct. - Dec.; High Bank, Sarpaduli (10); *K.P. Janardhanan* 51266 'A'

7. *L. procumbens* (Krock.) Borbas Bekesm Fl. 80. 1881. *Anagalloides procumbens* Krock. Fl. Siles 2(1):398, t. 26. 1790. *Vandellia Pyxidaria* (L.) Maxim. Bull. Acad. Sci. St. Petersb. 20:449. 1875; Duthie, F.U.G.P. 2:24. 1960 (Rep. ed.).

Small, glabrous herbs. Leaves elliptic or oblong. Flowers white. Capsules ovoid-orbicular.

Rare; fl. & fr.: Oct. Dec., Sarpaduli (10); *K.P. Janardhanan* 51266 B.

8. *L. sessiliflora* (Benth.) Wettst. Pflanzenfam. 4:3b. 79. 1891; Raizada Suppl. Duthie's, F.U.G.P. 186. 1976. *Vandellia sessiliflora* Benth. Scroph. Ind. 37. 1835.

Small herbs. Leaves rounded-orbicular. Flowers white, tinged with brown colour. Capsules cylindrical.

Few; fl. & fr.: Sept. Nov.; Dhangadi Environs (12); *K.P. Janardhanan* 50187.

9. *L. viscosa* (Hornem.) Boldingh Zakfl. Landb. Java 165. 1916; Raizada Suppl. Duthie's F.U.G.P. 187. 1976. *Gratiola viscosa* Hornem. Enum. Pl. Hort. Hafin 19. 1807.

Erect herbs, sparsely hairy. Leaves ovate. Flowers white. Capsules ovoid.

Few; fl. & fr.: Aug. Nov.; Sultan (11); *P.C. Pant* 72449.

### 5. MAZUS Lour.

1a. Stem and pedicel glabrous; leaves shortly petioled, inflorescence lax with few flowers.

*M. pumilus* 2

1b. Stem and pedicel hirsute; leaves sessile, inflorescence dense with many flowers.

*M. delavayi* 1

1. *M. delavayi* Bonati in Bull. Herb. Boiss. (Ser.2) 8:530. 1908; Raizada Suppl. Duthie's, F.U.G.P. 188. 1976.

Diffused herbs. Leaves oblanceolate-obovate. Flowers white. Capsules globose.

Rare, fl. & fr.: Nov. Apr.; Bijrani (18); *P.C. Pant* 43573.

2. *M. pumilus* (Burm. f.) Van Steenis in Nova Guinea N.S. 9:31. 1958. *Lobelia pumila* Burm. f. Fl. Ind. 186. t. 60, f.3. 1768. *Mazus rugosus* Lour. Fl. Cochinch. 385. 1790; Duthie, F.U.G.P. 2:19. 1960 (Rep. ed.).

Erect, tufted herbs. Leaves oblong or obovate-spathulate irregularly toothed. Flowers pale-blue or lilac. Capsules subglobose.

Few; fl. & fr.: Oct. Feb.; Sarpaduli environs (11); *P.C. Pant* 43218.

### 6. MISOPATES Rafin.

*M. orontium* (L.) Rafin. Antikon B. 158. 1840. *Antirrhinum orontium* L. Sp. Pl. 617. 1753; Duthie, F.U.G.P. 2:16. 1960. (Rep. ed.).

Erect herbs. Leaves linear or oblong-lanceolate. Flowers white with purple streaks. Capsules ovoid, pubescent.

Rare; fl. & fr.: Dec. May; Sarpaduli (10); *P.C. Pant* 43740.

### 7. SCOPARIA L.

*S. dulcis* L. Sp. 116. 1753; Duthie, F.U.G.P. 2:27. 1960. (Rep. ed.).

Suberect branched plants. Leaves lanceolate or elliptic-lanceolate. Flowers white. Capsules globose.

Scattered; fl. & fr.: Apr. Dec.; Boxar (8); *P.C. Pant* 43845.

8. **STRIGA** Lour.

**S. angustifolia** (D. Don) Saldanha in Bull. Bot. Surv. Ind. 5: 70. 1963. *Buchnera angustifolia* D. Don Prodr. 91. 1825. *Striga euphrasioides* auct. non Benth. 1836; Duthie, F.U.G.P. 2: 31. 1960 (Rep. ed.).

Erect herbs. Stems ribbed. Leaves sessile, linear or linear-lanceolate. Flowers white. Capsules ovoid.

Few; fl. & fr.: Sept.-Jan.; Bijrani (18); *P.C. Pant* 72325.

9. **Torenia** L.

**T. cordifolia** Roxb. Pl. Cor. 2:52, t.161. 1798; Duthie, F.U.G.P. 2:23. 1960 (Rep. ed.)

Erect herbs with quadrangular stem and branches. Leaves ovate. Flowers bluish-purple-mauve. Capsules oblong with calyx.

Scarce; fl. & fr.: Sept. - Dec.; Dhangadi - Amgadi (12); *P.C. Pant* 72396.

10. **VERBASCUM** L.

**V. chinense** (L.) Santapau Fl. Purandhar 90. 1958. *Scrophularia chinense* L. Mant. Pl. 2: 250. 1771. *Celsia coromandeliana* Vahl Symb. Bot. 3:79. 1794; Duthie, F.U.G.P. 2: 15. 1960 (Rep. ed.).

Stout, erect herbs. Basal leaves lyrate-pinnatifid, cauline ovate or oblong. Flowers yellow. Capsules sub-globose, glabrous.

Scattered; fl. & fr.: Jan. - July; Boxar (8); *P.C. Pant* 43848.

11. **VERONICA** L.

**V. anagallis-aquatica** L. Sp. Pl. 12. 1753. *V. anagallis* L. Sp. Pl. 12. 1753; Duthie, F.U.G.P. 2:28. 1960 (Rep. ed.).

Erect, glabrous herbs. Stem hollow. Leaves with clasping base. Flowers pale blue or white. Capsules ovoid, glabrous.

Rare; fl. & fr.: Dec. - May; Boxar (8); *P.C. Pant* 43849.

65. **OROBANCHACEAE** (Broomrape Family)**AEGINETIA** L.

**A. indica** L. Sp. Pl. 632. 1753; Duthie, F.U.G.P. 2:35. 1960 (Rep. ed.).

Leafless, parasitic, purple tinged herbs. Flowers dark purple. Capsules ovoid.

Scarce; fl. & fr.: Aug. - Oct.; Sajgadi Sot Environs (12); *P.C. Pant* 72417.

66. **GESNERIACEAE** (Gesneria Family)

- 1a. Small herbs intactly growing; Leaves solitary or upto 3 falsely appearing clustered at apex; flowers clustered at the junction of petiole with leaf.

*Didymocarpus* 1

- 1b. Tall herbs prominently raised. leaves many, alternately scattered; flowers on long raceme.

*Rhynchoglossum* 2

1. **DIDYMOCARPUS** Wall.

**D. pygmaea** C.B. Clarke in Hook.f. Fl. Brit. Ind. 4:345. 1884; Duthie, F.U.G.P. 2:40. 1960 (Rep. ed.).

Delicate, pubescent herbs, stem filiform. leaves membranous, obliquely ovate, margin slightly toothed. Flowers small, greenish dull red. Capsules minute.

Rare; fl. & fr.: Oct. - Nov.; Sajgadi Sot Environs (11); *P.C. Pant* 72418.

2. **RHYNCHOGLOSSUM** Blume

**R. obliquum** Bl. Bijdr. 741. 1826; Duthie, F.U.G.P. 2:41. 1960 (Rep. ed.).

Succulent, glabrous herbs. Stem thick. Leaves elliptic-oblong with unequal base. Flowers bluish mauve coloured. Capsules ellipsoid.

Few; fl. & fr.: Aug. - Nov.; Amgadi Sot (11); *P.C. Pant* 43114.

67. **BIGNONIACEAE** (Bignonia Family)

**STEREOSPERMUM** Cham.

**S. chelonoides** ( L. f.) DC. in Bibl. Univ. Geneve 2. 17:125. 1838. *Bignonia chelonoides* L.f. Suppl. Pl. 282. p.p. excl. Rheede. Roxb. Fl. Ind. ed. 2. 3:106. 1832. p.p. *Stereospermum suaveolens* (Roxb.) DC. Prodr. 9:211. 1845; Duthie, F.U.G.P. 2:45. 1960 (Rep. ed.) "PADAL"

Deciduous trees. Bark yellowish-grey or brown, slightly rough. Leaves imparipinnate, leaflets elliptic or elliptic-oblong. Flowers reddish-purple, fragrant. Capsules long, cylindrical.

Few; fl. & fr.: Apr. - Dec; Hathipani (2); *P.C. Pant* 43749.

68. **PEDALIACEAE** (*Pedaliium* Family)

**SESAMUM** L.

**S. orientale** L. Sp. Pl. 634. 1753. *S. indicum* L. Sp. Pl. 634. 1753; Duthie, F.U.G.P. 2:47. 1960 (Rep. ed.).

Erect, pubescent herbs. Leaves ovate, sometimes lobed or deeply divided. Flowers pink or white. Capsules oblong.

Rare; fl. & fr.: Aug. - Nov.; Dhara Block, Kalagarh (14); *P.C. Pant* 43875.

69. **MARTYNIACEAE** (*Martynia* Family)

**MARTYNIA** L.

**M. annua** L. Sp. Pl. 618. 1753. *M. diandra* Glox. Obs. Bot. 14.t.l. 1785; Duthie, F.U.G.P. 2:48. 1960 (Rep. ed.).

Glandular herbs undershrubs. Leaves broadly ovate, slightly lobed.

Flowers pink-purple. Capsules beaked and with paired hooks.

Few; fl. & fr.: July - Nov.; Dhara Block, Kalagarh (14); P.C. Pant 43883.

### 70. ACANTHACEAE (Acanthus Family)

- 1a. Leaf margin toothed.
    - 2a. Leaves petioled, ovate. *Hemigraphis* 7.
    - 2b. Leaves sessile, elliptic-lanceolate or ovate-oblong. *Perilepta* 11.
  - 1b. Leaf margin entire (sometimes very obscurely crenulate or subentire in *Erianthemum pulchellum* and *Dipteracanthus beddomei* respectively).
    - 3a. Roots fleshy, tuberous. *Nelsonia* 10.
    - 3b. Roots not fleshy, fibrous.
      - 4a. Leaves dark-green, undersurface punctulate. *Phlogacanthus* 13.
      - 4b. Leaves dull-green, surfaces either beset with cystoliths or puberulous.
        - 5a. Corolla 2-lipped.
          - 6a. Flowers in dense spikes.
            - 7a. Leaves large, usually 10-13cm long, flowers large, Ca 2-10cm long. *Adhatoda* 1
            - 7b. Leaves small 1-9cm long, flowers small, Ca .25-1.5 cm long.
              - 8a. Bracts acuminate, cuspidate.
                - 9a. Stem and branches thin; bracts eglandular, margin scarious, stamens 2. *Rungia* 14
                - 9b. Stem and branches thick; bracts glandular margin not scarious, stamens 4. *Lepidagathis* 9
              - 8b. Bracts acute, not cuspidate. *Justicia* 8
      - 6b. Flowers in lax cymes or panicles.
        - 10a. Diffused or sub erect herbs; flowers in aggregated cymes. *Dicliptera* 4
        - 10b. Erect herbs; flowers in branched cymes. *Peristrophe* 12
    - 5b. Corolla not lipped, funnel shaped.
      - 11a. Flowers scattered on long racemes. *Asystasia* 2
      - 11b. Flowers aggregated on short spikes, or in axillary and terminal clusters.
        - 12a. Flowers in axillary and terminal clusters. *Dipteracanthus* 5
        - 12b. flowers aggregated in spikes.
- 13a. Flowers lilac or pink, rarely white, stamens 4, calyx unequally 4-parted. *Barleria* 3
- 13b. Flowers dark blue, stamens 2, calyx equally 5-lobed. *Erianthemum* 6



## 1. ADHATODA Mill.

\*\**A. zeylanica* Medic. Hist. & Commentat. Acad. Elect. Sci. Theod. Palat. 6:393. 1790. *Justicia adhatoda* L. Sp. Pl. 15. 1753; Duthie, F.U.G.P. 2:76. 1960 (Rep. ed.).

Evergreen shrubs. Bark pale brown. Leaves ovate-lanceolate. Flowers White. Capsules clavate.

Frequent; fl. & fr.: Dec. Apr.; Dhulwa (12); *P.C. Pant* 43510.

## 2. ASYSTASIA Bl.

*A. macrocarpa* Nees in Wall. Pl. As. Rar. 3:89. 1832; Duthie, F.U.G.P. 2:71. 1960 (Rep. ed.).

Diffused undershrubs. Leaves lanceolate or oblong. Flowers mauve or pink. Capsules pubescent.

Few; fl. & fr.: Apr. Sept.; On way to Sultan (12); *P.C. Pant* 43558.

## 3. BARLERIA L.

1a. Leaves ovate or broadly elliptic, base decurrent; outer calyx segments with ciliate margins.

*B. strigosa* 2

1b. Leaves elliptic - oblong, base not decurrent; outer calyx segments with subspinescently toothed margins.

*B. cristata* 1

1. *B. cristata* L. Sp. Pl. 1:636. 1753; Duthie, F.U.G.P. 2:70. 1960 (Rep. ed.).

Herbs-undershrubs. Leaves hairy. Flowers in axillary and terminal heads. Capsules oblong.

Scattered; fl. & fr.: Oct. Dec.; Sultan (11); *K.P. Janardhanan* 50161.

2. *B. strigosa* Willd. Sp. Pl. 3:379. 1800; Duthie; F.U.G.P. 2:70. 1960 (Rep. ed.).

Undershrubs. Leaves glabrous above, strigose on nerves underneath. Flowers in dense, unilateral spikes, often crowded on top of branches. Capsules acute, glabrous.

Scattered; fl. & fr.: Oct. Feb.; Kanda Hathipani (3); *P.C. Pant* 43271.

4. DICLIPTERA Juss. *nom. cons.*

*D. bupleuroides* Nees in Wall. Pl. As Rar. 3:111. 1832. *D. roxburghiana* Nees. *Var bupleuroides* (Nees) C.B. Clarke in Hook. *f. Fl. Brit. Ind.* 4:554. 1885; Duthie, F.U.G.P. 2:81. 1960 (Rep. ed.).

---

\*\*Hara et al. treated this species under *Justicia adhatoda* L. [An Enumeration of the flowering plants of Nepal 3:141. 1982].

Herbs. With grooved stem. Leaves elliptic - ovate. Flowers pink. Capsules clavate.

Scattered; fl. & fr.: Jan. Dec.; Bijrani (18); *P.C. Pant* 43644.

#### 5. DIPTERACANTHUS Nees *emend.* Bremek.

**D. beddomei** (C.B. Clarke) Santapau Ind. For. 79: 322. 1953; Raizada Suppl. Duthie's F.U.G.P. 204. 1976. *Ruellia beddomei* C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:413. 1884.

Erect herbs. Leaves ovate-elliptic or elliptic-lanceolate. Flowers pale purple. Capsules glabrous.

Rare; fl. & fr.: Oct. Dec.; Dhulwa East (12); *P.C. Pant* 43051.

#### 6. ERANTHEMUM L.

**E. pulchellum** Andrews B. Repos. 2:t, 88. 1800. *Justicia nervosa* Vahl Enum. Pl. 1:164. 1804. *Daedalacanthus nervosus* (Vahl) T. Anders in Jour. Linn. Soc. Bot. 9:487. 1867; Duthie, F.U.G.P. 2:63. 1960 (Rep. ed.).

Shrubs with quadrangular stem. Leaves ovate-elliptic, nerves raised underneath. Flowers bracteate. Capsules oblong, glabrous.

Rare; fl. & fr.: Nov. May; On way to Boxar (7); *P.C. Pant* 43858.

#### 7. HEMIGRAPHIS Nees *emend.* T. Anders.

**H. rupestris** Heyne ex T. Anders Journ. Linn. Soc. Bot. 9:462. 1867. *H. latebrosa* Nees. var. *rupestris* (Heyne ex Anders) C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:424. 1884; Duthie, F.U.G.P. 2:61. 1960 (Rep. ed.).

Pubescent herbs. Leaves with rounded or cuneate base. Flowers blue. Capsules hairy.

Frequent; fl. & fr.: Oct. - June; 6 Km. Kanda Dhikala Road (3); *K. P. Janardhanan* 51451.

#### 8. JUSTICIA L.

1a. Raphides straight; spikes linear, sparsely hairy.

*J. diffusa* 1

1b. Raphides curved, spikes broad with dense argentiferous hairs.

*J. procumbens* 2

1. **J. diffusa** Willd. Sp. Pl. 1:87. 1797; Duthie, F.U.G.P. 2:78. 1960 (Rep. ed.)

Erect herbs. Leaves ovate or elliptic-lanceolate. Flowers pink or pale purple. Capsules oblong.

Scattered; fl. & fr.: Aug. Oct.; Sultan (11); *K. P. Janardhanan* 50117.

2. **J. procumbens** L. Sp. Pl. 15. 1753. *J. Simplex* D. Don Prodr. Fl. Nep. 118. 1825; Duthie, F.U.G.P. 2:78. 1960 (Rep. ed.).

Erect or prostrate herbs. Leaves ovate or elliptic-oblong. Flowers pale-

pink or white. Capsules oblong, hairy.

Scattered; fl. & fr.: Aug. - Dec.; Kanda (3); *P.C. Pant* 43336.

9. **LEPIDAGATHIS** Willd.

1a. Shrubs-undershrubs; leaves mucronate-spinous tipped. *L. cuspidata* 1

1b. Prostrate or diffused herbs; leaves neither mucronate nor spinous.

2a. Stem angular; bracts striate. *L. purpuricaulis* 3

2b. Stem not angular; bracts not striate. *L. incurva* 2

1. *L. cuspidata* Nees in Wall. Pl. As. Rar. 3:97. 1832; Duthie, F.U.G.P. 2:73. 1960 (Rep. ed.).

Subdeciduous plants. Bark pale brown or grey. Flowers white. Capsules ovoid lanceolate.

Frequent; fl. & fr.: Jan. - Sept.; Gajar Sot (11); *P.C. Pant* 43548.

2. *L. incurva* Buch-Ham. ex D. Don Prodr. Fl. Nep. 119. 1825. *L. hyalina* Nees in Wall. Pl. As. Rar. 3:95. 1832; Duthie, F.U.G.P. 2:74. 1960 (Rep. ed.).

Pubescent herbs. Leaves variable, oblong, ovate or linear. Flowers white. Capsules small, beaked.

Frequent; fl. & fr.: Nov. - May; Dhulwa East (12); *P.C. Pant* 43502.

3. *L. purpuricaulis* Nees in Wall. Pl. As. Rar. 3:96. 1832; Duthie, F.U.G.P. 2:73. 1960 (Rep. ed.).

Glabrous or pubescent herbs, stem often purple. Leaves lanceolate or ovate-lanceolate. Flowers pale purple or mauve. Capsules compressed.

Scattered; fl. & fr.: Mar. - June; On way to Sultan (11); *P.C. Pant* 43564.

10. **NELSONIA** R. Br.

*N. canescens* (Lamk.) Spreng. Syst. Veg. 1:42. 1825. *Justicia canescens* Lamk. Tabl. Encycl. 1:41. 1791. *Nelsonia campestris* R. Br. Prodr. Fl. Nov. Holl. 481. 1810; Duthie, F.U.G.P. 2:52. 1960 (Rep. ed.).

Diffused, pubescent-villous herbs. Leaves varying, long petioled, obovate-elliptic to sessile elliptic-ovate or obovate. Flowers mauve coloured. Capsules ovoid.

Common; fl. & fr.: Nov. - Apr.; Kichar Sot, Bijrani (18); *P.C. Pant* 43576.

11. **PERILEPTA** Bremek.

*P. auriculata* (Nees.) Bremek. Verh. Ned. Ak. Wet. Adam. Sect.2. 41(1): 194. 1944. *Strobilanthes auriculatus* Nees. in Pl. As. Rar. 3:69. & 86. t. 295. 1832 (*Inclu. var. edgeworthinana*); Duthie, F.U.G.P. 2:64. 1960 (Rep. ed.).

Shrubs or undershrubs. Leaves pubescent, with auricled base. Flowers

pale-purple. Capsules glabrous.

Scarce, fl. & fr.: Nov. Mar.; Gairal (10); *K.P. Janardhanan* 51169.

## 12. PERISTROPHE Nees

1a. Leaves small ca 4-11cm long; densely hairy with long hairs underneath, peduncle thin.

*P. bicalyculata* 1

1b. Leaves large ca 1-18cm long; puberulous underneath with short hairs; peduncle thick.

*P. speciosa* 2

1. ***P. bicalyculata*** (Retz.) Nees in Wall. Pl. As. Rar. 3:113. 1832; Duthie, F.U.G.P. 2:79. 1960 (Rep. ed.). *Dianthera bicalyculata* Retz. Sv. Vetensk. Handl. 36:297. t.9. 1775.

Erect herbs. Leaves ovate. Flowers purple. Capsules pointed.

Few; fl. & fr.: Sept. Dec.; Bijrani (18); *P.C. Pant* 43011.

2. ***P. speciosa*** (Roxb.) Nees in Wall. Pl. As. Rar. 3:113. 1832; Raizada Suppl. Duthie's, F.U.G.P. 208. 1976. *Justicia speciosa* Roxb. Fl. Ind. 1:123. 1820.

Large herbs. Leaves elliptic or ovate-lanceolate. Flowers dark pink. Capsules hairy.

Frequent; fl. & fr.: Nov.-Mar.; Kanda Environs (3); *K.P. Janardhanan* 51455.

## 13. PHLOGACANTHUS Nees

***P. thrysiflorus*** (Roxb.) Nees, in Wall. Pl. As. Rar. 3:99. 1832; Duthie, F.U.G.P. 2:68. 1960 (Rep. ed.). *Justicia thrysiflora* Roxb. Fl. Ind. 1:114. 1820.

Evergreen shrubs. Leaves elliptic-lanceolate or oblong-elliptic. Flowers brick red. Capsules linear-clavate.

Rare; fl. & fr.: Jan. Apr. & May - June; Sultan Gairal (10); *P.C. Pant* 43551.

## 14. RUNGIA Nees

***R. pectinata*** (L.) Nees in DC. Prodr. 11:469. 1847. *Justicia pectinata* L. Amoen Acad. 4:299. 1759. *Rungia parviflora* Nees var. *pectinata* (L.) C.B. Clarke in Hook. f. Fl. Brit. Ind. 4:550. 1885; Duthie, F.U.G.P. 2:80. 1960 (Rep. ed.).

Procumbent, branched herbs. Leaves elliptic or oblong-lanceolate. Flowers bluish-purple. Capsules ovoid, compressed.

Scattered; fl. & fr.: Nov. - Jan.; Sultan (11); *P.C. Pant* 43153.

71. VERBENACEAE (Vervain Family)

- 1a. Trees, shrubs or undershrubs.
  - 2a. Plants dwarfed; with obscure stem; leaves sessile and falsely whorled. *Pygmaeopremna* 9
  - 2b. Plants not dwarfed; with distinct stem; leaves petioled and opposite.
    - 3a. Leaves 3-5 foliolate. *Vitex* 10
    - 3b. Leaves simple.
      - 4a. Rambling or scandent shrubs.
        - 5a. Undersurface of leaf and branchlets strigose, calyx minute, obscurely toothed. *Lantana* 6
        - 5b. Undersurface of leaf and branchlets puberulous, calyx large, obconic. *Holmskioldia* 5
      - 4b. Trees, spreading shrubs or undershrubs.
        - 6a. Leaf margins distinctly crenate, undersurface stellate tomentose; flowers in dichotomous cymes. *Callicarpa* 1
        - 6b. Leaf margins obscurely denticulate or entire; undersurface tomentose, puberulous or glabrescent; flowers in paniced, corymbose or thyrsoid cymes.
          - 7a. Petiole with a gland at the top; flowers brownish-yellow. *Gmelina* 4
          - 7b. Petiole without gland; flowers greenish white, blue-mauve or white, pinkish tinged.
          - 8a. Leaves with shining glands on undersurface; branchlets quadrangular.
            - 9a. Leaves broadly ovate, nerves raised on undersurface, flowers white, pinkish tinged. *Clerodendrum* 3
            - 9b. Leaves lanceolate, elliptic lanceolate; nerves not raised, flowers blue or mauve. *Caryopteris* 2
          - 8b. Leaves without glands on surfaces; branchlets circular. *Premna* 8
- 1b. Herbs, creeping. *Lippia* 7

I. CALLICARPA L.

*C. macrophylla* Vahl Symb. Bot. 3:13. t.53. 1794; Duthie, F.U.G.P. 2:86. 1960 (Rep. ed.).

Erect shrubs. Leaves elliptic or ovate-lanceolate. Flowers pink. Drupes small, white, turning to brown on drying.

Scattered; fl. & fr.: Aug. Oct. & Nov. Dec.; Sultan (11); *K.P. Janardhanan* 50172.

## 2. CARYOPTERIS Bunge

*C. odorata* (D. Don) Robinson Proc. Amer. Acad. Arts. Sci. 51: 531. 1916; *Clerodendron odoratum* D. Don Prodr. Fl. Nep. 102. 1825; *Caryopteris wallichiana* Schauer in DC. Prodr. 11:625. 1847; Duthie, F.U.G.P. 2:95. 1960 (Rep. ed.).

Shrubs, with papery brown bark; wood fragrant. Leaves shortly stalked. Flowers fragrant, in thyrsoïd cyme. Capsules globose.

Scattered, fl. & fr.: Feb. Apr. & May - June; Panod Nallaha (12); *P.C. Pant* 43525.

## 3. CLERODENDRUM L.

*C. viscosum* Vent. Gard. Malm. t. 25. 1803. *C. infortunatum auct. pl. non.* L. 1753; Duthie, F.U.G.P. 2:93. 1960 (Rep. ed.).

Deciduous shrubs or undershrubs. Leaves sparingly hairy on surfaces. Flowers fragrant. Drupes subglobose.

Common; fl. & fr.: Feb. - May & May - July; Dhikala (8); *P.C. Pant* 43712.

## 4. GMELINA L.

*G. arborea* Roxb. Pl. Cor. 3:41. t.246. 1815; Duthie, F.U.G.P. 2:88. 1960 (Rep. ed.).

Deciduous trees. Bark dark grey, corky. Leaves ovate. Flowers large. Drupes obovoid or pyriform.

Scattered; fl. & fr.: Mar. - Apr. & May - June; Boxar (8); *P.C. Pant* 43797.

## 5. HOLMSKIOELDIA Retz.

*H. sanguinea* Retz. Obs. 6:31. 1791; Duthie, F.U.G.P. 2:94. 1960 (Rep. ed.).

Large shrubs. Bark pate-brown. Leaves broadly ovate, toothed or entire. Flowers scarlet red. Drupes obovoid.

Scattered; fl. & fr.: Oct.-Dec. & Feb; Sarpaduli Environs (10); *P.C. Pant* 43193.

## 6. LANTANA L.

*L. camara* L. Sp. Pl. 627. 1753; Duthie, F.U.G.P. 2:84. 1960 (Rep. ed.).

Large shrubs. Leaves ovate or ovate-lanceolate. Flowers varying from cream yellow, red to pink and white. Drupes globose, glabrous.

Common; fl. & fr.: Round the year; Kanda (3); *P.C. Pant* 43339.

## 7. LIPPIA L.

**L. nodiflora** (L.) Rich. in Michx Fl. Bor. Am. 2:15. 1803; Duthie, F.U.G.P. 2:84. 1960 (Rep. ed.). *Verbena nodiflora* L. Sp. Pl. 20. 1753.

Much branched herbs, rooting at nodes. Leaves spatulate, obovate, serrate-dentate towards apex, base entire. Flowers pinkish white. Pyrenes plano-convex.

Few; fl. & fr.: May - Oct. & Oct. - Apr.; Boxar (8); *P.C. Pant* 43836.

## 8. PREMNA L.

1a. Leaf apex acute or shortly acuminate, petiole small, corymbs large.

*P. mucronata* 2.

1b. Leaf apex long acuminate, petiole large, corymbs small.

*P. barbata* 1

1. **P. barbata** Wall. [Cat. 48. n. 1768 (1829) *nom. nud.*] ex Schauer in DC. Prodr. 11:636. 1847; Duthie, F.U.G.P. 2:89. 1960 (Rep. ed.).

Deciduous shrubs or small trees. Bark pale or dark grey. Leaves oblong or ovate. Flowers white. Drupes globose or subovoid.

Rare; fl. & fr.: Feb. - June; Kanda (3); *P.C. Pant* 43783.

2. **P. mucronata** Roxb. [Hort. Beng. 95 (1814) *nom. nud.*] Fl. Ind. ed. 2, 3:81. 1832; Duthie, F.U.G.P. 2:89. 1960 (Rep. ed.).

Deciduous trees. Bark pale-grey or brown. leaves ovate. Flowers greenish-white. Drupes globose.

Few; fl. & fr.: Apr. - July; On way to Jhirna (15); *P.C. Pant* 43833.

## 9. PYGMAEOPREMNA Merr.

**P. herbacea** (Roxb.) Moldenke in Phytologia 2: 54. 1941. *Premna herbacea* Roxb. [Hort. Beng. 46 (1814) *nom. nud.*] Fl. Ind. ed. 2, 3:80. 1832; Duthie, F.U.G.P. 2:90. 1960 (Rep. ed.).

Small undershrubs, rootstock woody. Leaves obovate, in unequal pairs. Flowers white. Drupes globose, black.

Common; fl. & fr.: Feb. - May & June - July; Dhikala Chaur (8); *P.C. Pant* 43725.

## 10. VITEX L.

**V. negundo** L. Sp. Pl. 638. 1753; Duthie, F.U.G.P. 2:90. 1960. (Rep. ed.).

Deciduous shrubs or small trees. Leaflets lanceolate, undersurface grey pubescent. Flowers blue. Drupes fleshy.

Few; fl. & fr.: Apr. - Sept. & Dec. - Feb.; On way to Boxar (8); *P.C. Pant* 43861.

## 72. LAMIACEAE (Mint Family)

- 1a. Herbs.
- 2a. Flowers in globose or cylindrical heads. *Acrocephalus* 1
- 2b. Flowers in racemes or varied whorls.
- 3a. Flowers in racemes. *Scutellaria* 15
- 3b. Flowers whorled.
- 4a. Flowers whorls distant or lax.
- 5a. Leaves sessile or subsessile. *Orthosiphon* 10
- 5b. Leaves petioled. *Mosla* 8
- 4b. Flowers in dense whorls.
- 6a. Procumbent, tufted or decumbent.
- 7a. Leaf margin irregularly dentate. *Ajuga* 2
- 7b. Leaf margin with regular dentation. *Clinopodium* 4
- 6b. Erect.
- 8a. Leaf margin distinctly crenate-serrate.
- 9a. Pubescent or glabrous; whorls forming loose drooping panicles. *Nepeta* 9
- 9b. More or less tomentose; whorls forming a dense spicate inflorescence. *Anisomeles* 3
- 8b. Leaf margin obscurely dentate.
- 10a. Pubescent; only 2-stamens perfect. *Salvia* 14
- 10b. Usually woolly or villous; 4-stamens perfect. *Leucas* 7
- 1b. Shrubs or undershrubs.
- 11a. Flowers orange coloured, calyx teeth spiny. *Leonotis* 6
- 11b. Flowers other than orange colour, calyx teeth not spiny.
- 12a. Densely woolly, villous plants. *Colebrookea* 5
- 12b. Plants glabrous-glabrescent.
- 13a. Leaf, margin doubly serrate; flowers in dense villous spikes. *Pogostemon* 13
- 13b. Leaf margin crenate or serrate; flowers in lax racemes.
- 14a. Leaf apex acuminate, base tapering into winged petiole; flowers blue. *Plectranthus* 12
- 14b. Leaf apex and base acute; flowers white. *Perilla* 11

## 1. ACROCEPHALUS Benth.

**A. indicus** (Burm. f.) O. Kuntze Rev. Gen. Pl. 2:511. 1891. *Prunella*



*indica* Burm. f. Fl. Ind. 130. 1763. *Acrocephalus capitatus* (Roth) Benth. in Wall. Pl. As. Rar. 2:18. 1831; Duthie, F.U.G.P. 2:102. 1960 (Rep. ed.).

Erect herbs. Leaves lanceolate or ovate or obovate. Flowers pale-purple. Nutlets compressed, smooth.

Common; fl. & fr.: Aug. - Dec.; Ghilmodya Sot (11); P.C. Pant 43170.

## 2. AJUGA L.

1a. Leaves oblanceolate or subspathulate; bracts prominent although.

*A. bracteosa* 1

1b. Leaves ovate - oblong or obovate; bracts diminishing in size upwards.

*A. macrosperma* 2

1. *A. bracteosa* Wall. ex Benth. in Wall. Pl. As. Rar. 1:59. 1830; Duthie, F.U.G.P. 2:121. 1960 (Rep. ed.).

Softly pubescent or hispid herbs. Lower leaves long petioled, upper ones sessile. Flowers mauve. Nutlets rugosely pitted.

Scattered; fl. & fr.: Dec. - Apr.; Dhikala Chaur (8); P.C. Pant 43709.

2. *A. macrosperma* Wall. ex Benth. in Wall. Pl. As. Rar. 1:58. 1830; Duthie, F.U.G.P. 2:121. 1960 (Rep. ed.).

Decumbent or ascending herbs. Leaves with irregularly toothed margins. Flowers blue. Nutlets oblong, reticulate-rugose.

Frequent; fl. & fr.: Feb. & June; Mailani (17); P.C. Pant 43611.

## 3. ANISOMELES R. Br.

*A. indica* (L.) O. Kuntze Rev. Gen. Pl. 2:512. 1891. *Nepeta indica* L. Sp. Pl. 571. 1753. *Anisomeles ovata* R. Br. in Ait. Hort. Kew ed. 2, 2:364. 1811; Duthie, F.U.G.P. 2:109. 1960 (Rep. ed.).

Erect herbs. Leaves ovate. Flowers in interrupted whorls. Nutlets smooth. Few; fl. & fr.: Sept. - Jan.; Mailani (17); P.C. Pant 43444.

## 4. CLINOPODIUM L.

*C. umbrosum* (M. Bieb.) Koch Linnaea 21:673. 1848. *Melissa umbrosa* M. Bieb. Fl. Taur-Cauc. 2:63. 1808. *Calamintha umbrosa* (Bieb.) Fisch. & Mey. Ind. Sem. H. Petrop. 6:6. 1840; Duthie, F.U.G.P. 2:108. 1960 (Rep. ed.).

Slender herbs. Leaves ovate. Flowers pink, nutlets subglobose, smooth. Scattered; fl. & fr.: Mar. - Dec.; On Way to Sultan (11); P.C. Pant 43566.

## 5. COLEBROOKEA Smith.

*C. oppositifolia* Sm. Exot. Bot. 2:111, t.115. 1805; Duthie, F.U.G.P. 2:107. 1960 (Rep. ed.) "BINDA"

Hoary tomentose shrubs. Bark pale-brown. Leaves elliptic-oblong or

oblanceolate. Flowers white. Nutlets suborbicular.

Frequent; fl. & fr.: Nov. Mar. & Mar. - June; Dhangadi Environs (12); *P.C. Pant* 43120.

#### 6. LEONOTIS R. Br.

*L. nepetaefolia* (L.) W. Ait. Hort. Kew. ed. 2, 3:409. 1810; Duthie, F.U.G.P. 2:116. 1960 (Rep. ed.). *Phlomis nepetaefolia* L. Sp. Pl. 586. 1753.

Erect, stout herbs. Leaves ovate, coarsely-crenate, serrate. Flowers in globular clusters. Nutlets angled, small.

Rare; fl. & fr.: Sept. Feb.; On Way to Mailani (17); *P.C. Pant* 43419.

#### 7. LEUCAS R. Br.

1a. Leaves ovate or ovate-lanceolate.

2a. Plants pubescent or scaberulous.

3a. Whorls large; bracts awned and covering the floral heads. *L. cephalotes* 1

3b. Whorls small; bracts neither awned nor covering the floral heads. *L. mollissima* 4

2b. Plants densely clothed with argentiferous tomentum. *L. lanata* 3

1b. Leaves linear. *L. hyssopifolia* 2

1. *L. cephalotes* (Roth) Spreng. Syst. Veg. 2:743. 1825; Duthie, F.U.G.P. 2:114. 1960 (Rep. ed.). *Phlomis cephalotes* Roth Nov. Sp. 262. 1821.

Erect herbs. Leaves elliptic-lanceolate or ovate-lanceolate, punctate underneath. Flowers white. Nutlets obovoid, oblong.

Scattered; fl. & fr.: Aug. Dec.; Phulai (2); *P.C. Pant* 43281.

2. *L. hyssopifolia* Benth. in Wall. Pl. As. Rar. 1:60. 1830; Duthie, F.U.G.P. 2:112. 1960 (Rep. ed.).

Erect, hispid herbs. Leaves surfaces roughly hairy. Flowers white. Nutlets glandular.

Rare; fl. & fr.: Apr. - July; Dhikala (8); *P.C. Pant* 43720.

3. *L. lanata* Benth. in Wall. Pl. As. Rar. 1:61. 1830, Duthie, F.U.G.P. 2:114. 1960 (Rep. ed.).

Erect herbs, with woody rootstock. Leaves ovate. Flowers white. Nutlets oblong, obovoid.

Scattered; fl. & fr.: Oct. Dec.; Kanda (3); *P.C. Pant* 43320.

4. *L. mollissima* Wall. ex Benth. Pl. As. Rar. 1:62. 1830; Duthie, F.U.G.P. 2:115. 1960 (Rep. ed.).

Straggling, branched herbs. Leaves ovate. Flowers white. Nutlets small with obtusely truncate apex.

Scattered; fl. & fr.: Apr. - Dec.; Sultan (11); *K.P. Janardhanan* 50135.

8. **MOSLA** Buch. - Ham. ex Maxim.

**M. dianthera** (Buch. - Ham. ex Roxb.) Maxim. Bull. Acad. Sci. St. Petersburg. 20:457. 1875. *Lycopus dianthera* Buch.-Ham. ex. Roxb. Fl. Ind. 1:145. 1820. *Mosla ocymoides* Buch.-Ham. ex Benth. in Wall. Pl. As. Rar. 1:66. 1830; Duthie, F.U.G.P. 2:119. 1960 (Rep. ed.).

Erect herbs with weak stem. Leaves ovate. Flowers white or pink. Nutlets reticulate, minute.

Few; fl. & fr.: Sept. - Dec.; Mailani (17); *P.C. Pant* 72347.

9. **NEPETA** L.

**N. gracilliflora** Benth. in Wall. Pl. As. Rar. 1:65. 1830, Duthie, F.U.G.P. 2:118. 1960 (Rep. ed.).

Pubescent or glabrous herbs. Leaves triangularly ovate. Flowers pale pink. Nutlets oblong.

Scattered; fl. & fr.: May - Dec.; Ghilmodya Sot (11); *P.C. Pant* 43164.

10. **ORTHOSIPHON** Benth.

**O. rubicundus** (D. Don) Benth. in Wall. Pl. As. Rar. 2:141. 1831; Duthie, F.U.G.P. 2:101. 1960 (Rep. ed.). *Plectranthus rubicundus* D. Don Prodr. Fl. Nep. 116. 1825.

Erect herbs. Leaves ovate-lanceolate or obovate. Flowers white or violet, in whorls. Nutlets suborbicular, smooth.

Scattered; fl. & fr.: Apr. - June; Dhikala Chaur (8); *P.C. Pant* 43728.

11. **PERILLA** L.

**P. frutescens** (L.) Britt. Mem. Torrey Bot. Cl. 5:277. 1894. *Ocimum frutescens* L. Sp. Pl. 597. 1753. *Perilla ocymoides* L. Gen. Pl. ed. 6.578. 1764; Duthie, F.U.G.P. 2:122. 1960 (Rep. ed.).

Tall, strongly scented bush. Leaves broadly ovate. Flowers white. Nutlets rounded, pale brown.

Abundant; fl. & fr.: Sept. - Nov.; Dhangadi (12); *P.C. Pant* 72388.

12. **PLECTRANTHUS** L. Herit *nom. cons.*

**\*\*P. japonicus** (Burm. f.) Koidz. Bot. Mag. Tokyo 43:386. 1929. *Scutellaria japonica* Burm. f. Fl. Ind. 130. 1768. *Plectranthus coetsa* Buch.-Ham. ex D. Don Prodr. Fl. Nep. 117. 1852; Duthie, F.U.G.P. 2:103. 1960 (Rep. ed.).

Strongly aromatic undershrubs. Leaves ovate. Flowers pale-blue. Nutlets smooth.

Scattered; fl. & fr.: Oct. - Jan.; Dhangadi Sultan (12-11); *P.C. Pant* 43097.

\*\*Hara et al. treated this species under *Rabdosia coetsa* (Buch. - Ham. ex D. Don) Hara [An Enumeration of the flowering plants of Nepal 3:162. 1982.]

## 13. POGOSTEMON Desf.

**P. benghalensis** (Burm. f.) O. Kuntze Rev. Gen. Pl. 2:529. 1891. *Ocimum benghalensis* Burm. f. Fl. Ind. 128, t.38.f.3. 1768; *Pogostemon plectranthoides* Desf. in Ann. Mus. Paris 2:155. 1815; Duthie, F.U.G.P. 2:105. 1960 (Rep. ed.).

Large, aromatic shrubs. Leaves ovate. Flowers white, tinged with pink. Nutlets shining, dark brown.

Scattered; fl. & fr.: Nov. - Apr.; Dhulwa East (12); *P.C. Pant* 43512.

## 14. SALVIA

**S. plebeia** R. Br. Prodr. Fl. Nov. Holl. 501. 1810; Duthie, F.U.G.P. 2:118. 1960 (Rep. ed.).

Fastigately branched herbs. Leaves oblong-lanceolate. Flowers lilac or white, Nutlets minute, ovoid.

Scattered; fl. & fr.: Feb. - Oct.; Dhikala (8); *P.C. Pant* 61758.

## 15. SCUTELLARIA L.

**S. repens** Buch. Ham. ex D. Don Prodr. Fl. Nep. 110. 1825; Duthie, F.U.G.P. 2:109. 1960 (Rep. ed.).

Stout, branched herbs. Leaves ovate. Flowers creamy yellow or pinkish tinged. Nutlets mildly granulate.

Scattered; fl. & fr.: Sept. - Jan.; On Way to Pateli Chaur (14); *P.C. Pant* 43485.

## 73. NYCTAGINACEAE (Four-o' Clock Family)

## BOERHAVIA L.

**B. diffusa** L. Sp. Pl. 3. 1753; Duthie, F.U.G.P. 2:127. 1960 (Rep. ed.).  
"PUNRETA"

Decumbent or scrambling herbs. Leaves ovate, suborbicular or oblong. Flowers purplish-pink. Fruits calvate, glandular.

Scattered; fl. & fr.: Apr. - Dec.; Ghilmodya Sot (11); *P.C. Pant* 43178.

## 74. AMARANTHACEAE (Cocks Comb Family)

1a. Leaves opposite.

2a. Stout plants with stiff stems.

3a. Flowers solitary, all perfect, without hooks.

*Achyranthes* 1

3b. Flowers fascicled, both imperfect and perfect, imperfect ones hooked.

*Pupalia* 7

2b. Delicate plants with weak stems.

4a. Prostrate-creeping.

*Abernethia* 3

4b. Erect-ascending.

*Psilowichum* 6

- 1b. Leaves alternate (often both alternate, opposite and also fasci-  
 cled in case of *Aerva*)
- 5a. Leaf surfaces appressedly hairy and scabrous. *Aerva* 2
- 5b. Leaf surfaces glabrescent.
- 6a. Scandent shrub. *Deeringia* 5
- 6b. Erect herb. *Amaranthus* 4

1. ACHYRANTHES L.

- 1a. Leaves thin, punctate and laxly hairy underneath. *A. bidentata* 2
- 1b. Leaves thick, not punctate, velvety. *A. aspera* 1

1. *A. aspera* L. Sp. Pl. 204. 1753; Duthie, F.U.G.P. 2:140. 1960. (Rep. ed.).  
 Undershrubs or tall herbs. Leaves variable, elliptic, obovate or  
 suborbicular. Flowers greenish. Utricles broadly oblong.

Scattered; fl. & fr.: Sept. Mar.: Dhikala (8); *P.C. Pant* 43230.

2. *A. bidentata* Bl. Bijdr. 545. 1825; Raizada Suppl. Duthie's, F.U.G.P.  
 230. 1976.

Stout herbs. Leaves elliptic-oblong or ovate-lanceolate. Flowers greenish,  
 tinged with purple. Utricles subtruncate.

Scattered; fl. & fr.: Sept. Dec.; Kanda (3); *P.C. Pant* 43321.

2. AERVA Forsk. *nom. cons.*

*A. sanguinolenta* (L.) Bl. Bijdr. 547. 1825. *Achyranthes sanguinolenta* L.  
 Sp. Pl. ed. 2, 294. 1762. *Aerva scandens* (Roxb.) Wall. Cat. 231, n. 6911.  
 1829; Duthie, F.U.G.P. 2:138. 1960 (Rep. ed.).

Erect or scandent herbs or undershrubs. Leaves elliptic-lanceolate or ovate.  
 Flowers white. Utricles broadly ovate.

Sattered, fl. & fr.: Round the year; Mailani (17); *P.C. Pant* 43366.

3. ALTERNANTHERA Forsk.

*A. sessilis* (L.) DC. in Cat. Hort. Monspel. 77. 1813; Duthie, F.U.G.P.  
 2:142. 1960 (Rep. ed.). *Gomphrena sessilis* L. Sp. Pl. 225. 1753.

Glabrous herbs. Leaves variable, linear-lanceolate to oval or obovate.  
 Flowers white. Utricles obcordate or orbicular.

Frequent; fl. & fr.: Round the year; Bijrani (18); *P.C. Pant* 43640.

4. AMARANTHUS L.

- 1a. Plants spinous; utricle not wrinkled. *A. spinosus* 1
- 1b. Plants not spinous; utricle wrinkled. *A. viridis* 2

1. *A. spinosus* L. Sp. Pl. 991. 1753; Duthie, F.U.G.P. 2:133. 1960  
 (Rep. ed.).

Herbs or undershrubs. Leaves ovate-oblong, lanceolate. Flowers green, unisexual. Utricles ovoid.

Common; fl. & fr.: Apr. - Nov.; Sarpaduli (10); *P.C. Pant* 43245.

2. *A. viridis* L. Sp. Pl. ed. 2, 1405. 1763; Duthie, F.U.G.P. 2:136. 1960 (Rep. ed.)

Herbs. Leaves ovate-rhomboid-oblong. Flowers unisexual, green. Utricles ovoid.

Scattered; fl. & fr.: Apr. - Dec.; Babalmunda (7); *P.C. Pant* 43451.

#### 5. DEERINGIA R. Br.

*D. amaranthoides* (Lamk.) Merr. Interp. Herb. Amb. 211. 1917. *Achyranthes amaranthoides* Lamk. Encycl. Meth. Bot. 1:548. 1785. *Deeringia celosioides* R. Br. Prodr. Fl. Nov. Holl. 413. 1810; Duthie, F.U.G.P. 2:130. 1960 (Rep. ed.).

Branches slender, striate. Bark dark grey. Leaves ovate or ovate-lanceolate. Flowers yellowish-green. Berries globose, scarlet.

Rare; fl. & fr.: July - Sept. & Oct. - Dec.; Sarpaduli. On Way to Dhikala (10); *P.C. Pant* 43197.

#### 6. PSILOTRICHUM Blume

\**P. ferrugineum* (Roxb.) Moq. DC. Prodr. 13:2. 279. 1849; Hook. f. Fl. Brit. Ind. 4:725. 1885. *Achyranthes ferruginea* Roxb. Fl. Ind. 2:502. 1824.

Herbs. Often much branched. Leaves variable, lanceolate, oblong or obovate. Flowers pinkish. Utricles ellipsoid.

Rare; fl. & fr.: Sept. - Nov.; Sarpaduli (10); *P.C. Pant* 43215.

#### 7. PUPALIA Juss.

*P. lappacea* (L.) Juss. in Ann. Mus. 2:132. 1803; Duthie, F.U.G.P. 2:141. 1960 (Rep. ed.). *Achyranthes lappacea* L. Sp. Pl. 204. 1753.

Large undershrubs. Leaves elliptic or ovate, tomentose. Flowers yellowish green. Utricles oblong with narrowed apex.

Scattered; fl. & fr.: Apr. - July & Aug. - Nov.; Dhulwa East (12); *P.C. Pant* 43057.

### 75. CHENOPODIACEAE (Goosefoot Family)

#### CHENOPODIUM L.

1a. Plants highly aromatic; shining yellow. glands on undersurface of leaves.

*C. ambrosioides* 2

1b. Plants not aromatic; leaves eglandular.

*C. album* 1

1. *C. album* L. Sp. Pl. 219. 1753; Duthie, F.U.G.P. 2:143. 1960 (Rep. ed.).

Erect herbs, young plants coated with powdery vesicle. Leaves variable, ovate-rhomboid or elliptic-oblong-lanceolate. Flowers green. Utricles membranous.

Few; fl. & fr.: Aug. - Jan. Jhirna-Dhara (15); *P.C. Pant* 43435.

2. *C. ambrosioides* L. Sp. Pl. 219. 1753; Raizada Suppl. Duthie's, F.U.G.P. 2:236. 1976.

Erect herbs. Stem ribbed. leaves oblong-lanceolate. Flowers light green. Utricles membranous.

Scattered; fl. & fr.: Mar.-Nov.; Sarpaduli, Along Ramganga River Bank (10); *P.C. Pant* 43251

### 76. POLYGONACEAE (Knotweed Family)

- 1a. Prostrate, diffused herbs; leaves small. *Polygonum* 2
- 1b. Erect or decumbent herbs; leaves large.
  - 2a. Leaves distinctly petioled, stipules caducous. *Rumex* 3
  - 2b. Leaves obscurely petioled, amplexicaul or auricled at base, stipules persistent. *Persicaria* 1

#### 1. PERSICARIA Mill.

- 1a. Leaves ovate-triangular. *P. nepalensis* 4
- 1b. Leaves lanceolate or oblong-lanceolate.
  - 2a. Flowers white. *P. barbata* 1
  - 2b. Flowers red or pink.
    - 3a. Stem glandular. *P. hydropiper* 3
    - 3b. Stem not glandular.
      - 4a. Stem stout, red tinged; stipules eciliate and conspicuously veined. *P. glabra* 2
      - 4b. Stem weak; stipules ciliate, without venation. *P. posumbu* 5

1. *P. barbata* (L.) Hara in Fl. E. Him. 70. 1966. *Polygonum barbatum* L. Sp. Pl. 362. 1753; Duthie, F.U.G.P. 2:154. 1960 (Rep. ed.).

Erect herbs. Leaves with margin, and mid rib ciliolate. Flowers small Nutlets trigonous.

- 1a. Leaf bases acute. Var. *barbata* 1
- 1b. Leaf bases rounded. Var. *gracilis* 2

1. var *barbata* Hara in Enum. Fl. Pl. Nep. 3:175. 1982.

Frequent; fl. & fr.: Aug. - Apr.; Dhangadi-Sultan (2); *P.C. Pant* 43096.

2. var *gracilis* (Danser) Hara in Enum. Fl. Pl. Nep. 3:175. 1982. *Polygonum barbatum* Sub. Sp. *gracile* Danser in Bull. Jard. B. Buitanzorg Ser. 3, 8:146. f.2. 1927.

Frequent; fl. & fr.: Aug. Mar.; Gairal (10); *P.C. Pant* 43668.

2. **P. glabra** (Willd.) Gomes de la Maza in Ann. Inst. Segunda Ensef. Habana 2:278. 1986. *Polygonum glabrum* Willd. Sp. Pl. 2:447. 1799; Duthie, F.U.G.P. 2:153. 1960 (Rep. ed.).

Erect, glabrous herbs. Leaves lanceolate, punctate. Flowers in terminal panicle; bracts glabrous. Nutlets orbicular.

Scattered; fl. & fr.: Sept. Mar.; Dhikala (8); *P.C. Pant* 43346.

3. **P. hydropiper** (L.) Spach. Hist. Veg. 10:536. 1841. *Polygonum hydropiper* L. Sp. Pl. 361. 1753; Duthie, F.U.G.P. 2:155. 1960 (Rep. ed.).

Glabrous herbs. Leaves lanceolate or oblong-lanceolate. Flowers in interrupted slender racemes. Nutlets granulate.

Few; fl. & fr.: Aug. Mar.; Gairal (10); *P.C. Pant* 43155.

4. **P. nepalensis** (Meissn.) H. Gross in Engl. Bot. Jahrb. 49:277. 1913. *Polygonum nepalense* Meissn. Monogr. Poly. 84, t.7, f.2. 1826. *P. alatum* Buch.-Ham. ex Spreng. Syst. Veg. Cur. Post. 154. 1827; Duthie, F.U.G.P. 2:156. 1960 (Rep. ed.).

Erect or decumbent herbs. Leaves gland dotted, narrowed to a winged stalk. Flowers on peduncled heads. Nutlets broadly ovoid, minutely pitted.

Scarce; fl. & fr.: Sept. Nov.; Sarpaduli to Dhikala Road, (10); *K.P. Janardhanan* 51261.

5. **P. posumbu** (Buch-Ham. ex D. Don) H. Gross in B. Jahrb. 49:313. 1913. *Polygonum posumbu* Buch.-Ham. ex D. Don Prodr. Fl. Nep. 71. 1825; Duthie, F.U.G.P. 2:156. 1960 (Rep. ed.).

Slender herbs. Leaves elliptic-lanceolate. Flowers small. Nutlets trigonous.

Rare; fl. & fr.: Oct. Dec.; Sultan (11); *K.P. Janardhanan* 50155.

## 2. POLYGONUM L.

**P. plebeium** R. Br. Prodr. 420. 1810; Duthie, F.U.G.P. 2:149. 1960 (Rep. ed.).

Glabrous herbs, often with woody rootstock. Leaves linear or narrowly obovate. Flowers 1-5 sessile, white or pale pink. Nutlets shining black.

Common; fl. & fr.: Aug. - Apr.; On Way to Kichar Sot Bijrani (18); *P.C. Pant* 43578.

## 3. RUMEX L.

1a Leaves heterophyllous, lower ones large oblong, upper ones small, linear lanceolate; surface not punctate.

*R. dentatus* 1

1b Leaves all alike, triangular-hastate; surface punctate.

*R. hastatus* 2



1. **R. dentatus** L. Mant. Pl. 2:226. 1771; Duthie, F.U.G.P. 2:158. 1960 (Rep. ed.).

Erect herbs. Stem purple tinged. Leaves long petioled at lower end. Flowers greenish, whorled. Nutlets trigonous.

Scattered; fl. & fr.: Mar. - June; Dhikala Along Ramganga River Bank (8); *P.C. Pant* 61767.

2. **R. hastatus** D. Don Prodr. Fl. Nep. 74. 1825; Duthie, F.U.G.P. 2:159. 1960 (Rep. ed.). "**BHILMORA**"

Suffruticose herbs. Leaves lobed, thick, sour to taste. Flowers greenish pink. Nutlets trigonous.

Few; fl. & fr.: Apr. - Dec.; Gairal (10); *P.C. Pant* 43660.

### 77. PIPERACEAE (Pepper Family)

#### PIPER L.

**P. nepalense** Miq. Syst. Rip. 318. 1843; Raizada Suppl. Duthie's F.U.G.P. 242. 1976.

Rambling shrubs. Leaves variable, elliptic-ovate or oblong or lanceolate. Flowers dioecious. Berries ovoid.

Rare; fl. & fr.: Feb. - May; Kanda Environs (3); *P.C. Pant* 43778.

### 78. LAURACEAE (Laurel Family)

1a. Leaf apices caudate; petiole glabrous.

*Phoebe* 2

1b. Leaf apices retuse, acute or obtuse; petiole rusty or grey tomentose.

*Litsea* 1

#### 1. LITSEA Lamk. *nom. cons.*

1a. Undersurface of leaves grey-tomentose.

*L. glutinosa* 1

1b. Undersurface of leaves rusty tomentose.

*L. monopetala* 2

1. **L. glutinosa** (Lour.) C.B. Robinson in Philipp. J. Sci. B. 6:321. 1911. *Sebifera glutinosa* Lour. Fl. cochinch. 638. 1790. *Litsea chinensis* Lamk. Encycl. Meth. Bot. 3:574. 1792; Duthie, F.U.G.P. 2:167. 1960 (Rep. ed.).

Medium sized, evergreen trees. Bark dark grey, corky. Leaves variable, elliptic, oblong or ovate-lanceolate. Flowers yellowish. Drupes globose.

Few; fl. & fr.: Apr. - Dec.; On way to Boxar (8); *P.C. Pant* 43859.

2. **L. monopetala** (Roxb.) Pers. Syn. Pl. 2:4. 1807. *Tetranthera monopetala* Roxb. Pl. Cor. 2:26, t.148. 1798. *Litsea polyantha* Juss. in Ann. Mus. Paris 6:211. 1805; Duthie, F.U.G.P. 2:168. 1960 (Rep. ed.).

Middle sized, evergreen trees. Bark brown, rough. Leaves variable, obovate, oblanceolate or elliptic. Flowers dioecious, greenish-yellow. Drupes ovoid.

Common; fl. & fr.; Mar. - May & June - Sept.; Dhulwa East (12); *P.C. Pant* 43508.

## 2. PHOEBE Nees

*P. lanceolata* (Nees) Nees Syst. Laur. 109. 1836; Duthie, F.U.G.P. 2:166. 1960 (Rep. ed.). *Ocotea lanceolata* Nees in Wall. Pl. As. Rar. 2:71. 1831. "KEKRA"

Small, evergreen trees. Bark pale-yellow or grey, slightly rough. Leaves elliptic-lanceolate. Flowers yellowish green. Berries ellipsoid.

Frequent; fl. & fr.: Feb. - June; Dhangadi-Sultan (12-11); *P.C. Pant* 43561.

## 79. LORANTHACEAE (Mistletoe Family)

1a. Branches terete; leaves present, well developed.

2a. Young shoots and leaves scurfy tomentose.

*Scurrula* 2

2b. Young shoots and leaves glabrous.

*Dendrophthoe* 1

1b. Branches flat; leaves absent or reduced to scales.

*Viscum* 3

### 1. DENDROPHTHOE Mart.

*D. falcata* (L. f.) Ettingh Denkschr. Akad. Wissensch. Math. Nat. 32:52, 58. 1872. *Loranthus falcatus* L. f. Supple. Pl. 211. 1781. *L. longiflorus* Desr. in Lamk. Encycl. Meth. Bot. 3:598. 1789; Duthie, F.U.G.P. 2:175 1960 (Rep. ed.).

Evergreen, parasitic shrubs. Bark reddish brown, smooth. Leaves variable, ovate, obovate-oblong or elliptic. Flowers scarlet red or orange coloured. Berries oblong.

Scattered; fl. & fr.: Nov. - Jan. & Jan. - Apr.; Sultan Environs (11); *P.C. Pant* 43136.

### 2. SCURRULA L.

*S. cordifolia* (Wall.) G. Don Gen. Syst. 3:421. 1834. *Loranthus cordifolius* Wall. in Roxb. Fl. Ind. 2:222. 1824; Duthie, F.U.G.P. 2:175. 1960 (Rep. ed.).

Evergreen, parasitic shrubs. Bark dark brown, lenticellate. Leaves orbicular or broadly ovate. Flowers brown scurfy outside and red-purple inside. Berries pyriform.

Scarce; fl. & fr.: Nov. - Apr. & Apr. - July; Kanda (3); *P.C. Pant* 43763.

### 3. VISCUM L.

*V. articulatum* Burm. f. Fl. Ind. 311. 1768; Duthie, F.U.G.P. 2:177. 1960 (Rep. ed.).

Tufted, pale green, parasitic shrubs. Flowers monoecious, sessile, minute.

Berries globose, smooth.

Scarce; fl. & fr.: Apr. - Nov.: On way to Mailani (16-17) P.C. Pant 43620.

### 80. EUPHORBIACEAE (Spurge Family)

- |  |                       |
|--|-----------------------|
| 1a. Leaves trifoliolate.   | <i>Bischofia</i> 5    |
| 1b. Leaves simple.   |                       |
| 2a. Glands on undersurface of leaves or at petiole base.                       |                       |
| 3a. Leaves peltate.  | <i>Ricinus</i> 12     |
| 3b. Leaves not peltate.  |                       |
| 4a. Trees; leaves with entire or crenate-serrate or serrulate margins.         |                       |
| 5a. Leaves acute or narrowed at base, penninerved; milky juice present.        | <i>Sapium</i> 13      |
| 5b. Leaves rounded or subcordate at base, palminerved; milky juice absent.     | <i>Mallotus</i> 10    |
| 4b. Undershrubs; leaves with sinuate-toothed or lobed margins.                 | <i>Baliospermum</i> 4 |
| 2b. Glands absent.   |                       |
| 6a. Leaves palmately 3-5 angled to lobed.                                      | <i>Jatropha</i> 9     |
| 6b. Leaves entire, neither angled nor lobed.                                   |                       |
| 7a. Leaves distichous  |                       |
| 8a. Leaves small <i>ca</i> 0.5-3.5 x 0.3-1.0cm, falsely appearing as pinnate.  | <i>Phyllanthus</i> 11 |
| 8b. Leaves large <i>ca</i> 1.5-8.5 x 1.3-3.3cm                                 | <i>Drypetes</i> 7     |
| 7b. Leaves alternate or opposite.  |                       |
| 9a. Herbs with milky juice.  | <i>Euphorbia</i> 8    |
| 9b. Plants without milky juice   |                       |
| 10a. Lateral nerves thick and prominently visible on surfaces.                 | <i>Bridelia</i> 6     |
| 10b. Lateral nerves thin and obscurely visible.                                |                       |
| 11a. Leaves with serrate margins.  | <i>Acalypha</i> 1     |
| 11b. Leaves with entire margins.   |                       |
| 12a. Flowers monoecious on long <i>ca</i> . 5-4.5 cm filiform stalks.          | <i>Arachne</i> 3      |
| 12b. Flowers dioecious on short <i>ca</i> .2-4cm stalks.                       |                       |
| 13a. Leaves acute or acuminate at apex, acidic; twigs rusty tomentose, terete. | <i>Antidesma</i> 2    |
| 13b. Leaves rounded at apex, not acidic; twigs reddish-brown, angular.         | <i>Securinega</i> 14  |

## 1. ACALYPHA L.

*A. ciliata* Forsk. Fl. Aegypt-Arab. 162. 1775; Duthie, F.U.G.P. 2:209. 1960 (Rep. ed.).

Erect herbs, stem ribbed. leaves ovate-rhomboid. Flowers green, monoecious, male on top of spikes, female ones below. Capsules globose.

Scarce; fl. & fr.: Aug. Nov.: Amgadi Sot (12); P.C. Pant 72399.

## 2. ANTIDESMA L.

*A. acidum* Retz. Obs. B.5. 30. 1789. *A. diandrum* (Roxb.) Roth Nov. Sp. 369. 1821; Duthie, F.U.G.P. 2:204. 1960 (Rep. ed.).

Deciduous shrubs. Bark brown or dark grey, smooth. Leaves obovate, elliptic to oblanceolate. Flowers dioecious. Drupes purple-red acidic.

Scattered; fl. & fr.: May July & Aug. Dec.; Sultan (12); K.P. Janardhanan 50142.

## 3. ARACHNE Necker

*A. cordifolia* (Decne.) Hurusawa in J. Fac. Sci. Univ. Tokyo. B. 6:339. 1954. *Leptopus cordifolius* Decne. in Jacquem. Voy. Ind. 4:155. 1844. *Andrachne cordifolia* (Decne.) Muell-Arg. in DC. Prodr. 15 (2): 234. 1866; Raizada Suppl. Duthie's F.U.G.P. 246. 1976.

Shrubs with slender branches. Leaves ovate or oblong. Flowers monoecious, male flowers clustered, female solitary, cream-yellow. Capsules globose.

Scattered; fl. & fr.: Apr. Nov.; Kanda (3); P.C. Pant 43334.

## 4. BALIOSPERMUM Blume

*B. montanum* (Willd.) Muell. Arg. in DC. Prodr. 15 (2): 1125. 1866. *Jatropha montana* Willd. Sp. Pl. 4:563. 1805. *Baliospermum axillare* Bl. Bijdr. 604. 1826; Duthie, F.U.G.P. 2:208. 1960 (Rep. ed.).

Undershurbs. Leaves variable, elliptic, ovate-lanceolate, obovate or oblong, entire or lobed. Flowers monoecious, greenish. Capsules obovoid.

Rare; fl. & fr.: Round the year; Dabriya Chaur, Kumar Sot. (8 And 14); P.C. Pant 43684.

## 5. BISCHOFIA Blume

*B. javanica* Bl. Bijdr. 1168. 1827; Duthie, F.U.G.P. 2:190. 1960 (Rep. ed.).

Fig 2

Large deciduous trees. Bark dark brown. Leaves long petioled, leafless elliptic-oblong to obovate. Flowers dioecious, greenish yellow. Fruits globose, baccate.



Fig. 2. *Bischofia javanica* Blume. A quick growing tree with reputed durability of wood under water.

Scarce; fl. & fr.: Mar. - Apr. & May - Nov.; Ghilmodya Sot (11); *P.C. Pant* 72430.

### 6. BRIDELIA Willd.

- 1a. Branchlets verrucose, leaf surface grey underneath, glabrescent. *B. verrucosa* 2  
 1b. Branchlets smooth, leaf surface greenish-brown underneath, pubescent or tomentose. *B. retusa* 1

1. ***B. retusa*** (L.) Spreng. Syst. Veg. 3:48. 1826; Duthie, F.U.G.P. 2:191. 1960 (Rep. ed.). *Cluytia retusa* L. Sp. Pl. 1042. 1753.

Small-medium sized, deciduous trees. Leaves variable, elliptic-oblong, elliptic-lanceolate or obovate. Flowers dioecious, greenish-yellow. Drupes globose fleshy.

Scattered; fl. & fr.: Apr. - Sept. & Oct. - Dec.; Paternallaha Environs (14); *P.C. Pant* 40146.

2. ***B. verrucosa*** Haines in J.B. 59. 189 193. 1921. *B. montana auct non* Willd. 1806; Duthie, F.U.G.P. 2:192. 1960 (Rep. ed.).

Medium sized, deciduous trees. Leaves variable, obovate oblong or broadly obovate. Flowers monoecious, greenish yellow. Drupes broadly ellipsoid.

Scattered; fl. & fr.: Oct. Jan., & Dec. Feb.; Gairai (10); *K.P. Janardhanan* 51121.

### 7. DRYPETES Vahl

***D. roxburghii*** (Wall.) Hurusawa in Journ. Fac. Sci. Univ. Tokyo. Sect. 3. Bot. 6:337. 1954. *Putranjiva roxburghii* Wall. Tent. Fl. Nep. 61. 1826; Duthie, F.U.G.P. 2:202. 1960 (Rep. ed.).

Medium sized, evergreen trees. Bark dark grey, smooth. Leaves elliptic-oblong or ovate, margins serrulate or entire. Flowers dioecious, yellow. Drupes ellipsoid.

Scattered; fl. & fr.: Jan. - May; Dhangadi Environs (12); *P.C. Pant* 43527.

### 8. EUPHORBIA L.

- 1a. Leaves opposite. *E. hirta* 2  
     2a. Hispidly hairy herbs. *E. hypericifolia* 3  
     2b. Glabrous or puberulous herb. *E. heterophylla* 1  
 1b. Lower leaves alternate, upper opposite.

1. ***E. heterophylla*** L. Sp. Pl. 453. 1753. *E. geniculata* Orteg. Hort. Matr. Dec. 18. 1797.

Erect herbs. Leaves variable, ovate-elliptic to obovate, pandurate. Flowers monoecious, involucre lobed. Capsules glabrous.

Scarce; fl. & fr.: Round the year; Domunda (8); *K.P. Janardhanan* 51431.

2. *E. hirta* L. Sp. Pl. 454. 1753; Duthie, F.U.G.P. 2:187. 1960 (Rep. ed.).

Prostrate or ascending herbs. Leaves elliptic or ovate-oblong. Flowers monoecious, yellow-green, involucre cup shaped. Capsules hairy.

Common; fl. & fr.: Round the year; Ratapani Sot Bijrani (18); *P.C. Pant* 43376.

3. *E. hypericifolia* L. Sp. Pl. 454. 1753; Duthie, F.U.G.P. 2:187. 1960 (Rep. ed.).

Decumbent herbs. Leaves variable, linear-oblong to elliptic-obovate. Flowers monoecious, pinkish, involucre limbed. Capsules pubescent or glabrous.

Scattered; fl. & fr.: Round the year; Babalmunda (7); *P.C. Pant* 43452.

#### 9. JATROPHA L.

*J. curcas* L. Sp. Pl. 1006 1753; Duthie, F.U.G.P. 2:215. 1960 (Rep. ed.).

Shrubs. Bark yellowish-brown and papery. Leaves broadly cordate. Flowers yellow. Capsules ovate.

Scarce; fl. & fr.: July - Sept. & Oct. - Jan; Gairal (10); *K.P. Janardhanan* 51173.

#### 10. MALLOTUS Lour.

*M. philippensis* (Lamk.) Muell-Arg. in *Linnaea* 34:196. 1865; Duthie, F.U.G.P. 2:210. 1960 (Rep. ed.). *Croton philippense* Lamk. *Encycl. Meth. Bot.* 2:206. 1786. "ROLF"

Evergreen trees. Bark grey, rough. Leaves variable, ovate, ovate-oblong or lanceolate. Flowers dioecious, brownish-yellow. Capsules globose, coated with brick-red, resinous glands.

Frequent; fl. & fr.: Jan. - Mar. & Mar. - May; Jhirna (15); *P.C. Pant* 43464.

#### 11. PHYLLANTHUS L.

1a. Trees. *P. emblica* 2

1b. Herbs or undershrubs.

2a. Leaves elliptic or obovate; stipules not peltate *P. debilis* 1

2b. Leaves oblong or linear oblong; stipules peltate.

3a. Plants with short fibrous root, capsules echinate. *P. urinaria* 3

3b. Plants with long tap root; capsules smooth. *P. virgatus* 4

1. *P. debilis* Klein ex Wild. Sp. Pl. 4:582. 1804; Raizada Suppl. Duthie's,

F.U.G.P. 252. 1976.

Erect herbs, with fistular stem. Leaves dark green, glabrous beneath. Flowers monoecious, male flowers fascicled, female ones solitary. Capsules coriaceous.

Scarce: fl. & fr.: Sept. - Dec.; Paterpani Environs (14); *P.C. Pant* 40154.

2. *P. emblica* L. Sp. Pl. 982. 1753; Duthie, F.U.G.P. 2:199. 1960 (Rep. ed.). "AAONLA"

Small-medium sized trees. Bark pale-brown or grey, smooth. Leaves subsessile, distichously arranged on branchlets, falsely appearing to be leaflets of a pinnate leaf. Flowers monoecious, yellow. Drupes globose.

Scattered; fl. & fr.: Mar. - May & Nov. - Jan.; Dhulwa, Panod Nailaha (12); *P.C. Pant* 43516.

3. *P. urinaria* L. Sp. Pl. 882. 1753; Duthie, F.U.G.P. 2:200. 1960 (Rep. ed.).

Erect or diffusely branched herbs. Leaves distichously imbricate, oblong or linear oblong. Flowers monoecious. Capsules globose, obscurely lobed.

Scattered; fl. & fr.: Mar. - Nov.; Sultan (11); *K.P. Janardhanan* 50147.

4. *P. virgatus* Forst. Fl. Ins. Austr. Prodr. 65. 1786. *P. simplex* Retz. Observ. Bot. 5:29. 1789; Duthie, F.U.G.P. 2:200. 1960 (Rep. ed.).

Deep rooted, glabrous herbs. Leaves distichous, glabrous. Flowers monoecious, on long slender pedicels. Capsules globose, crustaceous.

Scattered; fl. & fr.: Apr. - Sep.; Bijrani (18); *P.C. Pant* 43636.

## 12. RICINUS L.

*R. communis* L. Sp. Pl. 1007. 1753; Duthie, F.U.G.P. 2:212. 1960 (Rep. ed.). "ANDI"

Evergreen shrubs or small trees. Leaves palmately lobed., orbicular. Flowers monoecious, cream yellow. Capsules subglobose, muricate.

Scarce: fl. & fr.: Sept. - June; Domunda near bridge (2); *K.P. Janardhanan* 51429.

## 13. SAPIUM P. Br.

*S. insigne* (Royle) Benth. ex Hook.f. in Fl. Brit. Ind. 5:471. 1888. *Falconeria insignis* Royle Illus. Bot. Himal. 354, t. 98, f. 2. 1839. *Sapium-insigne* Trimen, Syst. Cat. Ceyl. Pl. 83. 1885; Duthie, F.U.G.P. 2: 214. 1960 (Rep. ed.). "KHIRNI"

Deciduous trees. Bark furrowed, corky and grey coloured. Leaves elliptic to oblong, lanceolate. Flowers dioecious, yellowish green, appearing before leaves. Capsules fleshy when young.



Scattered; fl. & fr. Jan. Mar. & Apr.; Garial (10); *P.C. Pant* 43667.

14. **SECURINEGA** Comm. ex juss *nom. cons.*

**S. virosa** (Roxb. ex Willd.) Baill. in *Adansonia* 6:334. 1886. *Phyllanthus virosus* Roxb. ex Willd. *Sp. Pl.* 4:578. 1805. *Fluggea microcarpa* Bl. *Bijdr.* 580. 1825; Duthie, *F.U.G.P.* 2:196. 1960 (Rep. ed.).

Evergreen shrubs or small trees. Bark reddish-brown, smooth. Leaves obovate, elliptic or suborbicular. Flowers dioecious yellowish-green. Berries of two kinds, small dry and white fleshy.

Scattered; fl. & fr.: Mar. - Sept.; Boxar (7); *P.C. Pant* 43793.

81. **ULMACEAE** (Elm Family)

1a. Leaf surfaces scabrous, margins toothed.

*Trema* 2

1b. Leaf surfaces glabrescent, margins entire.

*Holoptelea* 1

1. **HOLOPTELEA** Planch.

**H. integrifolia** (Roxb.) Planch. in *Ann. Sci. Nat. Ser. 3*, 10:266. 1848; Duthie, *F.U.G.P.* 2:217., 1960 (Rep. ed.). *Ulmus integrifolia* Roxb. in Willd. *Sp. Pl.* 1:1326, 1797. "PAPRI"

Large deciduous trees. Bark grey. Leaves elliptic, ovate or oblong. Flowers polygamous or bisexual, green. Samara suborbicular, oblong.

Scattered; fl. & fr.: Feb. - Mar. & Apr. - May.; Sarpaduli Environs (10); *P.C. Pant* 43700.

2. **TREMA** Lour.

**T. politoria** (Planch.) Blume in *Mus. B. Lugd. - Bat.* 2:58. 1856; Duthie, *F.U.G.P.* 2:220. 1960 (Rep. ed.). *Sponia politoria* Planch. in *Ann. Sci. Nat. Ser. 3*, 10:326. 1848. "KOELF"

Evergreen, small trees. Bark pale-brown. Leaves oblong or ovate-lanceolate. Flowers dioecious, greenish. Drupes ellipsoid, black.

Scattered; fl. & fr.: Apr. - May & Oct. - Feb.; On Way to Kalagarh, Boxar Environs (8); *P.C. Pant* 43856.

82. **CANNABACEAE** (Hemp Family)

**CANNABIS** L.

**C. sativa** L. *Sp. Pl.* 1027. 1753; Duthie, *F.U.G.P.* 2:220. 1960 (Rep. ed.) "BHANG"

Robust herbs or shrubs. Leaves partite, lobes lanceolate, serrate. Flowers dioecious, greenish white. Achenes curstaceous.

Abundant; fl. & fr.: July Dec.; Dhikala (8); *P.C. Pant* 43345.

## 83. URTICACEAE (Nettle Family)

- 1a. Herbs.
- 2a. Stinging hairs present. *Urtica* 7
- 2b. Stinging hairs absent.
- 3a. Leaf margin toothed.
- 4a. Leaves petioled; broadly ovate. *Neodistemon* 5
- 4b. leaves sessile; falcately cuneate or hatchet shaped. *Elatostema* 3
- 3b. Leaf margin entire. *Pouzolzia* 6
- 1b. Shrubs, undershrubs or trees.
- 5a. Undersurface of leaves ash tomentose.
- 6a. Leaves lanceolate or oblong lanceolate, acuminate. *Debregeasia* 2
- 6b. Leaves elliptic, caudate. *Maoutia* 4
- 5b. Undersurface of leaves pale green. *Boehmeria* 1

## 1. BOEHMERIA Jacq.

- 1a. leaves lanceolate or elliptic-lanceolate.
- 2a. Leaves opposite. *B. macrophylla* 1
- 2b. Leaves alternate. *B. rugulosa* 3
- 1b. Leaves broadly ovate. *B. platyphylla* 2

1. **B. macrophylla** D. Don Prodr. Fl. Nep. 60. 1825; Duthie, F.U.G.P. 2:224. 1960 (Rep. ed.).

Large shrubs. Bark dark brown, rough. Leaves narrow, lanceolate, rugulose above and pubescent beneath. Flowers monoecious, greenish, on long drooping spikes. Achenes obovate, cuneate.

Scarce; fl. & fr.: Aug. - Oct. & Oct. - Dec.; Sarpaduli (10)  
*K.P. Janardhanan* 51185.

2. **B. platyphylla** D. Don Prodr. fl. Nep. 60. 1825; Duthie, F.U.G.P. 2:225. 1960 (Rep. ed.).

Large, deciduous shrubs. Leaves surfaces, hispid-pubescent. Flowers dioecious or monoecious, brownish green. Achenes beaked.

Common; fl. & fr. Aug. - Oct. & Nov. - Jan.; Kanda (3); *P.C. Pant* 43308.

3. **B. rugulosa** Wedd. [in Ann. Sci. Nat. Ser. 4, 1:200. (1854) *nom. nud.*] Monogr. Urtic. 378. 1856; Duthie, F.U.G.P. 2:224, 1960 (Rep. ed.). Fig. 3

Evergreen small trees. Bark brown. Leaves elliptic-lanceolate, base 3-nerved. Flowers dioecious, green. Achenes elliptic.

Few; fl. & fr.: July - Sept.; Ghilmodya Sot (11); *P.C. Pant* 43173.

## 2. DEBREGEASIA Gaud.

**D. longifolia** (Burm. f.) Wedd. in DC. Prodr. 16 (1) 235. 1869. *Urtica-*

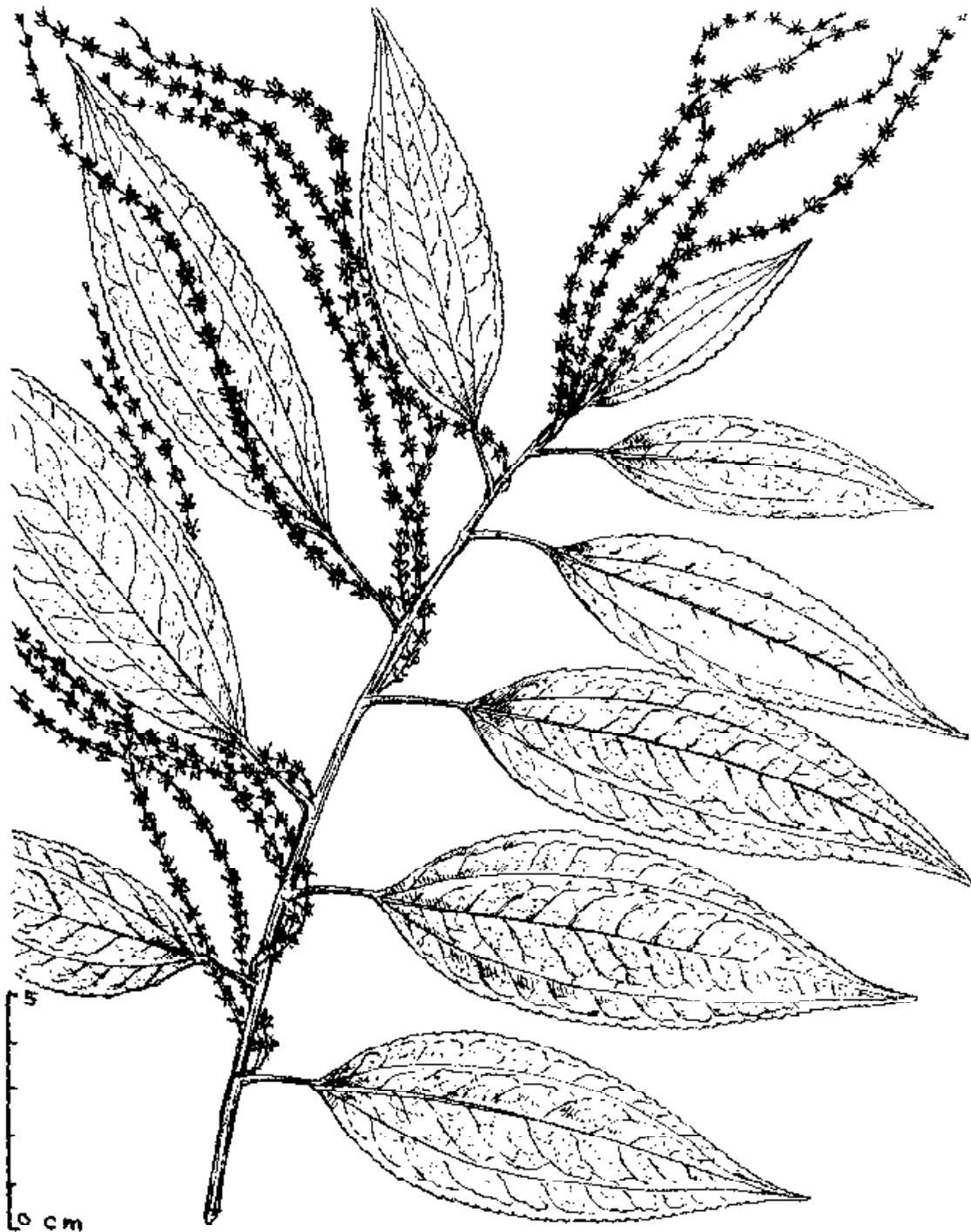


Fig. 3. *Boehmeria rugulose* Wedd. Wood used in preparation of house hold articles like Boxes, cups, combs and dairy utensils.

*longifolia* Burm. f. Fl. Ind. 197 (*Sphalm* 297) 1768. *Debregeasia velutina* Gaud. B. Bonite Voy. t.90. 1842-43; Duthie, F.U.G.P. 2:228. 1960 (Rep. ed.).

Large, evergreen-shurbs. Flowers dioecious, brownish green. Achenes fleshy.

Frequent; fl. & fr.: Mar. May & June Nov.; Gairal (10); K.P. Janardhanan 51149.

### 3. ELATOSTEMA J.R. & G. Forst *nom. cons.*

\**E. cuneatum* Wight Ic. 6:35. t.2091, 1853; Hook. f. Fl. Brit. Ind. 5:568.1888.

Small, delicate herbs. Leaves membranous, sparsely setose above. Flowers green, monoecious or dioecious. Achenes ellipsoid.

Few; fl. & fr.: Aug. Nov.; Sajgadi Sot (12); P.C. Pant 72419.

### 4. MAOUTIA Wedd.

*M. puya* (Hook.) Wedd. in Ann. Sci. Nat. Ser. 4, 1:193. 1854; Duthie, F.U.G.P. 2:230. 1960 (Rep. ed.). *Boehmeria puya* Hook. in Lond. Jour. Bot. 3:316, t. 7. 1851.

Erect shrubs or undershrubs. Bark dark grey with vertical lines of lenticels. Leaves scabrid above, softly hairy beneath. Flowers monoecious, dull red. Achenes trigonous, hispid.

Frequent.; fl. & fr.: May Nov.; Kanda (3); P.C. Pant 43333.

### 5. NEODISTEMON Babu & Henry

*N. indicum* (Wedd.) Babu & Henry in Taxon 19:651. 1970; Raizada Suppl. Duthie's F.U.G.P. 257. 1976. *Distemon indicum* Wedd. Monogr. 9:551, t. 20A. 1857.

Slender herbs. Leaves acuminate, sparsely hairy. Flowers monoecious, greenish. Achenes broadly ovoid.

Rare; fl. & fr. Aug. Nov.; Dhulwa East (12); P.C. Pant 43038.

### 6. POUZOLZIA Gaud.

1a. Hoary pubescent, leaves ovate, almost of constant size.

*P. zeylanica* 2

1b. Glabrous, leaves oblong-lanceolate, diminishing in size upwards.

*P. pentandra* 1

1. *P. pentandra* (Roxb.) Benn. Fl. Java 64. t. 14. 1838; Duthie, F.U.G.P. 2:227. 1960 (Rep. ed.). *Urtica pentandra* Roxb. Fl. Ind. ed. 2, 3:583. 1832.

Erect herbs. Leaves both opposite and alternate, 3 nerved. Flowers monoecious, red. Achenes ovoid.

Few; fl. & fr. : Sept. Dec.; Ratapani (18); *P.C. Pant* 43383.

2. *P. zeylanica* (L.) Benn. & Brown. Pl. Jav. Rar. 67. 1854. *Parietaria zeylanica* L. Sp. Pl. 1052. 1753. *Pouzolzia inidica* (L.) Gaud. in Freycinet Voy. 503. 1830; Duthie, F.U.G.P. 2:226. 1960 (Rep. ed.).

Prostrate herbs. Leaves alternate or opposite, lateral nerves 1 pair, basal nerves 3. Flowers monoecious, green. Achenes broadly ovoid.

Scattered; fl. & fr.: Aug. Apr.; Gairal (10); *P.c. Pant* 43665.

### 7. URTICA L.

*U. ardens* Link Enum. H. Berol. 385. 1822; *U. parviflora* Roxb. Fl. Ind. ed. 2, 3:581. 1832; Raizada suppl. Duthie's, F.U.G.P. 260. 1976.

Erect herbs. Leaves ovate-lanceolate, acuminate. Flowers monoecious, green. Achenes ovoid-suborbicular.

Rare; fl. & fr.: Sept. Feb.; Amgadi Sot Sultan (11); *P.C. Pant* 43117.

### 84. MORACEAE (Mulberry Family)

1a. Flowers on inner walls of a closed receptacle. *Ficus* 1

1b. Flowers capitate or in elongated spikes, not in closed receptacle.

2a. Leaf base cordate; surfaces pubescent. *Morus* 2

2b. Leaf base acute; surfaces rough. *Streblus* 3

### 1. FICUS L.

1a. Leaf surfaces scabrous.

2a. Leaf base unequally lobed. *F. semicordata* 9

2b. Leaf base not lobed. *F. hispida* 5

1b. Leaf surfaces glabrous or pubescent.

3a. Trees.

4a. Leaf apex abruptly acuminate or caudate.

5a. Leaf base slightly continuing on petiole, petiole flattened upwards. *F. rumphii* 8

5b. Leaf base not continuing on petiole, petiole channelled.

6a. Leaves ovate or ovate-oblong, membranous. *F. virens* 10

6b. Leaves broadly ovate, subcoriaceous. *F. arnottiana* 1

4b. Leaf apex acute or obtuse.

7a. Nerves thick, prominently developed on surfaces.

8a. Undersurface of leaf dotted. *F. racemosa* 7

8b. None of the leaf surfaces dotted.

- 9a. Lateral nerves joining by conspicuous reticulate veins. *F. benghalensis* 3  
 9b. Lateral nerves joining by parallel veins. *F. auriculata* 2  
 7b. Nerves thin, faintly developed on surfaces. *F. microcarpa* 6  
 3b. Scandent or creeping shrubs. *F. hederacea* 4

1. *F. arnottiana* (Miq.) Miq. in Ann. Mus. B. Lugd.-Bat. 3:287. 1867; Duthie, F.U.G.P. 2:242. 1960 (Rep. ed.). *Urostigma arnottiana* Miq. in Hook. Lond. Jour. Bot. 6:564. 1847.

Small, deciduous trees. Bark reddish or yellowish brown. Leaves alternate, glabrous. Receptacle in pairs or clusters. Flowers unisexual. Figs globose, purple with green dots.

Scarce; Receptacle: July - Nov.; Gairal (10); *K.P. Janardhanan* 51162.

2. *F. auriculata* Lour. Fl. Cochinch. 666. 1790. *F. roxburghii* Wall. ex Miq. in Ann. Mus. B. Lugd. - Bat. 3:296. 1867; Duthie, F.U.G.P. 2:248. 1960 (Rep. ed.).

Small sized, almost evergreen trees. Bark grey or pinkish brown, warty. Leaves ovate or rounded, variable in size. Receptacles in clusters. Flowers unisexual. Figs pyriform, Purplish orange or pink.

Few; Receptacle: Apr - Dec.; Kanda (3); *K.P. Janardhanan* 51467.

3. *F. benghalensis* L. Sp. Pl. 1059. 1753; Duthie, F.U.G.P. 2:238. 1960 (Rep. ed.). "BAR".

Large, evergreen trees. Bark dark grey, smooth. Leaves ovate or orbicular-elliptic. Receptacle axillary, paired. Flowers unisexual. Figs globose, red, puberulous.

Rare; Receptacle: June - Mar.; Kanda (3); *K.P. Janardhanan* 51418

4. *F. hederacea* Roxb. Fl. Ind. ed. 2, 3:538. 1832. *F. scandens* Roxb. Fl. Ind. ed. 2, 3:536. 1832; Duthie, F.U.G.P. 2:246. 1960 (Rep. ed.).

Large, evergreen climbers. Bark pale ash or silvery brown. Leaves elliptic-ovate, very coriaceous, base 3-nerved. Receptacle axillary, solitary or in pairs. Flowers unisexual. Figs globose, red.

Scattered; Receptacle Apr. - Nov.; Dhangadi Environs (12); *K.P. Janardhanan* 50183.

5. *F. hispida* L. f. Suppl. Pl. 442. 1781; Duthie, F.U.G.P. 2:244. 1960 (Rep. ed.).

Small, evergreen trees. Bark greenish-grey, smooth warty in old twigs, hollow. Leaves variable, ovate, obovate oblong or elliptic. Receptacle in pairs or clusters. Flowers unisexual. Figs obovoid or turbinate, greenish yellow.

Scarce; Receptacle: Round the year; Dabriya Chaur (10); *P.C. Pant* 43689.

6. *F. microcarpa* L. *f. Suppl. Pl.* 442. 1781; *F. retusa. auct. pl. non. L.* 1767; Duthie, *F.U.G.P.* 2:239. 1960 (Rep. ed.).

Evergreen trees, often epiphytic. Bark dark grey or brown, smooth. Leaves elliptic, ovate or obovate. Receptacles axillary, solitary or in pairs. Figs depressed, globose.

Scarce; Receptacle: Apr. - May; Bijrani (18); *P.C. Pant* 43648.

7. *F. racemosa* L. *Sp. Pl.* 1060. 1753. *F. glomerata* Roxb. *Pl. Cor.* 2:t.123. 1798; Duthie, *F.U.G.P.* 2:248. 1960 (Rep. ed.). "GULAR"

Large, deciduous trees. Bark pale or reddish-brown, smooth. Leaves ovate-oblong to elliptic-lanceolate. Receptacle clustered. Figs globose or pyriform, pink or orange.

Scattered; Receptacle: Apr. - July; Hathipani (2); *P.C. Pant* 43759.

8. *F. rumphii* Bl. *Bijdr.* 437. 1825; Duthie, *F.U.G.P.* 2:241. 1960 (Rep. ed.).

Moderate sized deciduous trees. Bark yellowish-grey small. Leaves broadly ovate. Receptacle in pairs. Figs globose, black.

Few; Receptacle: Apr. - Dec.; Paternallaha (14); *P.C. Pant* 40145.

9. *F. semicordata* Buch. *Ham. ex Sm. in Rees Cyclop.* 14:71 1810. *F. cunia* Buch. - *Ham. ex Roxb. Fl. Ind. ed. 2, 3:561.* 1832; Duthie, *F.U.G.P.* 2:246. 1960 (Rep. ed.).

Middle sized, evergreen or subdeciduous trees. Bark reddish or greyish, greyish brown, rough. Leaves elliptic to oblong-lanceolate. Receptacle in pairs or clusters. Figs globose or pyriform, reddish brown.

Few; Receptacle: May - Nov.; On Way to Pateli Chaur (14); *P.C. Pant* 43491.

10 *F. virens* Ait. *Hort. Kew* 3:451. 1789. *F. infectoria* Roxb. *Fl. Ind. ed. 2, 3:551.* 1832; Duthie, *F.U.G.P.* 2:243. 1960 (Rep. ed.) "KHABAR"

Large, deciduous trees. Bark pale ash or dark grey, smooth. Leaves ovate or obovate-oblong. Receptacle in axillary pairs. Figs globose, pink dotted

Scattered; Receptacle: Apr. - Oct.; Dhikala (8); *P.C. Pant* 43745.

## 2. MORUS L.

*M. alba* L. *Sp. Pl.* 986. 1753; Duthie, *F.U.G.P.* 2:231. 1960 (Rep. ed.).

Deciduous trees. Bark dark brown, fissured. Leaves variable, ovate, entire or lobed. Flowers monoecious, greenish, occasionally dioecious. Achenes purplish black.

Rare; fl. & fr.: Feb., - Apr.; & May; Boxar (7); *P.C. Pant* 43792.

3. **STREBLUS** Lour.

**S. asper** Lour. Fl. cochinch. 2:615. 1790; Duthie, F.U.G.P. 2:232. 1960 (Rep. ed.). "KATH-BERA"

Small, evergreen trees. Bark pale grey or brown. Leaves rhomboid-elliptic, obovate, margins sinuate or crenate. Flowers dioecious, yellowish green. Berries subglobose.

Few; fl. & fr.: Jan. Mar. & July; Dhela (15); *P.C. Pant* 72461.

## 85. SALICACEAE (Willow Family)

**SALIX** L.

**S. tetrasperma** Roxb. Pl. Cor. 1:66, t.97. 1798; Duthie, F.U.G.P. 2:253. 1960 (Rep. ed.).

Deciduous trees. Bark pale or dark brown, vertically furrowed, rough. Leaves lanceolate or ovate-lanceolate. Flowers dioecious. Capsules glabrous.

Few; fl. & fr.: Sept. - Oct., & Nov. - Dec.; Sultan (11); *K.P. Janardhanan* 50151.

## 86. ORCHIDACEAE (Orchid Family)

1a. Leaves thick, coriaceous.

2a. Pseudobulbs present.

3a. Leaf apex notched.

*Flickingeria* 3

3b. Leaf apex acute, not notched.

*Eria* 1

2b. Pseudobulbs absent.

4a. Leaves flat.

5a. Leaves strap shaped, apex 2-lobed.

*Vanda* 8

5b. Leaves falcate, apex not lobed.

*Oberonia* 6

4b. Leaves terete.

*Luisia* 4

1b. Leaves thin or membranous.

6a. Leaves linear, elliptic-lanceolate.

7a. Leaves solitary, lip not spurred.

*Pachystoma* 7

7b. Leaves two, lip spurred.

*Eulophia* 2

6b. Leaves orbicular-cordate.

*Nervilia* 5

1. **ERIA** Lindl. *nom. cons.*

**E. pubescens** (Hook.) Lindl. [Gen. & Sp. Orchid Pl. 65 (1830) *pro syn.*] ex Steud. Nomencl. Bot. ed. 2, 1:566. 1840. *Dendrobium pubescens* Hook. Exot. Fl. 2: t. 124. 1824. *Eria flava* Lindl. Gen. & Sp. Orch. 65. 1830; Duthie, F.U.G.P. 2:278. 1960 (Rep. ed.).

Epiphytic herbs. Rhizomes stout, pseudobulbs compressed. Leaves narrowly oblong, acuminate. Flowers yellow, densely white woolly outside. Capsules cylindrical.



Rare, on *Mangifera indica*; fl. & fr.: Mar. - May & June; On Way to Gajar Sot from Dhangadi (12); *P.C. Pant* 72456.

## 2. EULOPHIA R. Br. *nom. cons.*

**E. dabia** (D. Don) Hochre. Bull. N.Y. Bot. Gard. 6:270. 1910; *Bletia dabia* D. Don Prodr. Fl. Nep. 30. 1825. *Eulophia campestris* Wall. [Cat n. 7367 (1832) *nom nud*] ex Lindl. Gen. & Sp. Orchid. Pl. 185. 1833; Duthie, F.U.G.P. 2:281. 1960 (Rep. ed.).

Terrestrial, tuberous herbs. Leaves linear, acuminate plicate developing after flowering is over. Flowers dull brown streaked with pink. Capsules ellipsoid.

Rare; fl. & fr.: Mar. May & June July; Dhikala Chaur (8); *P.C. Pant* 61778.

## 3. FLICKINGERIA A. D. Hawakes

\***Flickingeria fugax** (Reichb. f.) Seid. Dank. Bot. Ark. 34.1:46, fig. 17, Pl. 7. 1980. *Dendrobium fugax* Reichb. f. in Gard. Chornc. 1257. 1871. Hook. f. Fl. Brit. Ind. 6:752. 1890.

Epiphytic herbs. Pseudobulbs elongate, glaucous. Leaves elliptic-lanceolate, surfaces prominently veined. Flowers white. Fruits not seen.

Rare, on *Mangifera indica*; fl.: May; On Way to Gajar Sot from Dhangadi (12); *P.C. Pant* 72459.

## 4. LUISIA Gaud.

**L. trichorhiza** (Hook.) Bl. Mus. Bot. Lugd.-Bat. 1:63. 1849; Duthie, F.U.G.P. 2:287. 1960 (Rep. ed.) *Vanda ? trichorhiza* Hook. Exot. Fl. 1:1.72. 1823.

Epiphytic herbs. Stem stout. Leaves fleshy, tapering at apex. Flowers small, dull purple with greenish tinge. Capsules suberect, ridged.

Scattered, on *Shorea robusta*. fl. & fr.: Feb - July; Sultan Environs (12); *P.C. Pant* 72457.

## 5. NERVILIA Comm. ex Gaud. *nom. cons.*

**N. crispata** (Bl.) Schltr. in Bot. Jahrb. 45:402. 1911; Raizada Suppl. Duthie's F.U.G.P. 266. 1976. *Pogonia crispata* Blume Mus. Bot. - Lugd. Bat. 1:32. 1849.

Terrestrial, stoloniferous and tuberous herbs. Leaves solitary, broadly cordate or orbicular, appear after flowering. Flowers pale green, with pinkish tinge. Capsules fusiform.

Scattered; fl.: May - June; Bijrani Environs (18); *P.C. Pant* 72455.

6. OBERONIA Lindl. *nom. cons.*

**O. falconeri** Hook. *f.* in Hook. Ic. Pl. 18: t.1780; Duthie, F.U.G.P. 2:268. 1960 (Rep. ed.).

Epiphytic herbs. Leaves lanceolate-oblong, fleshy. Flowers minute, greenish yellow. Capsules obovoid, ribbed.

Few. On *Syzygium cumini*; fl. & fr.: July-Nov.; Gajar Sot Environs (12); *P.C. Pant* 72420.

## 7. PACHYSTOMA Blume

**P. senile** (Lindl.) Reichb. *f.* Bonplandia 3:250. 1858; Duthie, F.U.G.P. 2:275. 1960 (Rep. ed.). *Apturaria senilis* Lindl. Gen. Sp. Orch. 130. 1831.

Terrestrial herbs. Leaves oblong-lanceolate, many nerved, developing only after flowering is over. Flowers pinkish white.

Few; fl. & fr.: Apr. & June; Dhikala Chaur (8); *P.C. Pant* 43736.

## 8. VANDA Jones

**V. testacea** (Lindl.) Reichb. *f.* Gard. Chron. 2:166. 1877. *Aerides testaceum* Lindl. Gen. & Sp. Orch. 238. 1833. *Vanda parviflora* Lindl. in Edw. Bot. Reg. 30 Misc. 45. 1844; Duthie, F.U.G.P. 2:290. 1960 (Rep. ed.).

Epiphytic herbs. Leaves Linear-oblong. Flowers Cream-yellow. Capsules fusiform.

Scattered, on *Acacia catechu*; fl. & fr.: Apr. - May; Bijrani (18); *P.C. Pant* 43597.

## 87. ZINGIBERACEAE (Ginger Family)

- |  |                    |
|--|--------------------|
| 1a. Leaf sheaths closed, forming a tube.   | <i>Costus</i> 1    |
| 1b. Leaf sheaths open, not forming a tube. |                    |
| 2a. Stemless herbs.                        | <i>Curcuma</i> 2   |
| 2b. Stem present.                          |                    |
| 3a. Staminodes free from lip.              | <i>Hedychium</i> 3 |
| 3b. Staminodes adnate to lip.              | <i>Zingiber</i> 4  |

## 1. COSTUS L.

**C. speciosus** (Koenig ex Retz.) Smith in Trans. Linn. Soc. Lond. 1:249. 1791; Duthie, F.U.G.P. 2:310. 1960 (Rep. ed.). *Banksea speciosa* Koenig ex Retz. Obs. Bot. 3:75. 1783.

Erect herbs, rootstock tuberous, rhizomatous. Leaves oblong or oblanceolate. Flowers white. Capsules globosely trigonous.

Scattered; fl. & fr.: July, - Sept. & Oct. - Nov.; Amgadi Sot (11); *P.C. Pant* 43123.

## 2. CURCUMA L.

**C. angustifolia** Roxb. *Asiat. Res.* 11:338. t.3. 1810; Duthie, *F.U.G.P.* 2:308. 1960 (Rep. ed.).

Erect herbs with fleshy, tuberous rootstock. leaves lanceolate. Flowers pink. Capsules ovoid.

Few; fl. & fr. Apr. - Sept.; Boxar-Takia Sot (7); *P.C. Pant* 43809.

## 3. HEDYCHIUM Koenig ex Retz.

\***H. thyriforme** Ham. ex Sm. in *Rees Cyclop.* 17: 4. 1811. Baker in *Hook f. Fl. Brit. Ind.* 6:230. 1892.

Erect herbs, rootstock horizontal, tuberous. Leaves oblong. Flowers white. Capsules globose.

Rare; fl. & fr.: Nov. - Dec.; Ghilmodya Sot (11); *P.C. Pant* 43186.

4. ZINGIBER Boehm. *nom. cons.*

1a. Leaves narrow-linear; inflorescence on leafy stem. *Z. capitatum* 1

1b. Leaves broad, lanceolate - oblong; inflorescence on leafless scape. *Z. roseum* 2

1. **Z. capitatum** Roxb. *Asiat. Res.* 11:348. 1810; Duthie, *F.U.G.P.* 2:309. 1960 (Rep. ed.).

Erect herbs, rootstock rhizomatous, with spicy fragrance in tubers. Leaves sessile, acuminate. Flowers yellow. Capsules small, bright red.

Rare; fl. & fr.: Aug. - Dec.; Gaujpani (15); *K.P. Janardhanan* 51289.

**Z. roseum** (Roxb.) Rosc. *Trans. Linn. Soc. Lond.* 8:348. 1807; Raizada, *Suppl. Duthie's, F.U.G.P.* 273. 1976. *Amomum roseum* Roxb. *Cor. Pl.* t.126. 1800.

Erect herbs, rootstock rhizomatous, with fleshy roots. Flowers whitish yellow. Capsules ovoid-ellipsoid, red.

Few; fl. & fr.: Aug. - Sept. & Oct. - Dec.; Gairal Sarpaduli Road (10); *K.P. Janardhanan* 51107.

## 88. DIOSCOREACEAE (Yam Family)

## DIOSCOREA L.

1a. Stems twining to right; bulbils smooth.

2a. Stem and leaf surfaces underneath softly greyish tomentose.

*D. pubera* 3

2b. Stems and leaf surfaces glabrous and glaucous underneath.

*D. belophylla* 1

1b. Stem twining to left, bulbils warted.

*D. bulbifera* 2

1. **D. belophylla** (Prain) Voigt. ex Haines For. Fl. Chota Nagpur 530. 1910; Duthie, F.U.G.P. 2:325. 1960 (Rep. ed.). *D. nummularia* var *belophylla* Prain Beng. Pl. 2:1065. 1067. 1903. "TARUR" Fig. 4.

Slender twiners. Leaves ovate, base cordate or sagittate. Flowers unisexual, greenish white. Capsules subquadrate.

Few; fl. & fr.: Sept. Mar.; Kanda (3); *P.C. Pant* 43267.

2. **D. bulbifera** L. Sp. Pl. 1033. 1753; Duthie, F.U.G.P. 2:324. 1960 (Rep. ed.).

Glabrous climbers. Leaves broadly ovate or suborbicular. Flowers unisexual, purplish. Capsules oblong.

Common; fl. & fr.: July - Sept. & Nov. - Feb.; 4th Km. Sarpaduli-Dhikala Road (10) *K.P. Janardhanan* 50197.

3. **D. pubera** Bl. Enum. Pl. Jav. 1:21. 1827 *D. anguina* Roxb. Fl. Ind. ed. 2, 3:803. 1832; Duthie, F.U.G.P. 2:325. 1960 (Rep. ed.).

Large climbers. Leaves broadly ovate to suborbicular, cordate. Flowers unisexual, capsules transversely elliptic.

Abundant; fl. & fr.: Oct - Jan.; On Way to Dhikala from sarpaduli (8); *P.C. Pant* 43201.

## 89. LILIACEAE (Lily Family)

1a. Leaves reduced to scales; root tuberous.

*Asparagus* 1

1b. Leaves well developed; root not tuberous.

*Smilax* 2

### 1. ASPARAGUS L.

1a. Spines straight; cladodes 6-20.

*A. adscendens* 1

1b. Spines usually recurved; cladodes 2-6.

*A. racemosus* 2

1. **A. adscendens** Roxb. Fl. Ind. ed. 2, 2:153. 1832; Duthie, F.U.G.P. 2:328. 1960 (Rep. ed.).

Suberect shrubs. Cladodes needle like, terete. Flowers white. Berry ovoid, scarlet. red.

Few; fl. & fr.: Aug. Oct. Nov. — Jan; Ghilmodya Sot (11); *P.C. Pant* 43190.

2. **A. racemosus** Willd. Sp. Pl. 2:152. 1799; Duthie, F.U.G.P. 2:327. 1960 (Rep. ed.). "MUSALI"

Scandent shrubs or undershrubs. Cladodes falcate, channelled below. Flowers white. Berries globose.

Few; fl. & fr.: Sept. Oct. & Nov. - Jan.; Bijrani (18); *P.C. Pant* 43405.

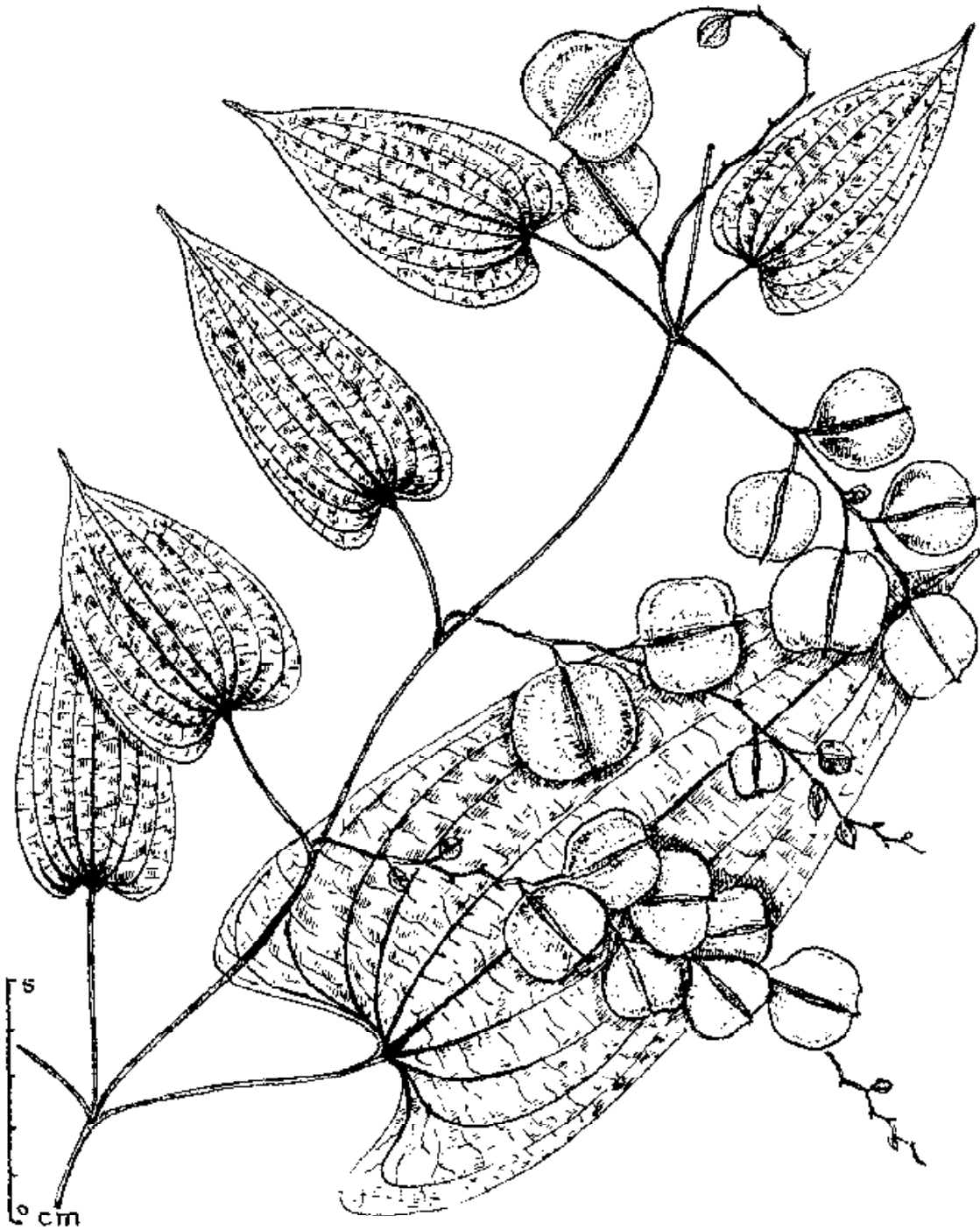


Fig. 4. *Dioscorea belophylla* Voigt. Tubers highly prized of forest 'Yams'.

## 2. SMILAX L.

*S. ovalifolia* Roxb. [Hort. Beng. 72 (1814) *nom. nud*] ex D. Don Prodr Fl. Nep. 49. 1825. *S. macrophylla* Roxb. Fl. Ind. ed. 2, 3:793. 1832; Duthie, F.U.G.P. 2:329. 1960 (Rep. ed.).

Large, prickly climbers. Leaves variable, broad, elliptic or suborbicular. Flowers dioecious, umbellate, greenish. Berries globose, red.

Scattered; fl. & fr.: Apr. - Nov.; On way to Sultan from Dhangadi (12); *P.C. Pant* 43567.

## 90. PONTEDERIACEAE (Pickerei-Weeds Family)

## MONOCHORIA C. Presl

- 1a. Leves hastate or sagittate; flowers in crowded raceme or sub-umbellate. *M. hastata* 1
- 1b. Leaves ovate or ovate-cordate; flowers in lax sub-capitate raceme. *M. vaginalis* 2

1. *M. hastata* (L.) Solms. in DC. Monogr. Phan. 4:523. 1883 *Pontederia hastata* L. Sp. Pl. 288. 1753. *Monochoria hstaefolia* Presl Rel. Haenk. 2:128, 1835; Duthie, F.U.G.P. 2:336. 1960 (Rep. ed.). "PATHAR-GABA"

Spongy, hydrophytic herbs. Leaves smooth, glossy. Flowers blue. Capsules ellipsoid.

Rare; fl. & fr.: Feb. - Nov., Mailani Forest Compartment No. 6 (17); *P.C. Pant* 72350.

2. *M. vaginalis* (Burm. f.) Presl Rel. Haenk 1:128. 1827; Duthie, F.U.G.P. 2:336. 1960 (Rep. ed.) *Pontederia vaginalis* Burm. f. Fl. Ind., 80. 1768.

Amphibious herbs. Leaves glabrous. Flowers lilac blue. Capsules oblong.

Rare; fl. & fr.: June - Nov.; Mailani Forest Compartment No.8 (17); *P.C. Pant* 72341

## 91. COMMELINACEAE (Spiderwort Family)

- 1a. Flowers enclosed within spathe or bracteoles.
- 2a. Leaves narrowly ovate-oblong, fertile stamens 6. *Cyanotis* 2
- 2b. Leaves broadly ovate or lanceolate, fertile stamens 3. *Commelina* 1
- 1b. Flowers naked.
- 3a. Mouth of leaf sheaths with long hairs, fertile stamens 6. *Floscopa* 3
- 3b. Mouth of leaf sheaths without hairs, fertile stamens 3. *Murdannia* 4

## I. COMMELINA L.

- 1a. leaves ovate or oblong; capsule with 5-seeds. *C. benghalensis* 1
- 1b. Leaves lanceolate or elliptic-lanceolate; capsule with 3-seeds. *C. paludosa* 2

1. *C. benghalensis* L. Sp. Pl. 41. 1753; Duthie, F.U.G.P. 2:339. 1960 (Rep. ed.).

Diffused, dichotomously branched herbs. Leaves subsessile, glabrescent. Flowers blue. Capsules pyriform.

Scattered. fl. & fr.: June-Nov. Lakkar Ghat, Kalagarh (14); *P.C. Pant* 72219.

2. *C. paludosa* Bl. Enum. Pl. Java 1:2. 1827. *C. obliqua* Buch. - Ham. ex D. Don Prodr. Fl. Nep. 45. 1825; Duthie, F.U.G.P. 2:340. 1960 (Rep. ed.).

Tall herbs. Leaves subsessile, acuminate or acute. Flowers blue. Capsules 3-gonous, ovoid.

Rare; fl. & fr.: Aug. - Nov.; Gairal (10); *K.P. Janardhanan* 51170.

## 2. CYANOTIS D. Don *nom. cons.*

*C. cristata* (L.) D. Don Prodr. Fl. Nep. 46. 1825; Duthie, F.U.G.P. 2:343. 1960 (Rep. ed.). *Commelina cristata* L. Sp. Pl. 42. 1753.

Branched herbs. Leaves subsessile, glabrous or sparsely hairy. Flowers blue or purple. Capsules 3-gonous, truncate.

Few; fl. & fr.: Sept. - Nov.; Ghilmodya Sot, Sultan (11); *P.C. Pant* 43176.

## 3. FLOSCOPA Lour.

*F. scandens* Lour. Fl. cochinch. 1:193. 1790; Duthie, F.U.G.P. 2:345. 1960 (Rep. ed.).

Erect or scandent herbs. Leaves subsessile, elliptic lanceolate. Flowers white, lilac or pink. Capsules with acute ends.

Abundant; fl. & fr.: Sept. - Dec.; Gajar Sot (11); *P.C. Pant* 43103.

## 4. MURDANNIA Royle *nom. cons.*

1a. Roots fusiform, tuberous.

*M. scapiflora* 2

1b. Roots fibrous not tuberous.

2a. Leaves ca .5-3.5cm long, lower broadly linear-lanceolate and upper oblong-cordate; bracts persistent; stamens 3.

*M. spirata* 3

2b. leaves ca 1-11cm long, linear-oblong or lanceolate; bracts caducous; stamens 2.

*M. nudiflora* 1

1. *M. nudiflora* (L.) Brenan Kew Bull. 7:189. 1952. *Commelina nudiflora* L. Sp. Pl. 41:1753, p.p.; *Aneilema nudiflora* R. Br. Prodr. 271. 1810. Duthie, F.U.G.P. 2:342. 1960 (Rep. ed.).

Herbs with simple or branched stem, often rooting at nodes. Leaves glabrous or slightly villous. Flowers blue or purple, rarely white. Capsules subglobose.

Few; fl. & fr.: Apr. - Dec.; Gairal (10-11). *P.C. Pant* 72441.

2. **M. scapiflora** (Roxb.) Royle Ill. Bot. Himal. t. 95. f.3. 1839. *Commelina scapiflora* Roxb. Fl. Ind. ed. 2, 1:175. 1832. *Aneilema scapiflorum* (Roxb.) Wight Ic. 6:30, t.2075. 1853; Duthie, F.U.G.P. 2:341. 1960 (Rep. ed.).

Erect herbs. Leaves ensiform, appearing after the flowers. Flowers bluish-mauve. Capsules obovoid.

Few; fl. & fr.: Aug. - May; Dhikala (8); *P.C. Pant* 43743.

3. **M. spirata** (L.) Bruckn. Pflanzenfam. ed. 2, 15a. 173. 1930. *Commelina spirata* L. Mant. Pl. Alt. 176. 1771. *Aneilema spiratum* (L.) R. Br. Prodr. 271. 1810; Duthie, F.U.G.P. 2:341. 1960 (Rep. ed.).

Erect or decumbent herbs. Leaves sessile, margins usually wavy, glabrous, canaliculate in the middle. Flowers blue. Capsules 3-gonous.

Scattered; fl. & fr.: Aug. - Nov.; Phulai (2); *P.C. Pant* 43277.

## 92. ARECACEAE (Palm Family)

- 1a. Leaflets narrow, entire and green underneath. *Phoenix* 1  
 1b. Leaflets broad, finely serrulate on upper portion, silvery white underneath. *Wallichia* 2

### 1. PHOENIX L.

- 1a. Stem bulbiform; leaflets folded when young, opening on maturity, surfaces strongly nerved. *P. acaulis* 1  
 1b. Stem rising high at length, leaflets always folded, surfaces faintly nerved. *P. humilis* 2

1. **P. acaulis** Roxb. [Hort. Beng. 73 (1814) *nom. nud.*] ex Buch.-Ham. in Roxb. Fl. Ind. ed. 2, 3:783. 1832; Duthie, F.U.G.P. 2:354. 1960 (Rep. ed.).

Low palm. Leaves pinnatisect, leaflets ensiform. Flower dioecious, yellow. Berries oblong, ellipsoid.

Few; fl. & fr.: Dec. - Jan. & Apr. - May; Dhikala Chaur (8); *P.C. Pant* 43751.

2. **P. humilis** Royle [Ill. Bot. Himal. 8, 14 (1833) *nom. nud.*] ex Beccari & Hook. f. Fl. Brit. Ind. 6:426. 1892; Duthie, F.U.G.P. 2:355. 1960 (Rep. ed.).

Shrubby palm. Leaves pinnatisect, leaflets ensiform. Flowers dioecious, male, pale yellow, female yellowish-green. Berries ovoid.

Few; fl. & fr.: Dec. - Jan. & Apr. - June; Gaujpani (15); *P.C. Pant* 43814.

### 2. WALLICHIA Roxb.

**W. densiflora** Mart. Hist.-Palm. 3:190. 1838; Duthie, F.U.G.P. 2:356. 1960 (Rep. ed.).

Beautiful, shrubby palm. Leaves pinnatisect, leaflets oblong sinuately



lobed. Flowers dioecious, male yellow, female purplish. Berries ovoid-oblong.

Rare; fl. & fr.: May - Aug.; Sajgadi-Sultan (11); *P.C. Pant* 72421.

### 93. TYPHACEAE (Bullrush Family)

#### TYPHA L.

*T. angustifolia* L. Sp. Pl. 971. 1753. *T. angustata* Bory. & Chaub. in Exped. Sci. Moree, Bot. 1:338. 1833; Duthie, F.U.G.P. 2:359. 1960 (Rep. ed.). "PATERA"

Marshy, rhizomatous herbs. Leaves with semicylindrical blade, radical. Flowers monoecious, yellow, lower female, upper male. Drupes small.

Few; fl. & fr.: Apr. - Dec.; Paternallaha, Kalagarh (14); *P. C. Pant* 61785.

### 94. ARACEAE (Arum Family)

#### POTHOS L.

*P. cathcartii* Schott Aroid 1:22. t. 44-45. 1857, Raizada Suppl. Duthie's, F.U.G.P. 285. 1976.

Evergreen climbers. Leaves ovate-lobong. Flowers hermaphrodite; spathe green tinged with purple. Berries red.

Scattered; fl. & fr.: Mar - May; On Way to Sultan (12); *P.C. Pant* 43556.

### 95. POTAMOGETONACEAE (Pondweed Family)

#### POTAMOGETON L.

1a. Stem compressed; leaves sessile, translucent, margin crisped.

*P. crispus* 1

1b. Stem terete; leaves petioled, opaque, margin entire.

*P. nodosus* 2

1. *P. crispus* L. Sp. Pl. 126. 1753; Duthie, F.U.G.P. 2:375. 1960 (Rep. ed.). Submerged, aquatic herbs. Leaves linear-oblong, 3-nerved. Flowers pink on lax spikes. Drupelets obliquely ovoid.

Rare; fl. & fr.: Feb. - Apr.; Phulai Block. Dhikala (8); *P.C. Pant* 61774.

2. *P. nodosus* Poir, in Lamk. Encycl. Suppl 4: 535. 1816. *P. indicus* Roxb. Fl. Ind. 1:471. 1820; Duthie, F.U.G.P. 2:374. 1960 (Rep. ed.).

Submerged, aquatic herbs. Leaves elliptic-lanceolate, oblong, elliptic. Flowers bisexual, green. Drupelets small, smooth.

Rare; fl. & fr.: Jan. - June; Saddle Dam, Kalagarh (14); *P.C. Pant* 43868.

### 96. ERIOCAULACEAE (Piperwort Family)

#### ERIOCAULON L.

*E. cinereum*. R. Br. Prodr. Fl. Nov. Holl. 254. 1810. *E. sieboldianum* Sieb. et Zucc. ex Steud. Syn. Pl. Glum. 2:272. 1855; Duthie, F.U.G.P. 2:378. 1960 (Rep. ed.)

Tufted, stemless herbs. Leaves linear. Heads white or purplish, unisexual. Capsules membranous.

Rare; fl. & fr.: Aug. - Oct.; Mailani Environs (17); *P.C. Pant* 72359.

### 97. CYPERACEAE (Sedge Family)

- 1a. Leaves narrow, filiform.
  - 2a. Leaf margins serrulate. *Eriophorum* 4
  - 2b. Leaf margins entire. *Bulbostylis* 1
- 1b. Leaves broad, not filiform.
  - 3a. Florets unisexual
    - 4a. Leaves usually scattered on stem; nut not enclosed within utricle. *Scleria* 8
    - 4b. Leave usually crowded at base of stem; nut enclosed in utricle. *Carex* 2
  - 3b. Florets almost all bisexual.
    - 5a. Perianth bristle like. *Scirpus* 7
    - 5b. Perianth scale like or absent.
      - 6a. Leaf margins revolute. *Lipocarpa* 6
      - 6b. Leaf margins flat not revolute.
        - 7a. Flowering glumes distichous, spikelets linear-lanceolate. *Cyperus* 3
        - 7b. Flowering glumes spiral or sometimes lowest subdistichous, spikelets ovoid or ellipsoid. *Fimbristylis* 5

#### 1. BULBOSTYLIS Kunth *nom. cons.*

**B. barbata** (Rottb.) C.B. Clarke in Hook. *f.* Fl. Brit. Ind. 6:651. 1893; Duthie, F.U.G.P. 2:408. 1960 (Rep. ed.). *Scirpus barbatus* Rottb. Prodr. 27. 1772. et. in Desc. & Icon. 52. t.17. f.4. 1773.

Tufted herbs. Leaves filiform. Spikelets congested in a head. glumes ovate. Nuts triquetrous, smooth.

Rare; fl. & fr.: Aug. - Dec., Mailani Sot (17); *K.P. Janardhanan* 51348.

#### 2. CAREX L.

**C. myosurus** Nees in Wight Contr. Bot. Ind. 122. 1834; Duthie, F.U.G.P. 2:417. 1960 (Rep. ed.).

Erect herbs, stem obtusely triquetrous. Leaves flat, equalling or longer than stem. Spikelets oblong-cylindric; female florets pale brown, aristate. Nuts oblong-ellipsoid.

Scattered; spikelets Aug. - Dec.; Ghilhmodya Sot (11), *P.C. Pant* 43184.

3. CYPERUS L.

- 1a. Rhizomatous herbs.
    - 2a. Leaves reduced to bladeless sheaths or solitary.
      - 3a. Inflorescence compound umbel.
        - 4a. Rachilla winged.
          - 5a. Bracts shorter than anthera. *C. corymbosus* 3
          - 5b. Lower bracts longer than anthera. *C. Pangorei* 9
        - 4b. Rachilla wingless. *C. halpan* 5
    - 2b. Leaves many subequalling to or shorter than stem.
      - 6a. Leaves canaliculate; styles bifid. *C. flavidus* 4
      - 6b. Leaves not canaliculate; styles trifid.
        - 7a. Leaves coriaceous; stolon long or short without tubers.
          - 8a. Leaves 3-4 nerved; rachis of spikelets glabrous. *C. nutans* 8
          - 8b. Leaves up to 18 nerved; rachis of spikelets pilose. *C. pilosus* 11
        - 7b. Leaves not coriaceous; stolons long tuberous.
          - 9a. Leaves appearing as if clustered at base; spikelets dark chestnut brown or pale-straw coloured. *C. rotundus* 13
          - 9b. Leaves not clustered; spikelets green. *C. panicus* 10
    - 3b. Inflorescence capitate.
      - 10a. Spikes solitary.
        - 11a. Rhizome brownish-black, short; keel winged. *C. kyllingia* 6
        - 11b. Rhizome copper pink, long; keel not winged. *C. brevifolius* 1
      - 10b. Spikes 3-12. *C. niveus* 7
- 1b. Non rhizomatous herbs.
  - 12a. Leaves canaliculate; stamens 1-2. *C. pumilus* 12
  - 12b. Leaves not canaliculate; stamens 3. *C. compressus* 2

1. *C. brevifolius* (Rottb.) Hassk. Cat. Hort. Bogor. 24. 1844. *Kyllingia brevifolia* Rottb. Descr. & Ic. 13. t.4 f.3 1773; Duthie, F.U.G.P. 2:396. 1960 (Rep. ed.).

Tufted herbs. Leaves linear, shorter than stem. Spikelets lanceolate or ovate. Nuts obovoid or elliptic.

Scattered; fl. & fr.: May - Nov.; Boxar (8); P.C. Pant 43853.

2. *C. compressus* L. Sp. Pl. 46. 1753; Duthie, F.U.G.P. 2:384. 1960 (Rep. ed.).

Herbs with red purple sheath at base. Leaves narrowly linear. Spikelets compressed laterally, glumes ovate, strongly keeled. Nuts broadly triquetrous.

Rare; fl. & fr.: Aug. Dec. 8th. Km. on Sarpaduli Dhikala Road (9); *K.P. Janardhanan* 51253.

3. *C. corymbosus* Rottb. Descr. & Ic 42. t.7. f.4. 1773; Duthie, F.U.G.P. 2:391. 1960 (Rep. ed.).

Tall, glabrous herbs. Rhizome horizontal, creeping. Leaves absent or solitary, linear, margins serrate. Spikelets clustered, pale brown or straw coloured, glumes ovate oblong. Nuts obovoid, ellipsoid, trigonous.

Few; fl. & fr.: Sept. Dec.; Gajar Sot (11); *P.C. Pant* 43102.

4. *C. flavidus* Retz. Obs. 5:13. 1789. *Pycerus globosus* Reichb. Fl. Germ. Excurs. 2:140. 1830; Duthie, F.U.G.P. 2:392. 1960 (Rep. ed.).

Erect caespitose herbs. Leaves narrow-linear. Spikelets congested, linear; glumes obovate-oblong. Nuts compressed.

Few; fl. & fr.: Apr. Dec.; Bijrani (18); *P.C. Pant* 43639.

5. *C. halpan* L. Sp. Pl. 45. 1753; Raizada. Suppl. Duthie, F.U.G.P. 298. 1976.

Erect herbs, stem solitary or tufted. Leaves all reduced. Spikelets linear-lanceolate. Nuts trigonous.

Scarce; fl. & fr.: Aug. Nov.; Sarpaduli Environs (10), *P.C. Pant* 43222.

6. *C. kyllinga* Endl. Cat. Hort. Acad. Vindob. 1:94. 1842. *Kyllinga monocephala* Rottb. Descr. & Ic. 13. t.4. f.4. 1773; Duthie, F.U.G.P. 2:397. 1960 (Rep. ed.).

Erect herbs. Leaves linear, mid rib and margin rough. Spikelets obliquely lanceolate-elliptic; glumes mucronate, red dotted. Nuts obovate, compressed.

Scattered; fl. & fr.: July. Mar.; Kanda (3); *P.C. Pant* 43310.

7. *C. niveus* Retz. Obs. 5:12. 1788; Duthie, F.U.G.P. 2:380. 1960 (Rep. ed.).

Erect, glabrous herbs. Leaves linear. Spikelets oblong-elliptic, glumes ovate-lanceolate. Nuts obovoid, triquetrous.

Frequent; fl. & fr.: Mar. - Sept.; Near Machan Chaur Bijrani (18); *P.C. Pant* 43589.

8. *C. nutans* Vahl Enum. Pl. 2:363. 1806. *C. eleusinoides* Kunth. Enum. Pl. 2:39. 1837; Duthie, F.U.G.P. 2:386. 1960 (Rep. ed.).

Erect, glabrous herbs. Leaves linear. Spikelets linear-oblong; glumes

elliptic-oblong. Nuts obovoid, trigonous.

Scattered; fl. & fr.: Sept. - Mar.; Ratapani Sot Bijrani (18); *P.C. Pant* 43372

9. *C. pangorei* Rottb. Descr. & Ic. 3. t.7. f.3. 1773. *C. tagetum* Roxb. Fl. Ind. ed. 2, 1:208. 1832; Duthie, F.U.G.P. 2:389. 1960 (Rep. ed.)

Erect, glabrous herbs. Leaf if present margins, serrulate. Spikelets linear; glumes obtuse. Nuts narrowly obovoid - oblong, trigonous.

Few; fl. & fr. : Aug. - Jan.; Gajar Sot (11); *P.C. Pant* 43102.

10. *C. paniceus* (Rottb.) Boeck. in Linnaea 36:381. 1870, p.p. *Kyllinga panicea* Rottb. Descr. & Ic. 15. t. 4. f. 1.1773. *Mariscus paniceus* (Rottb.) Vahl. Enum. Pl. 2:378. 1806; Duthie, F.U.G.P. 2:399. 1960 (Rep. ed.).

Erect, glabrous herbs; rhizome short. Leaves few, narrow, generally shorter than stem. Spikelets congested, linear lanceolate. Nuts oblong, triquetrous.

Scattered; f. & fr.: July - Dec.; Mailani Forest Compartment No. 8 (17); *P.C. Pant* 72348.

11. *C. pilosus* Vahl. Enum. Pl. 2:354. 1806; Duthie, F.U.G.P. 2:389. 1960 (Rep. ed.).

Tall herbs. Leaves scabrid on margins. Spikelets linear, straw coloured; glumes ovate, mucicous or mucronulate. Nuts obovoid.

Few; fl. & Fr. Aug. Dec.; Mailani Sot, Mailani (17); *K.P. Janardhanan* 51350

12. *C. pumilus* L. Cent. Pl. 2:6. 1756. *Pycerus pumilus* (L.) Domin, Biblioth. Bot. 85: 417, 1915; Duthie, F.U.G.P. 2:393. 1960 (Rep. ed.).

Small, tufted herbs. Leaves narrow-linear. Spikelets linear-oblong. Nuts oblong-obovate.

Scarce. fl. & fr.: Aug. - Nov.; Ratapani Soot, Bijrani (18); *P.C. Pant* 43371.

13. *C. rotundus* L. Sp. Pl. 45. 1753; Duthie, F.U.G.P. 2:388. 1960 (Rep. ed.).

Perennial herbs, with long, slender culms. Leaves linear, shorter than stem. Spikelets linear lanceolate, dark chestnut brown coloured; glumes boat shaped. Nuts obovoid - ellipsoid, trigonous.

Few; fl. & fr.: Mar. Dec.; Paterpani (8); *K.P. Janardhanan* 51318

#### 4. ERIOPHORUM L.

*E. comosum* (Wall.) Wall. ex Nees in Wight Contr. Bot. Ind. 110. 1834; Duthie, F.U.G.P. 2:414. 1960 (Rep. ed.). *Scirpus comosus* Wall. in Roxb. Fl. Ind. 1:234. 1820.

Tufted herbs. Leaves linear, clustered at base. Spikelets narrowly ellipsoid, reddish-brown. Nuts trigonous, compressed.

Frequent; fl. & Fr.: Apr. Nov.; Babalmunda (7); *P.C. Pant* 43480.

5. **FIMBRISTYLIS** Vahl *nom. cons.*

1a. Stigmas 2; Nuts narrow or biconvex.

2a. Spikelets terets, glumes concave.

*F. dichotoma* 2.

2b. Spikelets angular, glumes boat shaped.

*F. bisumbellata* 1

1b. Stigmas 3; Nuts trigonal.

*F. miliacea* 3

1. **F. bisumbellata** (Forsk.) Bub. Dodec. 30. 1850. *Scirpus bisumbellatus* Forsk. Pl. Aegypt.-Arab. 1:15. 1775. *Fimbristylis dichotoma* auct. pl. non Vahl 1806; Duthie, F.U.G.P. 2:403. 1960 (Rep. ed.)

Tufted herbs; stem striate. Leaves narrow. Spikelets subcylindric; glumes keeled. Nuts ribbed.

Frequent; fl. & fr.: Oct. Apr.; Dhikala (8); *P.C. Pant* 43711.

2. **F. dichotoma** (L.) vahl Enum. Pl. 2:287. 1806, p.p. *scirpus dichotomus* L. Sp. Pl. 50. 1753. *Fimbristylis diphylla* (Retz.) Vahl Enum. Pl. 2:289. 1806; Duthie, F.U.G.P. 2:402. 1960 (Rep. ed.)

Erect herbs. Leaves linear. Spikelets ovoid-globose; glumes apiculate. Nuts ovoid.

Scattered; fl. & fr.: May Dec.; sultan (11); *P.C. Pant* 43147.

3. **F. miliacea** (L.) Vahl Enum. 2:287. 1806. *Scirpus miliacea* L. Syst. Nat. ed. 10:868. 1759. *Fimbristylis quinquangularis* Kunth Enum. 2:229. 1837; Duthie, F.U.G.P. 2:406. 1960 (Rep. ed.)

Erect, tufted herbs. Leaves narrow. Spikelets ovoid or oblong ovoid; glumes ovate. Nuts minutely tuberculate.

Few; fl. & fr.: May - Nov.; Ratapani Sot, Bijrani (18); *P.C. Pant* 43384 (a).

6. **LIPOCARPHA** R. Br. *nom. cons.*

**L. chinensis** (Osborn) Kern. in Blumea Suppl. 4:167. 1958. *Scirpus chinensis* Osborn. Dagb. Ostind Resa 220. 1757. *Lipocarpa argentea* R. Br. in Tuckey Narr. Exped. R. Zaire 477. 1818; Duthie, F.U.G.P. 2:415. 1960 (Rep. ed.)

Erect herbs. Leaves linear, at the base of stem only. Spikelets pale straw or grey coloured; glumes spathulate to oblong-obovate. Nuts oblong-obovate.

Rare; fl. & fr.: Oct Jan.; Gairal (10), *P.C. Pant* 43157.

7. **SCIRPUS** L.

1a. Stem tufted; leafless or nearly so; spikelets in a single head.

*S. mucronatus* 1

1b. Stem solitary; leafy on upper part; spikelets in an umbel.

*S. ternatensis* 2

1. **S. mucronatus** L. Sp. Pl. 50. 1753; Duthie, F.U.G.P. 2:409. 1960 (Rep. ed.)

Erect herbs, stem triquetrous. Spikelets ovoid to oblong-ovoid, glumes with prominent mid rib. Nuts dark brown, shining.

Rare, fl. & fr.: Oct. Dec.; Mailani Enivirons (17); *K.P. Janardhanan* 51370.

2. *S. ternatanus* Reinw. ex Miq. Fl. Ind. Bat. 3:307. 1856. *S. chinensis* Munro in Seem, Bot. Voy. Herald. 423. 1852-1857; Duthie, F.U.G.P. 2:413. 1960 (Rep. ed.).

Erect, stoloniferous herbs. Leaves narrow, acuminate, margins and mid rib underneath scabrid. Spikelets in clusters, ellipsoid; glumes obtuse, 3-nerved. Nuts pale, dull-brown, compressed.

Rare; fl. & fr.: Mar. May; Sultan (11); *P.C. Pant* 61739.

### 8. SCLERIA Berg.

1a. Roots fibrous. *S. parvula* 2

1b. Roots stout, woody, rhizomatous. *S. laevis* 1

1. *S. laevis* Retz. Observ. 4:13. 1786. *S. hebecarpa* Nees in Wight Contrib. Bot. Ind. 117. 1834; Duthie, F.U.G.P. 2:416. 1960 (Rep. ed.).

Erect or scrambling herbs. Leaves linear. Spikelets unisexual; glumes ovate-lanceolate. Nuts subglobose.

Scattered; fl. & fr.: Aug. Nov.; Sultan (11); *K.P. Janardhanan* 50159.

2. *S. parvula* Steud. Syn. Cyper. 2:174. 1885. *S. tessellata auct. non Willd.* 1805; Duthie, F.U.G.P. 2:416. 1960 (Rep. ed.).

Erect herbs. Stem slender. Leaves linear. Spikelets unisexual; glumes ovate or ovate-lanceolate. Nuts with raised reticulations.

Scarce; fl. & fr.: Sep. Dec.; Sultan (11); *P.C. Pant* 43146.

### 98. POACEAE (Grass Family)

1a. Culms weak, slender (Excepting culms stout woody in *Setaria paniculifera* and *Heteropogon* spp.).

2a. Base of stem woolly *Eulaliopsis* 24

2b. Base of stem not woolly.

3a. Inflorescence digitate or subdigitate spike.

4a. Inflorescence axis ending in a sharp point. *Dactyloctenium* 15

4b. Inflorescence axis ending in a spikelet.

5a. Spikelets awned.

6a. Leaf apex acuminate; nodes glabrous. *Pseudopogonatherum* 39

6b. Leaf apex acute; nodes silky hairy. *Dichanthium* 18

5b. Spikelets not awned.

7a. Stoloniferous creeping, angular; leaves margins scabrous, spikes not articulated. *Cynodon* 13

7b. Culms erect or decumbent-ascending; leaves margins not scabrous; spikelets articulated. *Digitaria* 19

- 3b. Inflorescence raceme or panicle.
- 8a. Spikelets with bristles or awns.
- 9a. Spikelets subtended by bristles.
- 10a. Leaf surface scabrous; bristles densely villous. *Pennisetum* 35
- 10b. Leaf surface not scabrous; bristles not hairy. *Setaria* 43
- 9b. Spikelets awned, not subtended by bristles.
- 11a. Leaves broadly ovate or lanceolate-oblong.
- 12a. Leaf base contracted, acute. *Microstegium* 29
- 12b. Leaf base not contracted, rounded
- 13a. Culms striated.
- 14a. Leaf margin entire; spikelets greenish or pale yellow coloured. *Oplismenus* 32
- 14b. Leaf margin minutely serrate spikelets purple coloured *Perotis* 36
- 13b. Culms minutely purple dotted, not striated. *Arihaxon* 3
- 11b. Leaves narrowly linear or lanceolate.
- 15a. Leaves sessile.
- 16a. Culms thin, capillary tube like.
- 17a. Nodes pale straw coloured; racemes solitary, joints and pedicels ciliate. *Pogonatherum* 38
- 17b. Nodes dark purple tinged; racemes 2-4, joints and pedicles with golden brown hairs. *Eulalia* 23
- 16b. Culms thick.
- 18a. Stem decumbent at base; awn short ca 1.5-2 cm. *Pseudosorghum* 40
- 18b. Stem erect; awns long ca 3-6 cm *Heteropogon* 26
- 15b. Leaves petioled. *Apluda* 1
- 8b. Spikelets neither with bristles nor awns.
- 19a. Spikelets covered in dense growth of silky silvery white hairs. *Imperata* 27
- 19b. Spikelets not covered by silky hairy growth.
- 20a. Rachis and rachilla very slender, capillary tube like.
- 21a. Leaf margin spinulosely toothed. *Sporobolus* 45



- 21b. Leaf margin entire.
- 22a. Leaves ovate lanceolate. *Isachne* 28
- 22b. Leaves linear-lanceolate or lanceolate oblong.
- 23a. Leaves lanceolate-oblong; culms rooting at nodes. *Cyrtococcum* 14
- 23b. Leaves linear-lanceolate, culms not rooting at nodes. *Eragrostis* 21
- 20b. Rachis and rachilla flat or angular and winged not capillary
- 24a. Whole plant, specially leaf sheaths and surface with tubercled hairs. *Hacketochloa* 25
- 24b. Leaf base alone with few tubercled hairs, surfaces glabrous.
- 25a. Leaf apex acuminate, tip filiform. *Desmostachya* 17
- 25b. Leaf apex acute.
- 26a. Leaves lanceolate. *Brachiaria* 7
- 26b. Leaves linear.
- 27a. Stem erect or very shortly bent at base; ligule present. *Paspalum* 34
- 27b. Stem creeping below, erect above; ligule absent. *Echinochloa* 20
- 1b. Culms strong, thick (Excepting weak culms in *Panicum austroasiaticum*, *Bothriochloa pertusa*, *Arundinella pumila*, *A. bengalensis* and *Chloris dotichostachya*).
- 28a. Spikelets 1 to many flowered, usually laterally composed or terete.
- 29a. Arborecent, spikelets spinescent, in congested globose heads. *Dendrocakamus* 16
- 29b. Tall herbs, shrubs or undershrubs, spikelets neither spinescent nor in globose heads
- 30a. Spikes whorled, digitate. *Chloris* 10
- 30b. Spikes neither whorled nor digitate.
- 31a. Leaf margin convolute. *Aristida* 2
- 31b. Leaf margin flat.
- 32a. Spikelets 2-3 flowered in non feathery compound panicles. *Thysanolaena* 47
- 32b. Spikelets 2-10 flowered in feathery panicles.
- 33a. Inflorescence panicle yellowish-brown. *Arundo* 5
- 33b. Inflorescence panicle greyish green or or light brown.

- 34a. Leaf apex ending in a long narrow tail like structure; inflorescence nodding, or decomposed panicle.
- 35a. Inflorescence nodding panicle; spikelets not secund. *Neyraudia* 31
- 35b. Inflorescence decomposed panicle; spikelets secund. *Phragmites* 37
- 34b. Leaf apex ending in sharp point, inflorescence spiciform or effuse panicle. *Arundinella* 4
- 28b. Spikelets 2-flowered, mostly dorsally compressed.
- 36a. Leaves aromatic. *Cymbopogon* 12
- 36b. Leaves not aromatic
- 37a. Lower glume tubercled or muricate *Vetiveria* 48
- 37b. None of the glumes tuberculate or muricate.
- 38a. Racemes cylindrical compact. *Rotboellia* 41
- 38b. Racemes not cylindrical, effuse.
- 39a. Spikelets unisexual with metamorphosed sheaths. *Chionachne* 9
- 39b. Spikelets hermaphrodite.
- 40a. Plant fastigiately and suffruticosely branched.
- 41a. Nodes and sheaths glabrous. *Chrysopogon* 11
- 41b. Nodes and sheaths bearded. *Capillipedium* 8
- 40b. Plants not fastigiately branched.
- 42a. Mid rib strikingly broad and white on upper surface. *Narenga* 30
- 42b. Mid rib slender.
- 43a. Panicle spathaceous. *Themeda* 46
- 43b. Panicle not spathaceous.
- 44a. Leaves filiform *Erianthus* 22
- 44b. Leaves not filiform.
- 45a. Panicle dense, softly silky. *Saccharum* 42
- 45b. Panicle lax, not silky.
- 46a. Joints and pedicels shallowly grooved. *Bothriochloa* 6
- 46b. Joints and pedicels not grooved.
- 47a. Nods of culms swollen like knee cap, rhachis nodes and spikelets glabrous. *Panicum* 33
- 47b. Nodes of culm not swollen, rhachis nodes and spikelets ciliate. *Sorghum* 44

## 1. APLUDA L.

**A. mutica** L. Sp. Pl. 1:82. 1753; Bor Grass. Bur. Ceyl. Ind. And Pak, 93.1960. "*GHORIA GHAS*"

Erect grass. Leaves linear-lanceolate, apex setaceous. Spikelets in threes. Caryopsis oblong, laterally compressed.

Common; fl. & fr.: Sep. - Feb.; Kanda (3); *P.C. Pant* 43312.

## 2. ARISTIDA L.

**A. cyanantha** Nees ex steud. Syn. Pl. Glum. 1;141. 1854; Bor Grass. Bur. Ceyl. Ind. And Pak. 409. 1960.

Erect tufted grass. Leaves smooth, glaucous. Spikelets dark, purple, with tripartite awns. Caryopsis narrow and cylindrical.

Common; fl. & fr.: Aug. Feb.; Gairal Environs (10); *K.P. Inardhanan* 51128.

## 3. ARTHRAXON P. Beauv.

**A. lancifolius** (Trin.) Hochst. in Flora Jenna 39:188. 1856; Bor Grass. Bur. Ceyl. Ind. And Pak. 100. 1960. *Andropogon lancifolius* Trin. Mem. Acad. Sci. Petersb. Ser. 6, 2:271. 1832.

Decumbent-ascending, branched grass. Leaves broadly ovate. Spikelets awned, both-sessile and pedicellate. Caryopsis narrowly linear.

Scattered; fl. & fr.: Aug. - Oct.; Sarpaduli Environs (10); *P.C. Pant* 43192.

## 4. ARUNDINELLA Raddi

1a. Annuals; Roots fibrous, not woody.

*A. pumila* 3

1b. Perennials; Roots woody, creeping.

2a. Panicle lax.

*A. nepalensis* 2

2b. Panicle dense.

*A. bengalensis* 1

1. **A. bengalensis** (Spreng.) Druce Rep. Bot. Exch. Club. Brit. Isles 605. 1916; Bor. Grass. Bur. Ceyl. Ind. And Pak. 421. 1960. *Panicum bengalense* Spreng. Syst. Veg. 1;311. 1825.

Erect grass, culms bearded or glabrous, sheaths scabrid or villous. Leaves linear. Spikelets secund. Caryopsis free with glume.

Scattered; fl. & fr.: July - Nov.; Phulai (2); *P.C. Pant* 43258.

2. **A. nepalensis** Trin. Gram. Panic. 62. 1826, Bor Grass. Bur. Ceyl. Indi. And Pak. 423. 1960.

Erect grass. Leaves broad or narrow, long, base rounded. Spikelets green or purplish lower glume 3 and upper 5-nerved.

Common; fl. & fr.: Paterpani, on way to Babalmunda (14); *P.C. Pant* 43479.

3. **A. pumila** (Hochst.) Steud. Syn. 1:114. 1854; Bor Grass. Bur. Ceyl. Ind. And Pak. 423. 1960. *Acrantherum pumilum* Hochst. in A Rich. Tent. Fl. Abyss. 2:414. t. 100. 1851.

Small grass. Leaves linear-lanceolate, many nerved. Spikelets very small, on capillary pedicels.

Rare; fl. & fr.: Aug. Dec.; Gairal (10); *K.P. Janardhanan* 51132.

#### 5. ARUNDO L.

**A. donax** L. Sp. Pl. 1:81. 1753; Bor Grass. Bur. Ceyl. Ind. And Pak. 413. 1960.

Tall reed like grass. Leaves linear-lanceolate, rounded or cordate at base. Spikelets 2-7 flowered, light brown coloured. Caryopsis small.

Abundant; fl. & fr.: Oct. - Jan; Watch Tower Phulai (8); *K.P. Janardhanan* 51344.

#### 6. BOTHRIOCHLOA O. Kuntze.

1a. Rooting at nodes; leaves crowded, mostly at base.

*B. pertusa* 3

1b. Nodes not rooting; leaves not crowded.

2a. Sessile spikelets pitted.

*B. intermedia* Var. *punctata* 2\*\*

2b. Sessile spikelets not pitted.

*B. intermedia* Var. *intermedia* 1\*\*

1. **B. intermedia** (R. Br.) A. camus Ann. Soc. Linn. Lyon. N.S. 76. 164. 1931. var. *intermedia* Bor Grass. Bur. Ceyl. Ind. And Pak. 108. 1960

Tall all grass upto 2 m. high, nodes usually hairy. Leaves narrowly linear, margins minutely serrate, surfaces with 5-7 lateral nerves. Spikelets pale-green, oblong-lanceolate, awned.

Common; fl. & fr.: Aug. Dec.; Gairal surroundings (10); *K.P. Janardhanan* 51126.

2. **B. intermedia** (R. Br.) A. camus Ann. Soc. Linn. Lyon. N.S. 76. 164. 1931. var. *punctata* (Roxb.) Keng clav. Gram. Prim. Sin 244. 1957; Bor Grass. Bur. Ceyl. Ind. And Pak. 108. 1960. *Andropogon punctatus* Roxb. Fl. Ind. 1.268. 1820.

Tall grass. Leaves linear, margins serrate, 5-7 nerved. Spikelets pale-green, oblong, awned.

Common; fl. & fr.: Nov. - Mar.; Paterpani Environs (14); *P.C. Pant* 40152.

3. **B. pertusa** (L.) A. camus Ann. Soc. Linn. Lyon. N.S. 76: 164. 1931; Bor Grass. Bur. Ceyl. Ind. And Pak. 109. 1960. *Andropogon pertusus* (L.) Willd. Sp. Pl. 4:922. 1806.

Small grass, culms weak. Leaves linear, acuminate pubescent, margins

\*\*Cope, Thomas A. treated these under *Bothriochloa bladhii* (Retz.) S.T. Blake [Flora of Pakistan No. 143 Poaceae 284, 1982.]

scabrid. Spikelets oblong-lanceolate.

Scattered; fl. & fr.: Aug. Mar.; Phulai (2); *P.C. Pant* 43259.

#### 7. BRACHIARIA Griseb.

1a. Stem creeping, lemma 3-nerved.

*B. distachya* 1

1b. Stem erect or ascending, lemma 5-nerved.

*B. ramosa* 2

1. **B. distachya** (L.) Stapf in Prain Fl. Trop. Africa 9:565. 1919; Bor Grass Bur. Ceyl. Ind. And Pak. 281. 282. 1960. *Panicum distachyum* L. Mant. 2:183. 1771.

Grass with slender stem, rooting at nodes. Leaf base cordate and sub amplexicaul. Spikelets glabrous, ovate, oblong.

Scattered; fl. & fr.: Aug. Nov.; Ratapani Sot (18); *P.C. Pant* 43386.

2. **B. ramosa** (L.) Stapf in Prain Fl. Trop. Africa 9:542. 1919; Bor. Grass. Bur. Ceyl. Ind. And Pak. 284. 1960. *Panicum ramosum* L. Mant. Pl. 1:29. 1767.

Grass branched from the base. Leaves softly pubescent or glabrescent on surfaces. Spikelets ovoid. Grain ellipsoid.

Scattered; fl. & fr. July Dec.; Ratapani Sot. (18); *K.P. Jnanardhanan* 51386

#### 8. CAPILLIPEDIUM Stapf

**C. assimile** (Steud.) A. camus in Lecomte Fl. Gen. Indochine 7:314. 1922; Bor Grass. Bur. Ceyl. Ind. And Pak. 110. 1960. *Andropogon assimilis* Steud. in Zool. Syst. Verz. 58. 1854.

Erect grass, culm shining, nodes bearded. Leaves linear-lanceolate, glabrescent, midnerve white, prominently visible on undersurface. Spikelets pale-green.

Scattered; fl. & fr.: Sept. - June; Sultan (11); *K.P. Janardhanan* 50167.

#### 9. CHIONACHNE R. Br.

**C. koenigii** (Spreng.) Thwaites Enum. Pl. Zeyl. 357. 1864; Bor Grass. Bur. Ceyl. Ind. And Pak. 262. 1960. *Coix koenigii* Spreng. Syst. Veg. 1:239. 1825.

Tall, monoecious grass, culms hollow. Leaves flat, narrow, surfaces with tubercled hairs. Male spikelets solitary, female usually few. Caryopsis orbicular compressed.

Abundant; fl. & fr.: Nov. Feb. Jamanagawar (16); *K.P. Janardhanan* 51278.

## 10. CHLORIS Sw.

**C. dolichostachya** Lagasca Gen. et. Sp. Pl. 5.1816; Bor; Grass. Bur. Ceyl. Ind. And Pak. 466. 1960.

Slender grass with erect or geniculate culm, hollow. Leaves linear, margins very finely serrate. Spikelets green, awned. Caryopsis narrow.

Scattered; fl. & fr.: Aug. - Dec.; On way to Dhikala from Sarpaduli (8-10); *P.C. Pant* 43236.

11. CHRYSOPOGON Trin. *nom. cons.*

**C. serrulatus** Trin. Mem. Acad. Sci. Petersb. Ser. 6, 2:318. 1832; Bor Grass. Bur. Ceyl. Ind. And Pak. 118. 1960.

Erect or ascending grass, culms solid. Leaves linear, glabrous. Spikelets sessile and pedicellate, sessile ones awned. Caryopsis linear.

Scattered; fl. & fr.: Aug. - Dec.; Mailani Tal Environs (17); *P.C. Pant* 43415

## 12. CYMBOPOGON Spreng.

1a. Old basal sheaths spirally curled; panicles narrow, joints and pedicels villous all over; sessile spikelets more or less concealed in hairs

*C. jwarancusa* 2

1b. None of the sheaths curled; panicles very large, hairs confined to the edges of joints and pedicels; sessile spikelets not concealed in hairs.

*C. flexuosus* 1

1. **C. flexuosus** (Nees ex Steud.) Wats. in Atkin. Gaz. N.W. Prov. Ind. 392. 1882; Bor Grass. Bur. Ceyl. Ind. And Pak. 127. 1960. *Andropogon flexuosus* Nees ex Steud. Syn. 1:388. 1854.

Densely tufted tall grass. Culms solid, purplish tinged. Leaves flat, margins spinulose. Spikelets sessile and pedicelled, oblong.

Few; fl. & fr.: Sept. - Nov.; On way to Dhikala from Sarpaduli (10-8); *P.C. Pant* 43239.

2. **C. jwarancusa** (Jones) Schult Syst. Veg. 2, Mant, 458. 1824; Bor Grass. Bur. Ceyl. Ind. And Pak. 128. 1960. *Andropogon jwarancusa* Jones in Asiat. Res. 4. 109. 1795.

Tall grass, stems tufted, rootstocks creeping. Leaves flat or convolute. Spikelets pale sometimes reddish, sessile & pedicelled.

Few; fl. & fr.: Feb. - Oct.; Dhikala Chaur (8); *P.C. Pant* 61744.

13. CYNODON Rich. *nom. cons.*

**C. dactylon** (L.) Pers. Syn. 1:85. 1805; Bor Grass. Bur. Ceyl. Ind. And Pak. 469 1960. *Panicum dactylon* L. Sp. Pl. 58. 1753.

Perennial grass, rooting at nodes. Leaves linear, acute. Spikelets laterally compressed, all sessile. Caryopsis oblong.

Few; fl. & fr.: Round the year; 8th Km. Sarpaduli-Dhikala Road, (10-9); *K.P. Janardhanan* 51256.

#### 14. CYRTOCOCCUM Stapf

*C. accrescens* (Trin.) Stapf. in Hook. Ic. Pl. t. 3096. 1922; Bor Grass. Bur. Ceyl. Ind. And Pak. 291. 1960. *Panicum accrescens* Trin. Sp. Gram. Ic. 1:t. 88. 1827.

Creeping or decumbent grass. Leaves ciliate at base, mid vein prominently raised on lower surface. Spikelets obtuse.

Scattered; fl. & fr.: Aug. Nov.; Sultan (11); *K.P. Janardhanan* 50158.

#### 15. DACTYLOCTENIUM Willd.

*D. aegyptium* (L.) Willd. Enum. Hort. Berol. 1029 1809; Bor Grass. Bur. Ceyl. Ind. And Pak. 489. 1960. *Cynosurus Aegyptius* L. Sp. Pl. 1:72. 1753.

Erect or decumbent grass. Leaves lanceolate, margins finely spinulose. Spikelets laterally compressed, digitately radiating. Caryopsis oblong to globose.

Scattered; fl. & fr.: Aug. Dec.; Bijrani (18); *P.C. Pant* 72334.

#### 16. DENDROCALAMUS Nees

*D. strictus* (Roxb.) Nees in Linnaea 9:476. 1834; Osmaston A For. Fl. of Kum. 556. 1927. *Bambos stricta* Roxb. Cor. Pl. 1:58, t. 80. 1798. "BANS"

Densely tufted bamboo, culms glaucous solid or hollow. leaves linear-lanceolate. Spikelets spinescent. Generally flowering in very long intervals. Caryopsis broadly ovoid.

Frequent. fl. & fr. Mar. Apr. & June; Gairal (10); *P.C. Pant* 43676.

#### 17. DESMOSTACHYA Stapf

*D. bipinnata* (L.) Stapf in Thiselt-Dyer, Fl. Cap. 7:632. 1900, Bor Grass. Bur. Ceyl. Ind And Pak. 491. 1960. *Briza bipinnata* L. Syst. Nat. ed. 10, 2:875. 1759. "KUS"

Tufted grass, branching from base. Leaves linear, rigid, glabrous. Spikelets secund, shining pale brown. Caryopsis obliquely ovoid.

Frequent. fl. & fr.: Apr. Nov. Dhikala Chaur (8); *P.C. Pant* 43734.

#### 18. DICHANTHIUM Willemet

*D. annulatum* (Forsk.) Stapf in Prain Fl. Trop. Afr. 9:178. 1917; Bor Grass. Bur. Ceyl. Ind. And Pak. 133. 1960. *Andropogon annulatus* Forssk.

Fl. Aegypt. Arab. 173. 1775.

Densely tufted grass, culms decumbent-ascending. Leaves linear-lanceolate. Spikelets sessile and pedicelled, closely imbricating.

Scattered; fl. & fr.: Almost round the year; Lakkar Ghat Kalagarh (13); *P.C. Pant* 43900.

### 19. DIGITARIA Heist. ex Fabricius

1a. Stem creeping at base; rachis not nodding.

2a. Rooting at nodes.

*D. longiflora* 2

2b. Not rooting at nodes.

*D. setigera* 3

1b. Stem erect from base; rachis nodding.

*D. biformis* 1

1. *D. biformis* Willd. Enum. Pl. Hort. Berol. 92. 1809; Bor, Grass. Bur. Ceyl. Ind. And Pak. 299. 1960.

Annual grass. Leaves linear-lanceolate, mid-rib raised on lower surface, leaf sheath ciliate with tubercle based hairs. Spikelets lanceolate.

Scattered; fl. & fr.: July - Nov.; Sarpaduli-Dhikala Road, 8th km point (9); *K.P. Janardhanan* 51254.

2. *D. longiflora* (Retz.) Pers. Syn. Pl. 1:85. 1805; Bor Grass. Bur. Ceyl. Ind. And Pak. 302. 1960. *Paspalum longiflorum* Retz. Observ. Bot. 4:15. 1786.

Grass, with many tufted, slender culms. Leaves linear-lanceolate, glabrous or sparingly hairy. Sheaths keeled, hairy, smooth. Spikelets one short other long pedicelled. Caryopsis compressed.

Few; fl. & fr.: Aug. - Dec.; Ratapani sot, Bijrani (18); *K.P. Janardhanan* 51385.

3. *D. setigera* Roth ex Roem. & Schult. Syst. Veg. 2:474. 1817; Bor Grass. Bur. Ceyl. Ind. And Pak. 305. 1960.

Annual grass. Leaves linear-lanceolate, glabrous or sparsely hairy. Spikelets oblong-lanceolate, one pedicelled other sessile.

Few; fl. & fr.: July-Dec.; Mailani Sot (17); *K.P. Janardhanan* 51353.

### 20. ECHINOCHLOA P. Beauv.

*E. colona* (L.) Link. Hort. Berol. 2:209. 1833; Bor Grass. Bur. Ceyl. Ind. And Pak. 308. 1960. *Panicum colonum* L. Syst. Nat. ed. 10, 2:870. 1759.

Erect or ascending grass. Leaves glabrous, sheath glabrous, closely adhering. Spikelets ovoid, pubescent. Caryopsis broadly elliptic.

Scarce, fl. & fr.: Almost round the year, Paterpani, along river bed (14); *K.P. Janardhanan* 51324.



## 21. ERAGROSTIS N.M. Wolf

## 1a. Rachis tough.

2a. Annuals; spikelets green to reddish-purple; sheaths not bearded at mouth.

*E. unioloides* 4

2b. Perennials; spikelets dull green to slate-grey; sheaths bearded at mouth.

*E. atrovirens* 1

## 1b. Rachis fragile.

3a. Palea with smooth keels.

*E. japonica* 2

3a. Palea with ciliate keels.

*E. tenella* 3

1. ***E. atrovirens*** (Desf.) Trin. ex Steud. Nom. ed. 2, 1:562. 1840; Bor grass. Bur. Ceyl. Ind. And. Pak. 503. 1960 *Poa atrovirens* Desf. Fl. Atlant. 1:73, t. 14. 1798.

Erect, slender grass. Leaves linear, acuminate. Spikelets many flowered. Caryopsis oblong.

Scattered; fl. & fr.; Apr. - Nov.; Bijrani (18); *P.C. Pant* 43643.

2. ***E. japonica*** (Thunb.) Trin. Mem. Acad. Sci. Petersb. Ser. 6, 1:405. 1831; Bor Grass. Bur. Ceyl. Ind. And. Pak. 509. 1960. *Poa japonica* Thunb. Fl. Jap. 51. 1784.

Erect grass. Leaves linear, scabrid, specially on upper surface. Spikelets ovate, 2-9 flowered. Caryopsis obovoid.

Scattered; fl. & fr.: Oct. - Mar.; Mailani Compartment No. 6 (17); *P.C. Pant* 72356.

3. ***E. tenella*** (L.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2:576. 1817; Bor Grass. Bur. Ceyl. Ind. And. Pak. 513. 1960. *Poa tenella* L. Sp. Pl. 1:69. 1753.

Erect, slender grass, nodes hairy. Leaves linear. Spikelets ovate-oblong, dull brown coloured. Caryopsis ovoid.

Abundant; fl. & fr.: Aug.-Dec.; Bijrani (18); *P.C. Pant* 72249.

4. ***E. unioloides*** (Retz.) Nees ex Steud. Syn. Pl. Glum. 1:264. 1854; Bor Grass. Bur. Ceyl. Ind. And. Pak. 515. 1960. *Poa unioloides* Retz. Observ. Bot. 5:19. 1789.

Erect, tufted grass. Leaves linear, base subcordate. Spikelets compressed, ovoid-elliptic. Caryopsis obovoid-ellipsoid.

Abundant; fl. & fr.: Aug.-Nov.; Sultan Environs (11); *P.C. Pant* 43142.

## 22. ERIANTHUS Michx.

**\*\**E. filifolius*** Nees ex Steud. Syn. 1:409. 1855; Bor Grass. Bur. Ceyl. Ind. And. Pak. 150. 1960 *Saccharum filifolium* Steud. Syn. 1:409. 1855.

\*\*Cope, Thomas A. treated this species under *Saccharum filifolium* Nees ex Steud. [Flora of Pakistan No. 143 Poaceae 269. 1982].

Erect Grass. culm solid. Leaves subulate, convolute below. Spikelets awned joints and pedicels in dense hairy growth.

Few; fl. & fr.: Apr. July; On way to Gaujpani (15); *P.C. Pant* 43808

### 23. EULALIA Kunth

**E. leschenaultiana** (Decne.) Ohwi Bull. Tokyo Sci. Mus. 18: 2. 1947; Bor Grass. Bur. Ceyl. Ind. And Pak. 155. 1960. *Andropogon leschenaultianus* Decne. Herb. Timor. Descr. 29. 1835.

Erect, decumbent, tufted grass. Leaves linear-lanceolate. Spikelets sessile and pedicelled, bearded.

Few; fl. & fr.: July Nov.; Bijrani Chaur (18); *P.C. Pant* 62823.

### 24. EULALIOPSIS Honda

**E. binata** (Retz.) Hubb. in Hook. Ic. Pl. 33. t.3262. 1935; Bor Grass. Bur. Ceyl. Ind. And Pak. 158. 1960. *Andropogon binatus* Retz. Observ. Bot. 5:21. 1789. "BHABARH" Fig. 5

Erect grass, with woody rhizomatous rootstock. Leaves narrow, linear ending to an acumen. Spikelets sessile and pedicelled.

Frequent, fl. & fr.: May Nov.; Boxar Environs (8); *P.C. Pant* 43866.

### 25. HACKELOCHLOA O. Kuntze *Cons. prop.*

**H. granularis** (L.) O. Kuntze Rev. Gen. Pl. 2:776. 1891; Bor Grass. Bur. Ceyl. Ind. And Pak. 159. 1960. *Cenchrus granularis* L. Mant. Pl. 2:575. 1771.

Erect, branched grass. Leaves lanceolate, amplexicaul, leaf sheath inflated. Spikelets sessile and pedicelled.

Scattered; fl. & fr.: Aug. Nov.; Kanda (3); *P.C. Pant* 43311.

### 26. HETEROPOGON Pers.

1a. Keel of upper sheaths scrobiculate.

*H. melanocarpus* 2

1b. Keels of sheaths not scrobiculate.

*H. contortus* 1

1. **H. contortus** (L.) P. Beauv. ex Roem. & Schult Syst. Veg. 2:836. 1817; Bor Grass. Bur. Ceyl. Ind. And Pak. 163. 1960. *Andropogon contortus* L. Sp. Pl. 2:1045. 1753.

Decumbent-ascending, erect grass. Leaves linear, scaberulous below. Spikelets sessile and pedicelled.

Abundant; fl. & fr.: Aug. Dec.; Between Dhangadi and Panod nallaha (12); *P.C. Pant* 43089.

2. **H. melanocarpus** (Ell.) Benth. Journ. Linn. Soc. Bot. 19:71. 1881; Bor



Fig. 5. *Eulaliopsis binata* (Retz) C.E. Hubbard. Largely used in paper industry, making of ropes, and mats.

Grass Bur. Ceyl. Ind. And Pak. 165. 1960. *Andropogon melanocarpus* Ell. Sketch. Bot. S. Cordl 1:146. 1816.

Tall, erect grass, with stilt roots. Leaves acuminate, scabrid on upper surface. Spikelets sessile and pedicelled.

Few; fl. & fr.: Sept. Dec.; Sarpaduli to Gairal (10); *K.P. Janardhanan* 51196.

### 27. IMPERATA Cyrill

**I. cylindrica** (L.) Raeuschel. Nom. Bot. ed 3, 10. 1797; Bor Grass. Bur. Ceyl. Ind. And Pak. 42. 1960. *Lagurus cylindricus* L. Syst. Nat. ed. 10, 2:878. 1759.

Erect grass. Leaves linear, spikelets in pairs. Caryopsis oblong.

Scattered; fl. & fr.: Round the year, Lakkarghat, Kalagarh (14); *P.C. Pant* 43892.

### 28. ISACHNE R. Br.

**I. miliacea** Roth Nov. Pl. Sp. 58. 1821; Bor Grass. Bur. Ceyl. Ind. And Pak. 582. 1960.

Grass with thin culm, decumbent-ascending. Leaves with scabrid surfaces, base cordate, amplexicaul. Spikelets subglobose or obovoid.

Few; fl. & fr.: July Dec.; Mailani (17); *K.P. Janardhanan* 51352.

### 29. MICROSTEGIUM Nees

**M. ciliatum** (Trin.) A. Camus Ann. Soc. Linn. Lyon. N.S. 68:201. 1921; Bor Grass. Bur. Ceyl. Ind. And Pak. 193. 1960. *Pollinia ciliata* Trin. Mem. Acad. Sci. Petersb. Ser. 6, 2(3); 306. 1832.

Erect or decumbent grass. Leaves often petioled, lanceolate-oblong, glabrous. Spikelets sessile and pedicelled.

Scattered; fl. & fr.: Aug. Dec; Ghilmodya Sot (12); *P.C. Pant* 43183.

### 30. NARENGA Bor

**\*\*N. porphyrocoma** (Hance ex Trin.) Bor, Ind. For. 66: 267. 1940; Bor Grass. Bur. Ceyl. Ind. And Pak. 198. 1960. *Eriochrysis porphyrocoma* Hance ex. Trin. J. Bot. 14:294. 1876.

Tall grass with solid culm, nodes bearded. Leaves linear, scabrid above. Spikelets sessile and pedicelled, brown or purple.

Few; fl. & fr.: Aug. Nov.; Phulai (2); *P.C. Pant* 43257.

### 31. NEYRAUDIA Hook. f.

**N. arundinacea** (L.) Henr. Medec. Rijks. - Herb. 58:8. 1929; Bor Grass.

---

\*\*Cope, Thomas, A. treated this species under *Saccharum narenga* (Nees ex steud.) Hack. [Flora of Pakistan No. 143 Poaceae 261. 1982].

Bur. Ceyl. Ind. And Pak. 518. 1960. *Aristida arundinacea* L. Mant. Pl. 2:186. 1771.

Tall, erect grass, culm hollow. Leaves varying from filiform convolute to broad and flat. Spikelets pale brown, in shining silky growth. Caryopsis linear.

Common; fl. & fr.: Oct. - Apr.; Sultan Environs (12); *P.C. Pant* 43143.

### 32. OPLISMENUS P. Beauv.

1a. Plants diffusely branched, panicle shorter, 2-7 cm long, spikelets closely imbricate.

*O. burmannii* 1

1b. Plants tall, not diffusely branched, panicle longer, 4-22 cm long, spikelets loosely imbricate.

*O. compositus* 2

1. *O. burmannii* (Retz.) P. Beauv. Ess. Agrost. 54. 168. 169. 1812; Bor Grass. Bur. Ceyl. Ind. And Pak. 317. 1960. *Panicum burmannii* Retz. Observ. Bot. 3:10. 1783.

Slender, decumbent, ascending grass. Leaves ovate or ovate-lanceolate. Spikelets oblong-lanceolate.

Scattered; fl. & fr.: July - Dec.; Sultan (11); *K.P. Janardhanan* 50102.

2. *O. compositus* (L.) P. Beauv. Ess. Agrost. 54. 168. 169. 1812; Bor Grass. Bur. Ceyl. Ind. And Pak. 317. 1960. *Panicum compositum* L. Sp. Pl. 1.57. 1753.

Erect grass. Leaves ovate to ovate-lanceolate. Spikelets lanceolate-ellipsoid.

Common; fl. & fr.: Aug. - Jan.; Bijrani (18); *P.C. Pant* 72306.

### 33. PANICUM L.

1a. Leaf base broad, deeply cordate.

*P. montanum* 2

1b. Leaf bases narrow, acute.

2a. Root stock stout, woody, villously hairy.

*P. antidotale* 1

2b. Root stock fibrous, neither woody nor hairy.

*P. walense* 3

1. *P. antidotale* Retz. Obs. Bot. 4:17. 1786; Bor Grass. Bur. Ceyl. Ind. And Pak. 322. 1960.

Tall grass, thickened at nodes. Leaves linear, finely acuminate. Spikelets clustered, ovoid.

Few; fl. & fr.: Mar. - Nov. Dhara-Kalagarh (13-15); *P.C. Pant* 43432.

2. *P. montanum* Roxb. Fl. Ind. 1:315. 1820; Bor Grass. Bur. Ceyl. Ind. And Pak. 329. 1960.

Erect grass. Leaves lanceolate, ciliate at base. Spikelets solitary, distantly

arranged, ellipsoid. Caryopsis compressed.

Scattered; fl. & fr.: Apr. - Nov.; Phulai Environs (2); *P.C. Pant* 43256.

3. ***P. walense*** Mez. Bot. Jahrb. 34:146. 1804. *P. austroasiaticum* Ohwi Act. Phytotax. Geobot. 2:45. 1942; Bor Grass. Bur. Ceyl. Ind. And Pak. 324. 1960.

Dwarf grass. Leaves narrow, linear. Spikelets very small, pale or reddish. Abundant; fl. & fr.: July - Nov.; Gairal (10); *K.P. Janardhanan* 51158.

#### 34. PASPALUM L.

***P. scrobiculatum*** L. Mant. 1:29. 1767; Bor Grass. Bur. Ceyl. Ind. And Pak. 340. 1960.

Erect or decumbent, tufted grass. Leaves lanceolate, acuminate. Spikelets suborbicular, imbricate. Caryopsis compressed.

Few; fl. & fr.: Sept. - Jan.; Bijrani (18); *P.C. Pant* 72260.

#### 35. PENNISETUM Rich

***P. pedicellatum*** Trin. in Mem. Acad. Sci. Petersb. Ser. 6, 3:184. 1834; Bor Grass. Bur. Ceyl. Ind. And Pak. 346. 1960.

Erect, branched grass. Leaves lanceolate, surfaces scabrous. Spikelets solitary or in groups of 2-5. Caryopsis dull purple.

Scattered; fl. & fr.: Oct. - Jan.; Sultan Environs (11); *P.C. Pant* 72407.

#### 36. PEROTIS W. Ait.

***P. hordeiformis*** Nees *apud* Hook. f. & Arn. Bot. Beech. Voy. 247, 248. 1838; Bor Grass. Bur. Ceyl. Ind. And Pak. 611. 1960.

Erect, ascending, slender grass. Leaves ovate-lanceolate. Spikelets solitary glumes, acuminate.

Scattered; fl. & fr.: Aug. - Oct.; Kichar Sot, Bujrani (18); *P.C. Pant* 72292.

#### 37. PHRAGMITES Trin.

***P. karka*** (Retz.) Trin ex Steud. Nom. ed. 2, 2:324. 1841; Bor Grass. Bur. Ceyl. Ind. And Pak. 416. 1960. *Arundo karka* Retz. Obs. Bot. 4:21. 1786.

Tall grass, stem hollow. Leaves linear, distichous. Spikelets brownish purple, in decomposed panicles. Caryopsis oblong.

Frequent; fl. & fr.: Sept. - Feb.; Bijrani Environs (18); *P.C. Pant* 72263.

#### 38. POGONATHERUM P. Beauv.

***P. paniceum*** (Lamk.) Hack. Alleg. Bot. Z. 12:178. 1906; Bor Grass. Bur. Ceyl. Ind. And Pak. 202. 1960. *Saccharum paniceum* Lamk. Encycl. Meth. Bot. 1:595. 1785.

Delicate, tufted grass. Leaves linear. Spikelets sessile and pedicelled. Few; fl. & fr.: July - Nov.; Sarpaduli (10); *P.C. Pant* 43247.

### 39. PSEUDOPOGONATHERUM A. Camus

**P. contortum** (Brongn.) A. Camus in Lecomte. Fl. Gen. Indo-Chine 7:255. 1922; Bor Grass. Bur. Ceyl. Ind. And Pak. 204. 1960. *Pogonatherum contortum* Brongn. in Duperr. Voy. Coq. Bot. 90. 1931.

Slender grass. Leaves filiform or linear, acuminate. Spikelets lanceolate, pedicelled.

Scattered; fl. & fr.: July - Dec.; Between Dhangadi and Panod nallaha (12); *P.C. Pant* 43088.

### 40. PSEUDOSORGHUM A. Camus

**P. fasciculare** (Roxb.) A. Camus Bull. Mus. Hist. Nat. Paris. 26:662. 1920; Bor Grass. Bur. Ceyl. Ind. And Pak. 205. 1960. *Andropogon fascicularis* Roxb. Fl. Ind. 1:269. 1820.

Erect, slender grass. Leaves linear acuminate. Spikelets sessile and pedicelled.

Few; fl. & fr.: Sept. - Dec.; Kanda (2); *P.C. Pant* 43332.

### 41. ROTTBOELLIA L. f.

**R. exaltata** L. f. Nov. Gram. Gen. 37, t. 1. 1779; Bor Grass. Bur. Ceyl. Ind. And Pak. 206. 1960.

Erect grass, often with stilt roots. Stem hollow. Leaves linear-lanceolate, tubercled on upper surface. Spikelets sessile and pedicelled.

Few; fl. & fr.: Aug. - Nov.; Gairal Environs (10); *K.P. Janardhanan* 51131.

### 42. SACCHARUM L.

1a. Peduncle hairy below the panicle; rhachis very fragile. *S. spontaneum* 2

1b. Peduncle not hairy; rhachis less fragile. *S. bengalense* 1

1. **S. bengalense** Retz. Obs. Bot. 5:16. 1789; Bor Grass. Bur. Ceyl. Ind. And Pak. 211. 1960.

Tall, erect grass, stem solid, leaves linear, filiform, margins toothed. Spikelets sessile and pedicelled, lanceolate.

Common; fl. & fr.: Sept. - Dec.; Mailani - Bijrani (17-18); *P.C. Pant* 43387.

2. **S. spontaneum** L. Mant. Pl. 2:183. 1771; Bor. Grass. Bur. Ceyl. Ind. And Pak. 214. 1960.

Tall grass, upto 4m. high. Leaves long with rough or smooth margins. Spikelets numerous, sessile and pedicelled, narrowly ovoid.

Abundant; fl. & fr.: Aug. - Dec.; Lakkar Ghat, Kalagarh environs (14); *P.C. Pant* 43892.

43. **SETARIA** P. Beauv.

- 1a. Leaves not plicate
- 2a. Perennial, with short rhizomes. *S. geniculata* 2
- 2b. Annual, rhizome absent.
- 3a. Spikelets ca 3 mm long, upper lemma coarsely rugose. *S. glauca* 3
- 3b. Spikelets ca 2 mm long, upper lemma finely rugose. *S. pumila* 6
- 1b. Leaves plicate.
- 4a. Annual, culms weak, herbaceous.
- 5a. Stem slightly swollen and angular at nodes, plants tufted; upper glume almost equalling the upper lemma *S. homonyma* 4
- 5b. Stem neither swollen and angular at nodes nor plants tufted; upper glume shorter than upper lemma. *S. barbata* 1
- 4b. Perennial, culms stout, woody. *S. paniculifera* 5

1. **S. barbata** (Lamk.) Kunth Rev. Gram. 1:47. 1829; Bor Grass. Bur. Ceyl. Ind. And Pak. 360. 1960. *Panicum barbatum* Lamk. Tab. Encycl. 1:171. 1791.

Erect grass. Leaves sparsely hairy, plicate. Spikelets many, glabrous, ovate. Few; fl. & fr.: Aug. Dec.; Sultan (11); *K.P. Janardhanan* 50166.

2. **S. geniculata** (Lamk.) P. Beauv. Ess. Agrost. 51. 169; 178. 1812; Bor Grass. Bur. Ceyl. Ind. And Pak. 360. 1960. *Panicum geniculatum* Lamk. Encycl. Meth. Bot. 4:727. 1798.

Decumbent-ascending grass. Leaves glabrous or laxly hairy, margins finely scabrid. Involucral bristles reddish or yellowish. Spikelets solitary, ovate.

Few; fl. & fr.: Sept. Nov.; Jamnagar (16); *K.P. Janardhanan* 51286.

3. **S. glauca** (L.) P. Beauv. Ess. Agrost. 51. 169; 178. 1812; Bor Grass. Bur. Ceyl. Ind. And Pak. 360. 1960. *Panicum glaucum* L. Sp. Pl. 56. 1753.

Decumbent, ascending grass. Leaves glabrous or sparsely hairy, margins scabrid, acute at apex. Involucral bristles reddish-brown. Spikelets ovate-rounded.

Frequent; fl. & fr.: Aug. Nov.; Bijrani (18); *P.C. Pant* 72310.

4. **S. homonyma** (Steud.) Chiov. Nuov. Giorn. Bot. Hal. N.S. 26, 78. 1919; Bor Grass Bur. Ceyl.; Ind. And Pak. 361. 1960. *Panicum homonymum* Steud. Syn. 1:48. 1854.

Erect, tufted grass. Leaves with tubercled hairs, acuminate. Spikelets elliptic.

Few; fl. & fr.: Aug. Nov.; Ghilmodya Sot (11); *P.C. Pant* 43181.



5. **S. paniculifera** (Steud.) Fourn. ex Hemsl. Biol. Centr. Amer. Bot. 3:505. 1885; Bor Grass. Bur. Ceyl. Ind. And Pak. 363. 1960. *Panicum paniculiferum* Steud. Syn. Pl. Glum. 1:54. 1854.

Erect grass, culm woody. Leaves linear-lanceolate, dark green, channelled, rough on surfaces. Spikelets ovate.

Scattered, fl. & fr. Aug. - Nov.; On Way to sultan from Dhangadi (12); *P.C. Pant* 72409.

6. **S. pumila** (Poir.) Roem. & Schult. Syst. Veg. 2:891. 1817. *Panicum pumilum* Poir. Encycl. Meth. Bot. Suppl. 4, 273. 1816. *Setaria pallide-fusca* (K. Schum.) Stapf & Hubb. in Kew Bull. 1930. 259. 1930; Bor, Grass. Bur. Ceyl. Ind. And Pak. 363. 1960.

Prostrate or decumbent-ascending grass. Leaves glabrous. spikelets ovate to elliptic-oblong.

Frequent; fl. & fr.: Jan. Dec.; Sultan (11); *P.C. Pant* 43148.

#### 44. **SORGHUM** Moench.

1a. Nodes bearded with long white silky hairs.

*S. nitidum* 2

1b. Nodes glabrous or pubescent, not bearded.

*S. halepense* 1

1. **S. halepense** (L.) Pers. Syn. Pl. 1:101. 1805; Bor Grass. Bur. Ceyl. Ind. And Pak. 222. 1960. *Holcus halepensis* L. Sp. Pl. 2:1047. 1753.

Erect grass, with creeping rootstock. Leaves narrow, lanceolate. Spikelets sessile and pedicelled.

Scarce; fl. & fr.: Aug Jan.; Nallaha towards Paterpani from Kalagarh (14); *K.P. Janardhanan* 51487.

2. **S. nitidum** (Vahl) Pers. Syn. Pl. 1:101. 1805; Bor, Grass. Bur. Ceyl. Ind. And Pak. 245. 1960. *Holcus nitidus* Vahl Symb. Bot. 2:102. 1791.

Tall, erect grass. Leaves linear. Spikelets sessile and pedicelled, dark brown coloured.

Few; fl. & fr.: Sept. - Nov.; On way to Dhikala (8); *P.C. Pant* 43238.

#### 45. **SPOROBOLUS** R. Br.

**S. coromandelianus** (Retz.) Kunth Rev. Gram. 1:68. 1829; Bor Grass. Bur. Ceyl. Ind. And Pak. 627. 1960. *Agrostis coromandeliana* Retz. Obs. Bot. 4:19. 1786.

Erect, tufted grass. Leaves linear-lanceolate, glabrous or sparsely hairy. Spikelets minute, subglobose. Caryopsis broadly ellipsoid.

Scattered; fl. & fr.: Aug. Nov.; Sultan Environs (11); *P.C. Pant* 43141.

46. **THEMEDA** Forssk.

- 1a. Involucral spikelets with tubercle based hairs.  
 2a. Spikes in glomerate fascicles. *T. quadrivalvis* 2  
 2b. Spikes in lax panicles. *T. arundinacea* 1  
 1b. Involucral spikelets without tubercle based hairs. *T. villosa* 3

1. **T. arundinacea** (Roxb.) Ridley Trans. Linn. Soc. Bot. Ser. 2, 3:301. 1893; Bor Grass. Bur. Ceyl. Ind. And Pak. 250. 1960. *Anthistiria arundinacea* Roxb. Fl. Ind. 1:256. 1820.

Tall, stout grass. Leaves linear, margins scabridly serrulate, mid vein prominently raised on undersurface. Spikelets sessile and pedicelled.

Common; fl. & fr.: Sept. Dec.; Dhikala (8); *P.C. Pant* 43234.

2. **T. quadrivalvis** (L.) O. Kuntze Rev. Gen. Pl. 2:794. 1891; Bor Grass. Bur. Ceyl. Ind. And Pak. 252. 1960. *Andropogon quadrivalvis* L. in Murr. Syst. Veg. ed. 13, 758. 1774.

Erect or geniculately ascending and scrambling, leaves linear. Spikelets sessile and pedicelled.

Frequent; fl. & fr.: Aug. Nov.; Gairal (10); *K.P. Janardhanan* 51124.

3. **T. villosa** (Poir.) A. Camus in Lecomte Fl. Gen. Ind. Chine 7:364. 1922; Bor Grass. Bur. Ceyl. Ind. And Pak. 254. 1960. *Anthistiria villosa* Poir. in Lamk. Encycl. Suppl. 1:396. 1814.

Tall, robust grass. Leaves linear, margins scabrid. Spikelets sessile and pedicelled, lanceolate.

Scattered; fl. & fr.: Aug. Nov.; Amgadi Sot (11); *P.C. Pant* 43105.

47. **THYSANOLAENA** Nees

**T. maxima** (Roxb.) O. Kuntze Rev. Gen. Pl. 2:794. 1891; Bor Grass. Bur. Ceyl. Ind. And Pak. 650. 1960. *Agrostis maxima* Roxb. Fl. Ind. 1:319. 1820. "WOOLANSA" Fig. 6.

Tall grass. Leaves lanceolate, undersurface with minute transverse septation. Spikelets greenish or pale yellow, minute, elliptic-lanceolate. Caryopsis minute.

Frequent; fl. & fr.: Oct. May; Kanda (3); *P.C. Pant* 43342.

48. **VETIVERIA** Lem. Lisanc.

**V. zizanioides** (L.) Nash in Small. Fl. South-East. U.S. 67. 1903; Bor Grass. Bur. Ceyl. Ind. And Pak. 258. 1960. *Phalaris zizanioides* L. Mant. Pl. 2:183. 1771.

Densely tufted grass, with scented roots. Leaves linear, prominently keeled.

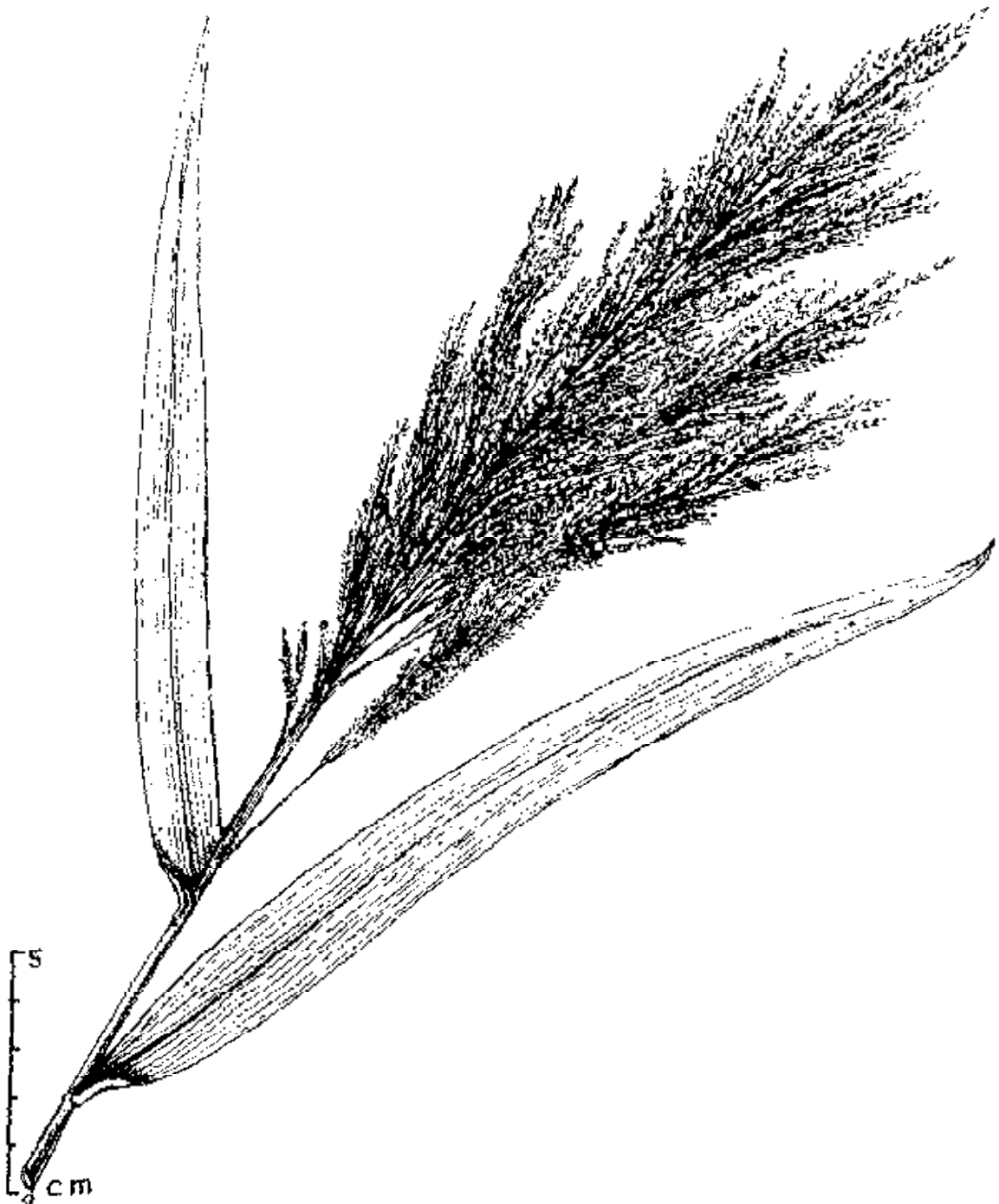


Fig. 6. *Thysanotena maxima* O. Kuntze. Largely used in making household brooms.

Spikelets sessile and pedicelled.

Scattered; fl. & fr.: July - Dec.; Bijrani (18); *P.C. Pant* 72323.

#### 99. PINACEAE (Pine Family)

##### PINUS L.

**P. roxburghii** Sargent. in *Sylva. N. Amer.* 2:9. 1897. *P. longifolia* Roxb. ex Lamb. *Decr. Gen. Pinus* 1:29, t. 21. 1803; Duthie, *F.U.G.P.* 2:259. 1960. (Rep. ed.). "CHIR" or "SALLA"

Large, evergreen trees. Bark grey or pinkish brown, vertically fissured, rough. Leaves needle like, in clusters of 3. Flowers monoecious, male catkins cylindrical, female cones ovoid.

Few; fl. & fr.: Feb. - June & Fruiting cones ripen by January to August next season; Ranibag Sot Sultan (11); *P.C. Pant* 72496.

#### 100. PSILOTACEAE (Psilotum Family)

##### PSILOTUM Swartz

**P. nudum**(L.) Griseb. in *Abb. Ges. Wiss. Gotting* 7:278. 1857; Chowdhury Pterido. *F.U.G.P.* 2. 1973, *Lycopodium nudum* L. *Sp. Pl.* 1100. 1753.

Epiphytic herbs on *Syzygium cumini*. Leaves minute, scale like, coriaceous. Sporangia trilobed.

Scarce, sporophylls: Nov.; Sultan (11); *K.P. Janardhanan* 50170.

#### 101. SELAGINELLACEAE (Selaginella Or Small Club Moss Family)

##### SELAGINELLA P. Beauv.

**S. chrysocaulos** (HK. & Grevs.) Spring in *Bull. Sc. Burx.* 10. 232. (Sep. p. 32) 1843; Chowdhury Pterido. *F.U.G.P.* 6. 1973. *Lycopodium chrysocaulos* HK. & Grev. *Hook. Bot. Misc.* II; 40. 1831.

Densely tufted, stoloniferous herbs. Leaves oblique ovate acute, bright green, membranous. Spikes many, sporophylls dimorphous.

Few; sporophylls: Nov. - Dec.; Sultan (11); *K.P. Janardhanan* 50128.

#### 102. EQUISETACEAE (Horsetail Or scouring Rush Family)

##### EQUISETUM L.

**E. debile** Roxb. in *Vauch. Mem. Soc. Physt. Hist. Nat. Geneve*, 1(2): 387. 1822; Chowdhury Pterido. *F.U.G.P.* 13. 1973.

Tall plants upto 1 m, with long slender branches, ribs 8-20. Spikes oblong, apiculate. Sporangia oblong yellow.

Few; Sporangia: Nov. - Jan.; Ghilmodya Sot Sultan (11); *P.C. Pant* 43165.

## 103. OPHIOGLOSSACEAE (Grapefern Family)

## OPHIOGLOSSUM L.

**O. reticulatum** L. Sp. Pl. 2: 1063; 1753; Chowdhury Pterido. F.U.G.P. 16. 1973.

Terrestrial ferns as a forest undergrowth, with fleshy fibrous roots. Fronds usually solitary, sometimes two. Sporangial spikes on slender peduncle. Spores finely pitted.

Rare; Sporangia: Nov. - Jan.; Bijrani (18); *P.C. Pant* 43396.

## 104. LYGODIACEAE

## LYGODIUM Swartz

**L. flexuosum** (L.) Sw. Schrad. Jour. 1800-2. 106 (Pt.) 1801; Chowdhury Pterido. F.U.G.P. 20. 1973. [*Ophioglossum flexuosum* L. Sp. Pl. 2:1063. 1753.

Terrestrial, climbing ferns. Fronds glabrous or puberulous, pinnules linear - oblong or variously lobed. Sporangial spikes narrow.

Scattered; sporangia: Aug. - Dec., Paterpani Environs (8), *P.C. Pant* 43499.

## 105. SINOPTERIDACEAE

## CHEILANTHES Swartz

**C. farinosa** (Forsk.) Kaulf. Enum. 212. 1824; Chowdhury, Pterido. F.U.G.P. 33. 1973. *Pteris farinosa* Forsk. Fl. Aegypt-Arab. 187. 1775.

Terrestrial, tufted ferns. Scales linear-lanceolate. Fronds deltoid to deltoid-lanceolate, undersurface with white powdery coating. Sori rounded.

Frequent; Sporangia: Nov. - Jan., Sarpaduli Environs (10); *P.C. Pant* 43211.

## 106. PTERIDACEAE

## PTERIS L.

**P. biaurita** L. Sp. Pl. 2:1076. 1753; Chowdhury Pterido. F.U.G.P. 32. 1973.

Large ferns. Stripe straw coloured, polished at apex. Fronds lanceolate or ovate, simple pinnate, pinnae 8-14 pairs. Sori linear.

Scattered; Sporangia: Sept. - May; Kichar Sot, Bijrani (18); *P.C. Pant* 43580.

## 107. ADIANTACEAE

## 1. ADIANTUM L.

1a. Fronds 1-pinnate.

2a. Rhachis hirsute, pinnae obscurely stalked.

*A. incisum* 2

- 2b. Rhachis glabrous, pinnae distinctly stalked. *A. lunulatum* 3  
 1b. Fronds 2-4 pinnate. *A. capillus-veneris* 1

1. **A. capillus-veneris** L. Sp. Pl. 2:1096. 1753; Chowdhury Pterido. F.U.G.P. 40. 1973.

Terrestrial ferns. Rhizome creeping, densely scaly. Stipe black or purplish black and polished. Fronds 2-4 pinnate. Sori roundish or obreniform.

Few; Sporangia Jan., Domunda Block (12); *K.P. Janardhanan* 51437.

2. **A. incisum** Forsk. Fl. Aegypt-Arab. 187.1775. *A. caudatum* L. Mant. Pl. 308. 1771; Chowdhury Pterido. F.U.G.P. 39. 1973.

Terrestrial ferns. Rhizome short, erect. Stipe tufted, wiry, chestnut-brown coloured. Fronds narrow, 1-pinnate. Sori roundish or transversely oblong.

Abundant; Sporangia : Nov. - Dec.; Dhulwa East (12); *P.C. Pant* 43066.

3. **A. lunulatum** Burm. Fl. Ind. 235. 1768. *A. philippense* L. Sp. Pl. 2:1094. 1753; Chowdhury Pterido. F.U.G.P. 39. 1973.

Terrestrial ferns. Rhizome short. Stipe wiry, black, polished. Fronds pinnate, distinctly stalked, semi orbicular. Sori linear.

Frequent; sporangia: July Jan., Amgadi Sot (11); *P.C. Pant* 43116.

#### 108. PARKERIACEAE (Water Fern Family)

##### CERATOPTERIS Brongn.

**C. thalictroides** (L.) Brongn. Bull. Soc. Philcom. 186G, Tab. 1821; Chowdhury Pterido. F.U.G.P. 41. 1973. *Acrostichum thalictroides* L. Sp. Pl. 1070. 1753.

Succulent, tufted, aquatic ferns. Fronds dimorphic, barren floating or erect, simple or slightly divided, fertile bi-tri pinnate. Sori on distantly anastomosing veins.

Scarce; sporangia: Nov. - Jan.; 8th Km. Point sarpaduli-Dhikala Road (9); *K.P. Janardhanan* 51237.

#### 109. THELYPTERIDACEAE

- 1a. Fronds with short, ovate or triangular-oblong lobes, apex obtuse, pinnae with entire margin. *Asplenium* 2  
 1b. Fronds with long lanceolate or oblong lobes, apex acute, pinnae with crenulate or sharp, falcately serrate margin.  
 2a. Pinnae 2.5 - 3 cm broad, often glandular at base. *Pronephrium* 4  
 2b. Pinnae .5 - 1.5 cm broad, eglandular.  
 3a. Pinnae obscurely lobed or crenulate, apex blunt or acute. *Ampelopteris* 1  
 3b. Pinnae shortly lobed, apex sharply acuminate. *Christella* 3

## 1. AMPELOPTERIS Kunze

**A. prolifera** (Retz.) Copel. Gen. Fil. 144. 1947; Dhir Ferns of North-Western Himalayas 105. 1979. *Hemionitis prolifera* Retz. Obs. 6:38. 1791.

Terrestrial ferns. Rhizome stout, wide creeping. Fronds pinnate, often flagelliform. Sori oblong.

Few; sporangia: Oct. - Jan.; Gaujpani (15); *K.P. Janadhanan* 51296.

## 2. ASPLENIUM L.

**A. dalhousiae** Hook. Ic. Pl. t. 105. 1837. *Ceterach dalhousiae* (Hook.) C. Chr. Indx. Fil. 170. 1905; Chowdhury Pterido. F.U.G.P. 46. 1973.

Epiphytic or terrestrial ferns. Rhizome erect or descending with subulate scales. Stipe short. Fronds opaque, pale rusty green, beneath, deeply pinnatifid. Sori linear-oblong.

Scattered; Sporangia: Oct.- Dec.; Kanda (3); *P.C. Pant* 43324.

## 3. CHRISTELLA Leveillie

1a. Pinnae with triangular, acute lobes.

*C. arida* 1

1b. Pinnae with subfalcate lobes.

*C. subpubescens* 2

1. **C. arida** (D. Don) Holttum in Nayar & Kaur Comp. Bedd. Handb. 206. 1974. *Aspidium aridum* D. Don Prodr. Fl. Nep. 4:182. 1825. *Dryopteris arida* (D. Don) O. Kuntze. Rev. Gen. Pl. 2:812. 1891; Chowdhury Pterido, F.U.G.P. 57. 1973.

Large, terrestrial ferns, along running stream. Fronds with narrower pinnae, coriaceous, hairy on lower surface. Sori round.

Frequent; Sporangia: Nov. Apr., Gajar Sot (11); *P. C. Pant* 43101.

2. **C. subpubescens** (Bl.) Holttum in Webbia 30: 193. 1976. *Aspidium subpubescens* Bl. Enum. Pl. Jav. 149. 1828. *Dryopteris subpubescens* (Bl.) C. Chr. Gard. Bull. Straits Settl 4:390. 1929; Chowdhury Pterido. F.U.G.P. 55. 1973.

Terrestrial ferns. Rhizome, tufted. Fronds oblong-lanceolate, pinnae spreading. Sori round.

Few; sporangia Nov. Jan.; Dhikala (8), *P.C. Pant* 43354.

## 4. PRONEPHRIUM Presl

**P. nudatum** (Roxb.) Holtt. Blumea 21. 1:111. 1972. *Polypodium nudatum* Roxb. Cal. Journ. nat. Hist, 4:491. 1884. *Dryopteris molumbeinsis* (Bedd.) C. Chr. Indx. Fil. 278. 1905; Chowdhury Pterido. F.U.G.P. 58. 1973.

Large, terrestrial ferns. Stipe firm, erect. Fronds pinnate, pinnae often with a gland at base, apex caudate. Sori medial.

Few; Sporangia: Nov. Jan. Sarpaduli Environs (10); *K.P. Janardhanan* 51184.

## 110. WOODSIACEAE

- 1a. Base of stipe with dense, golden coloured scales. *Hypodematum* 3  
 1b. Base of stipe with membranous, deciduous or ciliolate, papil-  
 late scales.  
 2a. Stipe stout, thick, quadrangular; rhizome thick. *Diplazium* 2  
 2b. Stipe weak, thin, dorsoventrally compressed; rhizome thin. *Athyrium* 1

### 1. ATHYRIUM Roth

- 1a. Fronds finely cut; pinnae with alternate apex. *A. pectinatum* 2  
 1b. Fronds coarsely lobed; pinnae with rounded or falcate apex. *A. japonicum* 1

1. **A. japonicum** (Thunb.) Copel. Phil. Jour. Sci. Bot. 3 c, 290. 1908; Dhir Ferns. of North-Western Himalayas 91. 1979. *Asplenium japonicum* Thunb. Pl. Jap. 334. 1784.

Terrestrial ferns. Rhizome creeping or suberect. Fronds deltoid to lanceolate. Sori linear.

Few; Sporangia: Nov. - Jan.; Gajar Sot (11); *P.C. Pant* 43099.

2. **A. pectinatum** Presl Tent. Pterid. 98. 1836; Chowdhury Pterido. F.U.G.P. 49. 1973. *Asplenium filix-femina* Bernh. var. *pectinata* C.B. Clarke, Trans. Linn. Soc. Lond. 11. Bot. 1, 492, t. 58. 1880.

Tufted, green membranous ferns. Fronds 3-4 pinnatifid, glabrous. Sori small, oblong.

Scattered; Sporangia: Oct. Dec.; Kanda (3); *P.C. Pant* 43326.

### 2. DIPLAZIUM Swartz

**D. esculentum** (Retz.) Sw. Schrad. Jour. Bot. 1801-2, 313.1803; Chowdhury Pterido. F.U.G.P. 50. 1973. *Hemionitis esculenta* Retz. Obs. 6:38. 1791.

Terrestrial ferns. Rhizome subarborescent. Fronds generally bipinnate, papillose and puberulous beneath. Sori linear.

Abundant; Sporangia: Nov. - Jan.; Sultan-Gajar Sot (11); *P.C. Pant* 43100.

### 3. HYPODEMATIUM Kunze

**H. crenatum** (Forsk.) Kuhn, V. Deck. Reis, 33. Bot. 37. 1879; Dhir Ferns of North-Western Himalayas 79. 1979. *Polypodium crenatum* Forsk. Fl. Aegypt-Arab. 185. 1775.

Beautiful, terrestrial ferns. Stipe straw coloured, glossy, with a tuft, of



golden coloured awl shaped scales. Fronds pale green, 3-4 pinnate, deltoid, Sori numerous.

Few; Sporangia: Sept. - Apr.; Dabriya Chaur Kumar Sot (8 And 14), *P.C. Pant* 43686.

## 11. ASPIDIACEAE

1a. Veins free.

*Dryopteris* 1

1b. Veins anastomosing.

*Tectaria* 2

### 1. DRYOPTERIS Adanson

**D. cochleata** (D. Don) C. Chr. Indx. Fil. 258. 1905; Chowdhury Pterido, F.U.G.P. 59. 1973. *Nephrodium cochleatum* D. Don Prodr. Fl. Nep. 6. 1825.

Tufted, large ferns. Rhizome woody, with large, brown, shining scales. Stipe pale, shining. Fronds dimorphic, ovate or oblong-lanceolate barren ones and narrowly lanceolate, fertile. Sori medial large.

Frequent; Sporangia: Sept., - Jan.; Kanda (3); *P.C. Pant* 43328.

### 2. TECTARIA Cavanilles

**T. macrodonta** (Fee) C. Chr. Indx. Fil. Suppl.III. 181. 1934; Chowdhury Pterido. F.U.G.P. 62. 1973. *Sagenia macrodonta* Fee. Gen. Fil. 313. t. 24. f. l. 1850-52.

Tufted ferns, stipe chestnut-brown coloured. Fronds glossy brown, deltoid, pinnatifid, rarely 2-pinnate. Sori large.

Frequent; Sporangia: Nov. Jan.; Kanda (3); *P.C. Pant* 43329.



### SELECTED BIBLIOGRAPHY

- Babu, C.R. 1977. **Herbaceous Flora of Dehra Dun.** New Delhi.
- Bor, N.L. 1960. **The Grasses of Burma, Ceylon, India and Pakistan.** London.
- Chakraborty, K. 1972. **Wildlife Biology of the Sunderban Forest.** *Cheetal.* 15(1).
- Chowdhury, N.P. 1973. **The Pteridophytic Flora of The Upper Gangetic Plain.** NEW DELHI.
- Cope, T.A. 1982. **Flora of Pakistan.** 143. Karachi.
- De, Ramesh Chandra and Spillet, J. Juan 1966. **A Study of Chital or Spotted Deer in Corbett National Park, Uttar Pradesh.** *Jour. Bomb. nat. Hist. Soc.* 63(3): 576-598.
- Dhir, K.K. 1979. **Ferns of North-Western Himalayas.** Vaduz.
- Duthie, J.F. 1903-29. **Flora of The Upper Gangetic Plain And of the Adjacent Siwalik And Sub-Himalayan Tracts Vols. 1-3 (Reprint Edition Vols. 1 and 2. 1960)** Calcutta.
- Hajra, P.K. 1982. **A Contribution to the Botany of Nanda Devi National Park.** 1-38. Calcutta.
- Hara, H. et. al. 1978-1982. **An Enumeration of the Flowering Plants of Nepal.** (Vol. 1. 1978; Vol. 2. 1979; Vol. 3. 1982). London.
- Hooker, J.D. 1872-1897. **The Flora of British India Vol. 1-7.** London.
- Hutchinson, J. 1959. **The Families of Flowering Plants.** Ed. 1. 1926-1934. 2 Vol. (Vol. 1. 1926; Vol. 2. 1934) London, Ed. 2. London.
- Jain, S.K. and Hajra, P.K. 1975. **On the Botany of Manas Wildlife Sanctuary in Assam.** *Bull. bot. Surv. Ind.* 17: 75-86.
- & Rao, R.R. 1976. **A Handbook of Field and Herbarium Method.** New Delhi.

- Jain S.K. and Sastry, A.R.K. 1981. National Parks and Biosphere Reserves in India. Souvenir Silver Jubilee Symp. Intern. So. Trop. Ecology. Bhopal.
- 1983. Botnay of Some Tiger Habitats in India Calcutta.
- Janardhanan, K.P. & Uniyal, B.P. 1973. On the Occurrence of *Hypericum japonicum* Thunb. ex. Murr. in the Upper Gangetic Plain. *Curr. Sci.* 42.(13): 478.
- Maheshwari, J.K. 1963. A Contribution to the Flora of Kanha National Park. Madhya Pradesh. *Bull. bot. Surv. Ind.* 5(2): 117-140.
- Malhotra, S.K. & Rao, K.M. 1980. The Vegetation of Newegaon National Park and its Environs. (Maharashtra) *Bull. bot. Surv. Ind.* 22: 1-11.
- Mukherjee, S.K. 1965. A Sketch of the Vegetation of Jailpaiguri District of West Bengal. *Bull. bot. Surv. Ind.* 7:134-137.
- Mukherjee, A.K. 1984. Flora of Pachmarhij & Bori Reserves, Howrah.
- Naithani, B.D. 1967. Studies on the flora of Bandipur Reserve Forest, Mysore State. *Bull. bot. Surv. Ind.* 8: 252-263.
- Osmaston, A.E. 1927. Forest Flora of Kumaon. Allahabad.
- Pant, P.C. 1976. Plants of Corbett National Park, Uttar Pradesh. *Journ. Bomb. nat. Hist. Soc.* 73(21): 187-295.
- & Uniyal, B.P. & Prasad 1981. Additions to the Plants of Corbett National Park, U.P. *Ibid.* 78(1): 50-53.
- Raizada, M.B. 1976. Supplement to Duthie's flora of the Upper Gangetic Plain and of the adjacent Siwalik and Sub-Himalayan Tracts. Dehra Dun.
- Rao, A.S. & Verma, D.M. 1982. Cyperaceae of North East India. Calcutta.
- Rau, M.A. 1969. Flora of the Upper Gangetic Plain And of the Adjacent Siwalik and Sub-Himalayan Tracts-Check List. Suppl. No. 2 *Bull. bot. Surv. Ind.* 10.
- Santapau, H. & Randeria, Alban, J. 1955. The Botanical Exploration of Krishnagiri National Park Borivli near Bombay. *Jour. Bom. nat. Hist. Soc.* 53(2): 185-200.
- Spillet, J. Juan 1966. General Wildlife Conservation Problems In India. *Journ. Bomb. nat. Hist. Soc.* 63(3): 616-628.

- Spillet 1967. A Report of Wildlife Surveys in North India And Southern Nepal. *Journ. Bomb. nat. Hist. Soc.* 63: 492-628.
- Wadia, D.N. 1953. Geology of India and Burma 5th edition, Macmillan, London.
- de Wit, H.C.D. 1966-67. Plants Of The World Vol. 1 & 2. London.



## INDEX TO LOCAL NAMES

Aam 52	Kharpat 47
Aaonla 142	Khatuwa 66
Andi 142	Khirni 142
Bakli 71	Koeli 143
Bans 173	Kumbhi 73
Bar 148	Kura 101
Bel 46	Kus 173
Bhabarh 176	Kusum 51
Bhang 143	Mahuwa 99
Bhilmora 135	Malu 67
Binda 127	Marchia 47
Chamror 107	Meda-Sinhi 103
Chir 186	Musali 154
Dhak 55	Padal 117
Ghoria-Ghas 169	Papri 143
Gudala 43	Patera 159
Guiral 67	Pathar-Gaba 156
Gular 149	Pula 41
Haldu 80	Punreta 130
Harrah 72	Roli 141
Hisalu 71	Sain 72
Indrajau 101	Sal 39
Jakhiya 37	Salla 186
Jamir 46	Sandhan 59
Jamun 73	Semal 42
Jhigan 52	Sisham 57
Kachnar 67	Tarur 154
Kala-Siris 70	Tendu 99
Karaunda 101	Toona 48
Kath-Bera 150	Trichoniya 84
Kekra 136	Tusar 93
Khabar 149	Woolansa 184

**INDEX TO POPULAR ENGLISH NAMES OF  
PLANTS AND FAMILIES**

- |                            |  |
|----------------------------|--|
| Acanthus Family 118        | Dog's Tooth 14                           |
| Arum Family 159            | Dub Grass 14                             |
| Axle Wood Tree 11          | Easter Tree 11                           |
| Bael 11                    | Ebony Family 99                          |
| Baib Grass 14, 17          | Elm Family 143                           |
| Banyan Tree 12             | Evening Primrose Family 75               |
| Begonia Family 78          | Figs 12                                  |
| Bell Flower Family 97      | Fig Family 14                            |
| Bermuda Grass 14           | Figwort Family 16, 111                   |
| Bignonia Family 117        | Four-O' Clock Family 130                 |
| Bombax Family 42           | Gentian Family 104                       |
| Borage Family 17, 104      | Gesneria Family 116                      |
| Brazil-Nut Family 73       | Ginger Family 152                        |
| Broomrape Family 116       | Gossefoot Family 132                     |
| Buckthorn Family 48        | Gourd Family 76                          |
| Bullrush 18                | Grapefern Family 187                     |
| Bullrush Family 159        | Grass Family 165                         |
| Bursera Family 47          | Hemp Family 143                          |
| Buttercup 18               | Horsetail or scouring Rush Family<br>186 |
| Buttercup Family 35        | Indian Elm 11                            |
| Caper Family 37            | Indian Purslane 17                       |
| Carrot Family 78           | Indian Wormwood 12                       |
| Chinese Box 10             | Ivory Tree 11                            |
| Chinese Hat-Plant 13       | Knotweed Family 133                      |
| Cocks Comb Family 130      | Laurel Family 135                        |
| Combretum Family 71        | Leadwort Family 98                       |
| Common Water Cress 18      | Lily Family 154                          |
| Convolvulus Family 17, 107 | Linden Family 43                         |
| Crowfoot 18                | Logania Family 103                       |
| Custard-Apple Family 36    | Loosetrife Family 74                     |
| Daisy Family 16, 84        | Madder Family 79                         |
| Dipterocarp Family 39      | Mahogany Family 47                       |
| Dogbane Family 100         | Mahua Family 11                          |
| Dodder 14                  |  |



- Male Bamboo 14, 15  
 Malpighia Family 45  
 Mallow Family 39  
 Martynia Family 117  
 Mealstoma Family 73  
 Mexican Pappy 17  
 Milkweed Family 102  
 Milkwort Family 38  
 Mint Family 18, 126  
 Mistletoe Family 136  
 Moonseed Family 36  
 Mulberry Family 147  
 Mustard Family 36  
 Myrsine Family 98  
 Myrtle Family 73  
 Nettle Family 144  
 Olive Family 100  
 Orange Jasmine 10  
 Orchid Family 150  
 Orpine Family 71  
 Palm Family 158  
 Passion Flower Family 78  
 Pedalium Family 117  
 Pepper Family 135  
 Pickerel-Weeds Family 156  
 Pine Family 186  
 Pink Family 38  
 Pipewort Family 159  
 Pondweed Family 159  
 Poppy Family 36  
 Potato Family 13, 109  
 Prickly Poppy 17  
 Primrose Family 98  
 Psilotum Family 186  
 Purslane Family 39  
 Rose Family 12, 70  
 Rue Family 46  
 Sabia Family 51  
 Sal 10, 11, 12  
 Sapodilla Family 99  
 Sedge Family 160  
 Selaginella or Small Club Moss  
 Family 186  
 Soapberry Family 51  
 Soft Hemp 13  
 Spiderwort Family 156  
 Spurge Family 137  
 St., John's Wort Family 39  
 Staff Tree Family 48  
 Streculia Family 42  
 Sumach Family 51  
 Tamarisk Family 39  
 The Bael Tree 11  
 The Cutch Tree 11  
 The Flame of The Forest 12  
 The Indian Coral Tree 12  
 The Indian Laburnum 12  
 The Marking Nut Tree 11  
 The Pea Family 15  
 The Red Silk Cotton Tree 11  
 The Spear Grass 14  
 The Tiger Grass 14  
 True Hemp 13  
 Vervain Family 123  
 Vine Family 50  
 Water Fern Family 188  
 Weasels Snout 16  
 Willow Family 150  
 Wood-Sorrel Family 45  
 Yam Family 153

## INDEX TO BOTANICAL NAMES

- Abelmoschus** Medik. 40  
*crinitus* Wall. 40  
*manihot* (L.) Medik. 40  
**Abrus** L. 52 54  
*pulchellus* L. 54  
**Abutilon** Mill. 40  
*indicum* (L.) Sweet 40  
**Acacia** Mill. 68, 69  
*caesia* Wight & Arn. 69  
*catechu* (L.f.) Willd. 69, 152  
*pennata* (L.) Willd. 69  
*pseudo-eburnea* J.R. Drumm. 69  
*torta* (Roxb.) Craib 69  
**Acalypha** L. 137, 138  
*ciliata* Forsk. 138  
**ACANTHACEAE** 70, 118  
**Acanthospermum** Schrank. 85, 86  
*hispidum* DC. 86  
**Achyranthes** L. 130, 131  
*amaranthoides* Lamk. 132  
*aspera* L. 131  
*bidentata* Bl. 131  
*ferruginea* Roxb. 132  
*lappacea* L. 132  
*sanguinolenta* L. 131  
*Acilepis squarrosa* D. Don. 96  
*Acrantherum pumilum* Hochst 170  
**Acrocephalus** Benth. 126  
*capitatus* (Roth.) Benth. 127  
*indicus* (Burm. f.) O. Kuntze 126  
*Acrostichum thalictroides* L. 188  
**Adenostemma** J.R. & G. Forst 85, 87  
*lavenia* (L.) O. Kuntze. 87.  
*viscosum* Forst. 87  
**Adhatoda** Mill. 118, 119  
*zeylanica* Medic. 119  
**ADIANTACEAE** 34, 187  
**Adiantum** L. 187  
*capillus-veneris* L. 188  
*caudatum* L. 188  
*incisum* Forsk. 187, 188  
*lunulatum* Burm. 188  
*philippense* L. 188  
**Adina** Salisb. 80  
*cordifolia* (Willd. ex Roxb.) Hook.  
*f. ex. Brand.* 80  
**Aeginetia** L. 116  
*indica* L. 116  
**Aegle** Correa 46  
*marmelos* (L.) Corr. 46  
*Aerides testaceum* Lindl. 152  
**Aerva** Forsk. 131, 132  
*sanguinolenta* (L.) Bl. 131  
*scandens* (Roxb.) Wall. 131  
*Aeschynomene bispinosa* Jacq. 64  
**Ageratum** L. 85, 87  
*conyzoides* L. 87  
*houstonianum* Mill. 87  
*Agrostis coromandeliana* Retz. 183  
*maxima* Roxb. 184  
**Ajuga** L. 126, 127  
*bracteosa* Wall. ex Benth. 127  
*macrosperma* Wall. ex Benth 127  
**ALANGIACEAE** 27, 79  
**Alangium** Lamk. 79

- lamarckii* Thwaites 79  
*salvifolium* (L. f.) Wang. 79  
**Alibizia** Durazz. 68, 69  
*lebbeck* (L.) Benth. 69, 70  
*odoratissima* (L.f.) Benth. 69, 70  
*procera* (Roxb.) Benth. 69, 70  
**Alternanthera** Forsk 130, 131  
*sessilis* (L.) DC. 131  
**Alysicarpus** Desv. 53, 54  
*rugosus* (Willd.) DC. 54  
*vaginalis* (L.) DC. 54  
**AMARANTHACEAE** 30, 130  
**Amaranthus** L. 131  
*spinousus* L. 131  
*viridis* L. 131, 132  
  
**Ammannia** L. 74  
*baccifera* L. 74  
*multiflora* Roxb. 74  
*peptoides* Spreng. 75  
*pygmaea* Kurz 75  
*rotundifolia* Buch-Ham. ex Roxb. 75  
*Amomum roseum* Roxb. 153  
**Ampelocissus** Planch. 50  
*divaricata* (Wall ex Lawson) Planch. 50  
**Ampelopteris** Kunze 188, 189  
*prolifera* (Retz.) Copel. 189  
*Amphirhapis cuspidata* DC. 93  
**ANACARDIACEAE** 26, 51  
**Anagallis** L. 98  
*pumila* Sw. 98  
*Anagalloides procumbens* Krock 114  
**Anaphalis** DC. 86, 87  
*busua* (Buch-Ham. ex D. Don) DC. 87  
*Anchusa tenella* Hornem. 105  
  
*zeylanica* Vahl ex Hornem. 105  
**Andrachne cordifolia** (Decne) Muell-Arg. 138  
**Andropogon annulatus** Forssk. 173  
*assimilis* Steud. 171  
*binatus* Retz. 176  
*contortus* L. 176  
*fascicularis* Roxb. 181  
*flexuosus* Nees ex Steud. 172  
*jwarancusa* Jones 172  
*lancifolius* Trin. 169  
*laschenaultianus* Decne. 176  
*melanocarpus* Ell. 178  
*pertusus* (L.) Willd. 170  
*punctatus* Roxb. 170  
*quadrivalvis* L. 184  
**Androsace** L. 98  
*saxifragifolia* Bunge 98  
*umbellata* (Lour.) Merr. 98  
**Aneilema nudiflora** R. Br. 157  
*scapiflorum* (Roxb.) Wight 158  
*spiratum* (L.) R. Br. 158  
**Anisomeles** R. Br. 126, 127  
*indica* (L.) O. Kuntze 127  
*ovata* R. Br. 127  
**ANNONACEAE** 23, 36  
**Anogeissus** Wall. 71  
*latifolius* (Roxb. ex DC.) Bedd. 71  
**Anthistiria arundinacea** Roxb. 184  
*villosa* Poir. 184  
**Antidesma** L. 137, 138  
*acidum* Retz 138  
*diandrum* (Roxb.) Roth. 138  
**Antirrhinum orontium** L. 115  
**Apaturia senilis** Lindl. 152  
**APIACEAE** 27, 78  
**Apluda** L. 166, 169  
*mutica* L. 169  
**APOCYNACEAE** 29, 100

- Apocynum frutescens* L. 101  
**ARACEAE 33, 159**  
*Arachne* Necker 137, 138  
*cordifolia* (Dcne) Hurusawa 138  
*Ardisia* Swartz. 98  
*solanacea* Roxb. 98  
*tsjeriam-cottam* Roem. et Schult 99  
**ARECACEAE 32, 158**  
*Argemone* L. 36  
*mexicana* L. 36  
*ochroleuca* Sweet. 36  
*Argostemma* Wall. 79, 81  
*sarmentosum* Wall. 81  
*Argyreia* Lour. 107  
*nasirii* D. Austin 107  
*Aristida* L. 167, 169  
*arundinacea* L. 179  
*cynantha* Ness ex steud. 169  
*Artemisia* L. 86, 87  
*capillaris* Thunb. 87  
*japonica* Thunb. 87, 88  
*minima* L. 90  
*nilagirica* (C.B. Clarke) Pamp. 87, 88  
*parviflora* Roxb. ex D. Don 88  
*scoparia* Waldst. & Kit 87  
*vulgaris* auct. pl. non L. 88.  
*vulgaris* L. var. *nilagirica*  
 C.B. Clarke. 88  
*Arthraxon* P. Beauv. 166, 169  
*lancifolius* (Trin) Hochst. 169  
*Arundinella* Raddi 168, 169  
*bengalensis* (Spreng.) Druce 169  
*nepalensis* Trin 169  
*pumila* (Hochst) Steud. 169, 170  
*Arundo* L. 167, 170  
*donax* L. 170  
*karka* Retz. 180  
**ASCLEPIADACEAE 29, 102**  
*Asclepias gigantea* L. 102  
*procera* Ait 103  
*Asparagus* L. 154  
*adscendens* Roxb. 154  
*racemosus* Willd. 154  
**ASPIDIACEAE 34, 191**  
*Aspidium aridum* D. Don 189  
*subpubescens* Bl. 189  
*Aspidopterys* Juss. 45  
*wallichii* Hook. f. 45  
*Asplenium* L. 188, 189  
*dalhousiae* Hook. 189  
*felix-femina* Bernh. var. *pectinata*  
 C.B. Clarke 190  
*japonicum* Thunb. 190  
**ASTERACEAE 28, 84**  
*Asystasia* Bl. 118, 119  
*macocarpa* Nees 119  
*Athyrium* Roth 190  
*japonicum* (Thunb.) Copel. 190  
*pectinatum* Presl. 190  
*Atylosia* Wight & Arn. 53, 54  
*crassa* Prain 54  
*scarabaeoides* (L.) Benth. 54  
*volubilis* (Blanco) Gamble. 54  
*Bacopa* Aublet 111, 112  
*monnieri* (L.) Pennell 112  
*Baebotrys indica* auct. non Roxb. 99  
*indica* Roxb. 99  
*Baliospermum* Blume 137, 138  
*axillare* Blume 138  
*montanum* (Willd.) Muell-Arg.  
 138  
*Bambos stricta* Roxb. 173  
*Banisteria benghalensis* L. 45  
*Banksia speciosa* koenig. ex Retz.  
 152  
*Barleria* L. 118, 119  
*cristata* L. 119

- strigosa* Willd. 119  
*Bassia latifolia* Roxb. 99  
*longifolia* Koenig 99  
**Bauhinia** L. 66  
*malabarica* Roxb. 66  
*racemosa* Lamk. 66  
*retusa* Buch.-Ham. ex Roxb. 67  
*semia* Wunderlin 66, 67  
*vahlia* Wight & Arn. 66, 67  
*variegata* L. 66, 67  
**Begonia** L. 78  
*picta* J.E. Smith 78  
**BEGONIACEAE** 27, 78  
*Bergera koenigii* L. 47  
**Bidens** L. 85, 88  
*biternata* (Lour.) Merr. & Sherff. 88  
*pilosa* auct non L. 88  
*Bignonia chelonoides* L. f. 117  
**BIGNONIACEAE** 30, 117  
**Biophytum** DC. 45  
*reinwardtii* (Zucc.) Klotzsch, 45  
**Bischofia** Blume 137, 138  
*javanica* Bl. 138, 139  
**Blainvillea** Cass. 85, 88  
*acmella* (L.) Philip. 88  
*rhomboidea* Cass. 88  
*Bletia dabia* D. Don 151  
**Blumea** DC 86, 88  
*fistulosa* (Roxb.) Kurz 89  
*flava* DC 90  
*glomerata* DC 89  
*laciniata* (Roxb.) DC. 89  
*lanceolaria* (Roxb.) Druce 89  
*membranacea* DC. 89  
*mollis* (D. Don) Merr. 89  
*myriocephala* DC. 89  
*oxyodonta* DC. 88, 90  
*wightiana* DC. 89  
**Blumeopsis** Gagnep. 85, 90  
*flava* (DC.) Gagnep. 90  
**Boehmeria** Jacq. 144  
*macrophylla* D. Don 144  
*platyphylla* D. Don 144  
*puya* Hook. 146  
*rugulosa* Wedd. 144, 145  
**Boerhavia** L. 130  
*diffusa* L. 130  
**BOMBACACEAE** 24, 42  
**Bombax** L. 42  
*ceiba* L. 42  
*malabaricum* DC. 42  
*Bonnaya brachiata* Link & Otto, 114  
*veronicaefolia* (Retz.) Spreng. 113  
**BORAGINACEAE** 29, 104  
*Borago indica* L. 106  
**Borreria** G.F.W. Mey 80, 81  
*articularis* (L.f.) F.N. Williams 81  
*pusilla* (Wall.) DC. 81  
**Bothriochloa** O. Kuntze 168, 170  
*bladhii* (Retz.) S.T. Blake 170  
*intermedia* (R. Br.) A. Camus 170  
 Var *intermedia* Bor 170  
 Var *punctata* (Roxb.) Keng 170  
*pertusa* (L.) A. Camus 170  
**Bothriospermum** Bunge 105  
*tenellum* (Hornem) Fish. & Mey 105  
**Brachiaria** Griseb. 167, 171  
*distachya* (L.) Stapf 171  
*ramosa* (L.) Stapf. 171  
**BRASSICACEAE** 24, 36  
**Bridelia** Willd. 137, 140  
*montana* auct non Willd. 140  
*retusa* (L.) Spreng. 140  
*verrucosa* Haines 140  
*Briza bipinnata* L. 173  
*Bryonia laciniosa* L. 76

- Bryonopsis** Arn. 76  
*laciniosa* (L.) Naud. 76  
**Buchanania** Sprengl. 51, 52  
*latifolia* Roxb. 52  
*Buchnera angustifolia* D. Don 116  
*'Buddleia' asiatica* Lour. 103  
**Buddleja** L. 103  
*asiatica* Lour. 103  
**Bulbostylis** Kunth 160  
*barbata* (Rottb.) C.B. Clarke 160  
**Bupleurum** L. 78, 79  
*hamiltonii* Balakr. 79  
*tenue* Buch. Ham. ex D. Don 79  
**BURSERACEAE** 25, 47  
**Butea** Koenig ex Roxb. 54, 55  
*frondosa* Koenig ex Roxb. 55  
*monosperma* (Lamk.) Taubert 55  
*Cacalia sonchifolia* L. 92  
**CAESALPINIA** L. 66, 67  
*bonduc* (L.) Roxb. 67  
*bonducella* (L.) Fleming 67  
**CAESALPINIACEAE** 26, 66  
*Calamintha umbrosa* (Bieb.) Fisch. & Mey. 127  
**Calotropis** R. Br. 102  
*acia* Buch.-Ham 102  
*gigantea* (L.) Dryand 102  
*procera* (Ait.) Dryand 102  
**Callicarpa** L. 123  
*macrophylla* Vahl 123  
**CAMPANULACEAE** 28, 97  
**Campanula** L. 97  
*canescens* Wall. 97  
*wallichii* Babu. 97  
**Canscora** Lamk. 104  
*decussata* (Roxb.) J.A. Schult & J.H. Schult. 104  
*diffusa* (Vahl) R. Br. 104  
**CANNABACEAE** 31, 143  
**Cannabis** L. 143  
*sativa* L. 143  
**Capillipedium** Stapf. 168, 171  
*assimile* (Steud.) A. Camus 171  
*Capraria crustacea* L. 114  
**CAPPARACEAE** 24, 37  
**Cardamine** 36, 37  
*hirsuta* L. 37  
*scutata* Thunb. 37  
**Cardiospermum** L. 51  
*halicacabum* L. 51  
**Carex** L. 160  
*myosurus* Nees 160  
**Careya** Roxb. 73  
*arborea* Roxb. 73  
**Carissa** L. 100, 101  
*Carandas auct. pl. non L.* 101  
*congesta* Wight 101  
**CARYOPHYLLACEAE** 24, 38  
**Caryopteris** Bunge 123, 124  
*odorata* (D. Don) Robinson 124  
*wallichiana* Schauer 124  
**Casearia** Jacq. 37, 38  
*elliptica* Willd. 38  
*tomentosa* Roxb. 38  
**Cassia** L. 66, 67  
*absus* L. 67  
*fistula* L. 67, 68  
*obtusifolia* L. 67, 68  
*occidentalis* L. 67, 68  
*pumila* Lamk. 67, 68  
*tora* L. 67, 68  
**Cassine** L. 48  
*glauca* (Rottb.) O. Kuntze 48  
*Cedrela toona* Roxb. ex Rottl. & Willd. 47  
**CELASTRACEAE** 25, 48  
**Celastrus** L. 48  
*paniculatus* Willd. 48

- Celsia coromandeliana* Vahl 116  
*Cenchrus granularis* L. 176  
**Centella** L. 78, 79  
   *asiatica* (L.) Urban 79  
**Centipeda** Lour. 84, 90  
   *minima* (L.) A. Br. et Aeschers 90  
   *orbicularis* Lour. 90  
*Centunculus pentandrus* R. Br. 98  
**Ceratopteris** Brongn. 188  
   *thalictroides* (L.) Brongn. 188  
*Ceterach dalhousiae* (Hook.)  
   C. Chr. 189  
*Chalcas paniculata* L. 47  
**Cheilanthes** Swartz 187  
   *farinosa* (Forsk) Kaulf. 187  
**CHENOPODIACEAE** 31, 132  
**Chenopodium** L. 132  
   *album* L. 132  
   *ambrosioides* L. 132, 133  
**Chionachne** R. Br. 168, 171  
   *koenigii* (Spreng) Thwaites 171  
**Chloris** Sw. 167, 172  
   *dolichostachya* Lagasca 172  
**Christella** Leveille 188, 189  
   *arida* (D. Don) Holttum 189  
   *subpubescens* (Bl.) Holttum 189  
**Chrysanthellum** L.C. Rich 84, 90  
   *indicum* DC. 90  
**Chrysopogon** Trin. 168, 172  
   *serrulatus* Trin. 172  
   *cinchona orixensis* Roxb 83  
**Cirsium** Miller 86, 90  
   *arvense* (L.) Scop. 90  
**Cissampelos** L. 36  
   *hirsuta* Ham ex DC. 36  
   *pareira* L. 36  
   *pareira* L. var *hirsuta* (Ham. ex DC.) Forman 36  
**Cissus** L. 50  
   *adnata* Roxb. 50  
**Citrus** L. 46  
   *medica* L. 46  
*Citta nigricans* Lour. 63  
**Clausena** Burm. f. 46  
   *pentaphylla* DC. 46  
**Clematis** L. 35  
   *gouriana* Roxb. ex DC. 35  
   *nutans* Royle 35  
   *roylei* Rehder. 35  
**Cleome** L. 37  
   *viscosa* L. 37  
**Cleistocalyx** Blume 73  
   *operculatus* (Roxb.) Merr. & Perry 73  
*Clerodendron Odoratum* D. Don 124  
**Clerodendrum** L. 123, 124  
   *infortunatum auct pl non* L. 124  
   *viscosum* Vent. 124  
**Clinopodium** L. 126, 127  
   *umbrosum* (M. Bieb.) Koch 127  
*Cluytia retusa* L. 140  
*Cnicus arvensis* (L.) Hoffm. 90  
   *heteromallus* D. Don 94  
**Coffea** L. 80, 81  
   *bengalensis* Roxb. 81  
   *benghalensis* Heyne ex Roem & Schult. 81  
*Coix koenigii* spreng. 171  
**Colebrookea** Smith 126, 127  
   *oppositifolia* Sm. 127  
**COMBRETACEAE** 26, 71  
**Combretum** Loell. 72  
   *nanum* Buch.-Ham. ex D. Don 72  
**Commelina** L. 156  
   *benghalensis* L. 156, 157  
   *cristata* L. 157  
   *nudiflora* L. 157  
   *obliqua* Buch.-Ham. ex D. Don.

- 157  
*paludosa* Bl. 156, 157  
*scapiflora* Roxb. 158  
*spirata* L. 158  
**COMMELINACEAE 32, 156**  
*Conocarpus latifolius* Roxb. ex DC. 71  
**CONVOLVULACEAE 29, 107**  
*Convolvulus alsinoides* L. 108  
*nil* L. 109  
*nummularius* L. 108  
*Conyza* Less 86, 90  
*anthelmintica* L. 96  
*Cappa* Buch.-Ham. ex D. Don 93  
*Cinerea* L. 96  
*fistulosa* Roxb. 89  
*laciniata* Wall. ex Roxb. 89  
*lanceolaria* Roxb. 89  
*leucantha* (D. Don) Ludlow & Raven 91  
*stricta* Wall. 90, 91  
*viscidula* Wall. ex DC. 91  
*Corchorus* L. 43  
*acutangulus* Lamk. 43  
*aestuans* L. 43  
*olitorius* L. 44  
*Cordia* L. 106  
*dichotoma* Forst. f. 106  
*myxa auct pl.* non. L. 106  
*vestita* Hook f. & Thom. 106  
*Coreopsis biternata* Lour. 88  
*Costus* L. 152  
*speciosus* (koenig ex Retz.) Smith 152  
*Cotula* L. 84, 91  
*anthermoides* L. 91  
*Cotyledon integra* Medik. 71  
*Cracca purpurea* L. 65  
**CRASSULACEAE 26, 71**  
**Crateva** L. 37  
*adansonii* DC. Sub. Sp. *odora* (Buch-Ham.) Jacobs 37  
*marmelos* L. 46  
*odora* Buch.-Ham. 37  
*religiosa* Forst. f. var. *roxburghii* (R. Br.) Hook. f. & Thom 37  
*Crepis acaulis* (Roxb) Hook. f. 94  
*japonica* (L.) Benth. 96  
**Crotalaria** L. 53, 55  
*alata* Buch.-Ham. ex D. Don. 55  
*albida* Heyne ex Roth. 55  
*calycina* Schrank 55, 56  
*macrophylla* Willd. 60  
*medicaginea* Lamk. 55, 56  
*prostrata* Rottle. ex Willd. 55, 56  
*sericea* Retz. 55, 56  
*sessiliflora* L. 55, 56  
*tetragona* Andr. 55, 56  
*Croton philippense* Lamk. 141  
**Cryptolepis** R. Br. 103  
*buchanani* Roem. & Schult. 103  
*Cucumis maderaspatana* L. 77  
**CUCURBITACEAE 27, 76**  
*Curcuma* L. 152, 153  
*angustifolia* Roxb. 153  
*Cuscuta* L. 107  
*reflexa* Roxb. 107  
*Cyanotis* D. Don 156, 157  
*Cristata* (L.) D. Don 157  
**Cyathocline** Cass 85, 91  
*lyrata* Cass 91  
*purpurea* (D. Don) O. Kuntze 91  
*Cymbopogon spreng.* 168, 172  
*flexuosus* (Nees ex Steud.) Wats. 172  
*jwarancusa* (Jones) Schult 172  
*Cynanchum reticulatum* Retz. 103  
*Cynoctonum petiolatum* Walter ex



- J.F. Gmel. 104  
**Cynodon** Rich 165, 172  
*dactylon* (L.) Pers. 172  
**Cynoglossum** L. 105  
*denticulatum* var *zeylanica* C.B. Clarke 105  
*lanceolatum* Forsk 105  
*Wallichii* G. Don. 105  
*zeylanicum* (Vahl) Thunb. ex Lehm. 105  
*Cynosurus aegyptius* L. 173  
**CYPERACEAE** 33, 160  
**Cyperus** L. 160, 161  
*brevifolius* (Rottb.) Hassk. 161  
*compressus* L. 161  
*corymbosus* Rottb. 161, 162  
*eleusinoides* Kunth. 162  
*flavidus* Retz. 161, 162  
*halpan* L. 161, 162,  
*kyllingia* Endl. 161, 162  
*niveus* Retz. 161, 162  
*nutans* Vahl. 161, 162  
*panicus* (Rottb.) Boeck. 161, 163  
*pangorei* Rottb. 161, 163  
*pilosus* Vahl 161, 163  
*pumilus* L. 161, 163  
*rotundus* L. 161, 163  
*tegetum* Roxb. 163  
**Cyrtococcum** Stapf 167, 173  
*accrescens* (Trin.) Stapf 173  
*Cytisus volubilis* Blanco 54  
  
**Dactyloctenium** Willd. 165, 173  
*aegyptium* (L.) Willd. 173  
*Daedelacanthus nervosus* (Vahl) T. Anders 120  
**Dalbergia** L. f. 54, 56  
*lanceolaria* L. f. 57  
*oojeinense* Roxb. 59  
*sericea* G. Don. 57  
*sissoo* Roxb. ex DC. 57  
**Datura** L. 109  
*stramonium* L. 109  
**Debregeasia** Gaud. 144  
*longifolia* (Burm.f.) Wedd. 144  
*velutina* Gaud. 146  
**Deeringia** R. Br. 131, 132  
*amaranthoides* (Lamk.) Merr. 132  
*celosioides* R. Br. 132  
*Dendrobium fugax* Reichb.f. 151  
*pubescens* Hook. 150  
**Dendrocalamus** Nees 167, 173  
*strictus* (Roxb.) Nees 173  
**Dendrophthoe** Mart. 136  
*falcata* (L.f.) Ettingh. 136  
**Desmodium** Desv. 53, 57  
*cephalotes* Wall. var *Congestum* (Wight. & Arn.) Prain. 59  
*concinnum* DC. 58  
*gangeticum* (L.) DC. 57, 58  
*gyrans* DC. 58  
*heterocarpon* (L.) DC. 58  
*latifolium* DC. 59  
*microphyllum* (Thunb.) DC. 57, 58  
*motorium* (Houtt.) Merr. 57, 58  
*oojeinense* (Roxb.) ohashi 58, 59  
*parvifolium* DC. 58  
*polycarpum* DC. 58  
*pulchellum* (L.) Benth. 63  
*triangulare* (Retz.) Merr. 58, 59  
*triflorum* (L.) DC. 57, 59  
*velutinum* (Willd.) DC. 57, 59  
**Desmostachya** Stapf 167, 173  
*bipinnata* (L.) Stapf 173  
*Dialicum coromandelicum* Houtt. 52  
*Dianthera bicalyculata* Retz. 122  
**Dichanthium** Willemet 165, 173

- annulatum** (Forssk.) Stapf 173  
**Dicliptera** Juss. 118, 119  
**bupleuroides** Nees 119  
*roxburghiana* Nees Var *bupleuroides*  
 (Nees) C.B. Clarke 119  
**Didymocarpus** Wall. 116, 117  
*pygmaea* C.B. Clarke 117  
**Digitaria** Heist ex Fabricius 165, 174  
*biformis* Willd. 174  
*longiflora* (Retz.) Pers. 174  
*setigera* Roth 174  
**Dioscorea** L. 153  
*anguina* Roxb. 154  
*belophylla* (Prain) Voigt ex Haines  
 153, 154, 155  
*bulbifera* L. 153, 154  
*nummularia* var *belophylla* Prain  
 154  
*pubera* Blume 153, 154  
**DIOSCOREACEAE** 32, 153  
**Diospyros** L. 99  
*exsculpta* Buch.-Ham. 99  
*tomentosa* Roxb. 99  
**Diplazium** Swartz. 190  
*esculentum* (Retz.) Sw. 190  
**Dipteracanthus** Nees 118, 120  
*beddomei* (C. B. Clarke) Santapau  
 120  
**DIPTEROCARPACEAE** 24, 39  
*Distemon indicum* Wedd. 146  
*Dodartia indica* L. 112  
*Dolichos minimus* L. 64  
*pruriens* L. 63  
*scarabaeoides* L. 54  
*trilobata* L. 66  
*Drosera umbellata* Lour. 98  
**Drymaria** Willd. ex Roem. & Schult  
 38  
*cordata* (L.) Willd. ex Roem &  
 Schult. 38  
**Dryopteris** Adanson 191  
*arida* (D. Don) O. Kuntze. 189  
*cochleata* (D. Don) C. Chr. 191  
*moluensis* (Bedd.) C. Chr. 189  
*subpubescens* (Bl.) C. Chr. 189  
**Drypetes** Vahl 137, 140  
*roxburghii* (Wall.) Hurusawa 140  
**Duchesnea** J.E. Smith. 70  
*indica* (Andr.) Focke 70  
**Dumasia** DC. 53, 59  
*villosa* DC. 59  
**EBENACEAE** 28, 99  
**Echinochloa** P. Beauv. 167, 174  
*colona* (L.) Link. 174  
*Echites pubescens* Buch.-Ham. 101  
**Eclipta** L. 85, 91  
*erecta* L. 91  
*prostrata* (L.) L. 91  
**Ehretia** L. 106  
*acuminata* auct non R. Br. 106  
*acuminata* R. Br. Var *serrata*  
 (Roxb.) I.M. Johnston 106  
*laevis* Roxb. 107  
**EHRETIACEAE** 29, 106  
*Elaeodendron glaucum* Pers. 48  
**Elatostema** J.R. & G. Forst 144,  
 146  
*cuneatum* Wight 146  
**Elephantopus** L. 86, 91  
*scaber* L. 91  
**Embelia** Burm.f. 98, 99  
*robusta* Roxb. 99  
*tsjeriam-cottam* (Roem. et Schult.)  
 DC. 99  
**Emilia** Cass 86, 92  
*sonchifolia* (L.) DC. 92  
**EQUISETACEAE** 34, 186  
**Equisetum** L. 186

- debile* Roxb. 186  
**Eragrostis** N.M. Wolf. 167, 175  
*atrovirens* (Des f.) Trin ex Steud. 175  
*japonica* (Thunb.) Trin. 175  
*tenella* (L.) P. Beauv. ex Roem. et Schult 175  
*unioloides* (Retz) Nees ex Steud. 175  
**Eranthemum** L. 118, 120  
*pulchellum* Andrews 120  
**Eria** Lindl. 150  
*flava* Lindl. 150  
*pubescens* (Hook.) Lindl. ex Steud. 150  
*Erianthus* Michx. 168, 175  
*filifolius* Nees ex Steud. 175  
**Erigeron** L. 85, 92  
*asteroides* Roxb. 92  
*leucanthum* D. Don 91  
*mollis* D. Don 89  
*sublyratus* DC. 92  
**ERIOCAULACEAE** 33, 159  
**Eriocaulon** L. 159  
*cinereum* R. Br. 159  
*sieboldianum* Sieb. et Zucc. ex Steud. 159  
*Eriochrysis porphyrocoma* Hance ex Trin. 178  
**Eriophorum** L. 160, 163  
*comosum* (Wall.) Wall. ex Nees 163  
*Erythrina* L. 54, 59  
*monosperma* Lamk. 55  
*suberosa* Roxb. 59  
*Eugenia jambolana* Lamk. 73  
*operculata* Roxb. 73  
**Eulalia** Kunth. 166, 176  
*leschenaultiana* (Decne) Ohwi 176  
**Eulaliopsis** Honda 165, 176  
*binata* (Retz.) Hubb. 176, 177  
**Eulophia** R. Br. 151  
*campestris* Wall. ex Lindl. 151  
*dabia* (D. Don) Hochre. 151  
**Euphorbia** L. 137, 140  
*geniculata* Orteg. 140  
*heterophylla* L. 140  
*hirta* L. 140, 141  
*hypericifolia* L. 140, 141  
**EUPHORBIACEAE** 31, 137  
**Evolvulus** L. 107  
*alsinoides* (L.) L. 107, 108  
*nummularius* (L.) L. 107, 108  
**FABACEAE** 26, 52  
*Falconeria insignis* Royle 142  
**Ficus** L. 147  
*arnottiana* (Miq.) Miq. 147, 148  
*auriculata* Lour. 148  
*benghalensis* L. 148  
*cunia* Buch.-Ham. ex Roxb. 149  
*glomerata* Roxb. 149  
*hederacea* Roxb. 148  
*hispida* L. f. 147, 148  
*infectoria* Roxb. 149  
*microcarpa* L. f. 148, 149  
*racemosa* L. 147, 149  
*retusa auct pl. non.* L. 149  
*roxburghii* Wall. ex Miq. 148  
*rumphii* Blume 147, 149  
*scandens* Roxb. 148  
*semicordata* Buch.-Ham. ex Sm 147, 149  
*virens* Ait. 147, 149  
**Fimbristylis** Vahl, 160, 164  
*bisumbellata* (Forsk) Bub. 164  
*dichotoma* (L.) Vahl. 164  
*dichotoma auct pl. non* Vahl. 164

- diphylla* (Retz.) Vahl 164  
*miliacea* (L.) Vahl, 164  
*quinquangularis* Kunth. 164  
**Firmiana** Marsigli 42, 43  
*pallens* (Wall. ex King) Stern, 43  
**Flacourtia** L' Herit 38  
*indica* (N. Burman) Merril 38  
*ramontchi* L' Herit 38  
**FLACOURTIACEAE** 24, 37  
**Flemingia** Roxb. ex Ait 53, 60  
*congesta* Roxb. 60  
*macrophylla* (Willd.) Prain 60  
*strobilifera* (L.) R. Br. 60  
**Flickingeria** A. D. Hawkes 150, 151  
*fugax* (Reichb. f.) Seid. 151  
**Floscopa** Lour. 156  
*scandens* Lour. 157  
*Fluggea microcarpa* Bl. 143  
*Fragaria indica* Andr. 70  
**Galinsoga** Ruiz & Pav. 85, 92  
*parviflora* Cav. 92  
*Galium* L. 79, 81  
*vestitum* D. Don 81  
**Gardenia** Ellis 80, 82  
*spinosa* Thunb. 84  
*turgida* Roxb. 82  
**Garuga** Roxb. 47  
*pinnata* Roxb. 47  
*Gentiana diffusa* Vahl. 104  
**GENTIANACEAE** 29, 104  
**GESNERIACEAE** 30, 116  
*Glycine involucrata* Wall. 64  
**Glycosmis** Correa 46, 47  
*pentaphylla* (Retz.) Correa 47  
**Gmelina** L. 123, 124  
*arborea* Roxb. 124  
*indica* Burm f. 38  
**Gnaphalium** L. 86, 92  
*busua* Buch.-Ham. ex D. Don 87  
*luteo-album* L. 92  
**Gochnatia** Kunth. 86, 92  
*spectabilis* (D. Don) Less 92  
*Gomphrena sessilis* L. 131  
**Gouania** Jacq. 48, 49  
*leptostachya* DC. 49  
*Gratiola ciliata* Colsm. 114  
*parviflora* Roxb. 114  
*viscosa* Hornem. 115  
**Grewia** L. 43, 44  
*disperma* Rottb. 44  
*elastica* Royle 44  
*laevigata* auct. non Vahl. 44  
*salvifolia* L. f. 79  
*sapida* Roxb. ex DC. 44  
*Guilandina bonduc* L. 67  
*Gymnostylus anthemifolia* Juss. 95  
**Hackelochloa** O. Kuntze 167, 176  
*granularis* (L.) O. Kuntze 176  
*Hamiltonia suaveolens* Roxb. 83  
**Hedychium** Koenig ex Retz. 152, 153  
*thyrsiforme* Buch-Ham. ex sm. 153  
**Hedyotis** L. 80, 82  
*corymbosa* (L.) Lamk. 82  
*gracilis* Wall. 82  
*hispida* Retz. 83  
*ovatifolia* Cav. 82  
*pinifolia* Wall. ex G. Don 82  
*verticillata* (L.) Lamk. 82, 83  
*Hedysarum gangeticum* L. 58  
*heterocarpon* L. 58  
*lagopodioides* L. 65  
*linifolium* L. f. 61  
*microphyllum* Thunb. 58  
*motorium* Houtt. 58  
*pulchellum* L. 63

- rugosum* Willd. 54  
*strobiliferum* L. 60  
*triangulare* Retz. 59  
*triflorum* L. 59  
*tuberosum* Roxb. ex Willd. 63  
*vaginale* L. 54  
*velutinum* Willd. 59  
**Helicteres** L. 42, 43  
*isora* L. 43  
**Helinus** E. Mey ex Endl. 49  
*lanceolatus* Brand. 49  
**Heliotropium** L. 105, 106  
*strigosum* Willd. 106  
**Hemigraphis** Nees. 118, 120  
*latebrosa* Nees Var *rupestris* (Heyne ex Anders) c. B. Clarke 120  
*rupestris* Heyne ex T. Andres 120  
*Hemionitis esculenta* Retz. 190  
*prolifera* Retz. 189  
*Herpestis rugosa* Roth. 112  
**Heteropogon** Pers. 166, 176  
*Contortus* (L.) P. Beauv. ex Roem. & Schult. 176  
*melanocarpus* (Ell.) Benth. 176  
**Hibiscus** L. 40  
*cnacellatus* Roxb. 40  
*lampas* Cav. 42  
*lobatus* (Murr.) O. Kuntze. 40  
*manihot* L. 40  
*pungens* Roxb. 40  
*solandra* L' Herit. 41  
**Hiptage** Gaertn. 45  
*benghalensis* (L.) Kurz 45  
*madablota* Gaertn. 45  
**Holarrhena** R. Br. 101  
*antidysenterica* Wall. ex DC. 101  
*pubescens* (Buch.-Ham.) Wall. ex G. Don 101  
*Holcus halepensis* L. 183  
*nitidus* Vahl 183  
**Holmskioldia** Retz. 123, 124  
*sanguinea* Retz. 124  
**Holoptelea** Planch 143  
*integrifolia* (Roxb.) Planch. 143  
*Holosteum cordatum* L. 38  
**Hoppea** Willd. 104  
*dichotoma* Hayne ex willd. 104  
*Hottonia inidca* L. 112  
*Hydrocotyle asiatica* L. 79  
**Hymenodictyon** Wall. 80, 83  
*excelsum* Wall. 83  
*orixense* (Roxb.) Mabb. 83  
**HYPERICACEAE** 24, 39  
**Hypericum** L. 39  
*japonicum* Thunb. ex Murr. 39  
**Hypodematum** Kunze 190  
*crenatum* (Forsk.) Kuhn, 190  
**Ichnocarpus** R. Br. 101  
*frutescens* (L.) R. Br. 101  
*Ilysanthes parviflora* (Roxb.) Benth. 114  
**Imperata** Cyrill 166, 178  
*Cylindrica* (L.) Raeuschel. 178  
**Indigofera** L. 53, 60  
*astragalina* DC. 60  
*atropurpurea* Buch. Ham. ex Hornem. 60, 61  
*enneaphyla* L. 61  
*hamiltonii* Grah. ex Duthie & Prain 60, 61, 62  
*hirsuta auct pl non L.* 60  
*linifolia* (L.f.) Retz. 60, 61  
*linnaei* Ali 60, 61  
*pulchella* Roxb. 61  
**Inula** L. 86, 93  
*cappa* (Buch. Ham. ex D. Don) DC. 93

- cuspidata* (DC.) C.B. Clarke 93  
*indica* L. 94  
*vestita* Wall. ex DC. 94  
**Ipomoea** L. 108  
*carnea* Jacq. 108  
*eriocarpa* R. Br. 108  
*fistulosa* Mart ex Choisy 108  
*hederacea auct pl* non Jacq. 109  
*hederifolia* L. 108  
*hispidata* Roem. & Schult 108  
*nil* (L.) Roth 109  
*pes-tigridis* L. 108, 109  
*quamoclit* L. 108, 109  
**Isachne** R. Br. 167, 178  
*miliacea* Roth 178  
  
**Jasminum** L. 100  
*arborescens* Roxb. 100  
**Jatropha** L. 137, 141  
*curcas* L. 141  
*montana* Willd. 138  
*jussiaea suffruticosa* L. 76  
**Justicia** L. 118, 120  
*adhatoda* L. 119  
*canescens* Lamk. 121  
*diffusa* Willd. 120  
*nervosa* Vahl 120  
*pectinata* L. 122  
*procumbens* L. 120  
*simplex* D. Don 120  
*speciosa* Roxb. 122  
*thyrsiflora* Roxb. 122  
  
**Kalanchoe** Adans 71  
*integra* (Medik) O. Kuntze. 71  
*spathulata* DC. 71  
**Knoxia** L. 80, 83  
*corymbosa* Willd. 83  
**Kohautia gracilis** (Wall.) DC. 82  
  
**Kydia** Roxb. 39, 41  
*calycina* Roxb. 41  
*Kyllinga brevifolia* Rottb. 161  
*monocephala* Rottb. 162  
*panicea* Rottb. 163  
**Lactuca** cass. 84m 93  
*dissecta* D. Don 93  
**Lagerstroemia** L. 74  
*parviflora* Roxb. 74  
*Laggera flava* Benth & Hook. f. 90  
*lagurus cylindricus* L. 178  
**LAMIACEAE** 30, 126  
**Lantana** L. 123, 124  
*Camara* L. 124  
**Lannea** A. Richard 51, 52  
*coromandelica* (Houtt) Merr. 52  
**Launaea** Cass. 85, 93  
*acaulis* (Roxb.) Babcock ex Craib 93, 94  
*nudicaulis* (L.) Hook. f. 94  
*procumbens* (Roxb.) Ramayya & Rajgopal 93, 94  
**LAURACEAE** 31, 135  
**LECYTHIDACEAE** 27, 73  
**Leonotis** R. Br. 126, 128  
*nepetaefolia* (L.) W. Ait. 128  
**Lepidagathis** Willd. 118, 121  
*cuspidata* Nees 121  
*hyalina* Nees 121  
*incurva* Buch.-Ham. ex D. Don 121  
*purpuricaulis* Nees 121  
**Leptadenia** R. Br. 103  
*reticulata* (Retz.) Wight & Arn. 103  
*Leptopus cordifolius* Decne 138  
*Lettsomia thomsonii* C.B. Clarke 107  
**Leucas** R. Br. 126, 128  
*cephalotes* (Roth) Spreng. 128

- hyssopifolia** Benth. 128  
**lanata** Benth. 128  
**mollissima** Wall ex Benth. 128  
*Leucomeris spectabilis* D. Don 92, 93  
**LILIACEAE** 32, 154  
**Limnophila** R. Br. 111  
*conferta* Benth. 112  
*gratioloides* R. Br. 112  
*indica* (L.) Druce. 112  
*repens* (Benth) Benth. 112  
*rugosa* (Roth) Merr. 112  
*Limonia pentaphylla* Retz. 47  
**Lindenbergia** Lehm. 111, 112  
*indica* (L.) Vatke 112  
*urticaefolia* Lehm. 112  
**Lindernia** All. 111, 113  
*anagallis* (Burm. f.) Pennell 113  
*antipoda* (L.) Alston 113  
*ciliata* (Coism.) Pennell 113, 114  
*crustata* (L.) F. Muell 113, 114  
*nummularifolia* (D. Don) Wettst 113, 114  
*parviflora* (Roxb.) Haines 113, 114  
*procumbens* (Krock) Borbas 113, 114  
*sessiliflora* (Benth.) Wettst 113, 114  
*viscosa* (Hornem.) Boldingh 113, 115  
**Lipocarpa** R. Br 160, 164  
*argentea* R. Br 164  
*chinensis* (osb.) Kern. 164  
**Lippia** L. 123, 125  
*nodiflora* (L.) Rich 125  
**Litsea** Lamk. 135  
*chinensis* Lamk 135  
*glutinosa* (Lour.) C.B. Robinson 135  
*monopetala* (Roxb.) Pers. 135  
*polyantha* Juss. 135  
**Lobelia** L. 97  
*alsinoides* Lamk. 97  
*heyneana* Roem. & Schult 97  
*pumila* Burm. f. 115  
*pyramidalis* Wall 97  
*trigona* Roxb. 97  
**LOGANIACEAE** 29, 103  
**LORANTHACEAE** 31, 136  
*Loranthus cordifolius* Wall. 136  
*falcatus* L. f. 136  
*longiflorus* Desr. 136  
**Ludwigia** L. 75  
*octovalvis* (Jacq.) Raven 75, 76  
*prostrata* Roxb, 76  
**Luisia** Gaud 150, 151  
*trichorhiza* (Hook) Bl. 151  
*Lycopodium chrysauculos* Hk. & Grev. 186  
*nudum* L. 186  
*Lycopus dianthera* Buch.-Ham. ex Roxb. 129  
**LYGODIACEAE** 34, 187  
**Lygodium** Swartz. 187  
*flexuosum* (L.) Sw. 187  
*Lysimachia monnieri* L. 112  
**LYTHRACEAE** 27, 74  
*Lythrum fruticosum* L. 75  
**Madhuca** Buch.-Ham. ex J. F. Gmelin 99  
*longifolia* (Koenig) Macbride 99  
**Maesa** Forssk 98, 99  
*indica* (Roxb) A. DC. 99  
*indica* Wall. ex C.B. Clarke 99  
*montana* A. DC. 99  
**Mallotus** Lour. 137, 141  
*philippensis* (Lamk.) Muell-Arg. 141

**MALPIGHIACEAE 25, 45***Malva coromandeliana* L. 41**MALVACEAE 24, 39***Malvastrum* A. Gray 41*coromandelianum* (L.) Garcke  
41*tricuspidatum* A. Gray 41*Mangifera* L. 51, 52*glauca* Rottb. 48*indica* L. 52, 151*Maoutia* Wedd. 144, 146*puya* (Hook.) Wedd. 146*Mariscus paniceus* (Rottb.) Vahl  
163*Martynia* L. 117*annua* L. 117*diandra* Glox, 117**MARTYNIACEAE 30, 117***Mazus* Lour. 111, 115*delavayi* Bonati 115*pumilus* (Burm. f.) Van Steenis 115*rugosus* Lour. 115*Medicago* L. 53, 61*lupulina* L. 61**MELASTOMATACEAE 27, 73****MELIACEAE 25, 47***Melissa umbrosa* M. Bieb. 127*Melochia* L. 42, 43*corchorifolia* L. 43*cordata* Burm. f. 41*Melothria maderaspatana* (L.) Cogn.  
77**MENISPERMACEAE 23, 36***Microstegium* Nees 166, 178*ciliatum* (Trin.) A. Camus 178*Miliusa* Leschn. ex A. DC. 36*velutina* (Dunal) Hook. & Thom.  
36*Millettia* Wight & Arn. 53, 61*auriculata* Baker ex Brandis 61*extensa* (Benth.) Baker 61*Mimosa* L. 68, 70*catechu* L. f. 69*lebbeck* L. 70*odoratissima* L. f. 70*pennata* L. 69*procera* Roxb. 70*rubicaulis* Lamk. Sub Sp. hima-*layana* (Gamble) Ohashi 70*rubicaulis* Sensus Baker 70*torta* Roxb. 69**MIMOSACEAE 26, 68***Misopates* Rafin. 111, 115*orontium* (L.) Rafin. 115*Mitreola* L. 103, 104*oldenlandioides* G. Don 104*petiolata* (Walter ex J.F. Gmel)

Torr. &amp; A. Gray 104

*Modeca bracteata* Lamk. 77**MOLLUGINACEAE 27, 78***Mollugo* L. 78*pentaphylla* L. 78*Momordica* L. 77*Charantia* L. 77*Moniera cuneifolia* Michx. 112*Monochoria* C. Presl. 156*hastaeifolia* Presl 156*hastata* (L.) Solms. 156*vaginalis* (Burm. f.) Presl. 156**MORACEAE 31, 147***Morus* L. 147, 149*alba* L. 149*Mosla* Buch.-Ham. ex Maxim. 126,  
129*dianthera* (Buch.-Ham. ex Roxb.)

Maxim. 129

*ocymoides* Buch.-Ham. ex Benth.  
129*Mucuna* Adanson 53, 63*capitata* Wight & Arn. 63



- imbricata* DC. 63  
*nigricans* (Lour.) Steud. 63  
*pruriens* (L.) DC. 63  
**Mukia** Arn. 77  
*maderaspatana* (L.) M. Roem. 77  
**Murdannia** Royle 156, 157  
*nudiflora* (L.) Brenan 157  
*scapiflora* (Roxb.) Royle 157, 158  
*spirata* (L.) Bruckn. 157, 158  
**Murraya** L. 46, 47  
*exotica* L. 47  
*koenigii* (L.) Spreng. 47  
*paniculata* (L.) Jacq. 47  
*Myrobalanus bellirica* Gaertn. 72  
**MYRSINACEAE** 28, 98  
**MYRTACEAE** 26, 73  
*Myrtus cumini* L. 73  
**Narenga** Bor 168, 178  
*porphyrocoma* (Hance ex Trin.) Bor 178  
*Nasturtium officinale* R. Br. 37  
*Nauclea cordifolia* Willd. ex Roxb. 80  
**Nelsonia** R. Br. 118, 121  
*campestris* R. Br. 121  
*canescens* (Lamk.) Spreng. 121  
**Neodistemon** Babu & Henry 144, 146  
*indicum* (Wedd.) Babu & Henry 146  
**Nepeta** L. 126, 129  
*graciliflora* Benth. 129  
*indica* L. 127  
*Nephrodium cochleatum* D. Don 191  
**Nervilia** Comm. ex Gaud. 151  
*crispata* (Bl.) Schltr. 151  
**Neyradia** Hook. f. 168, 178  
*arundinacea* (L.) Henr. 178  
**NYCTAGINACEAE** 30, 130  
*Nyctanthes* L. 100  
*arbor-tristis* L. 100  
**Oberonia** Lindl. 152  
*falconeri* Hook. f. 152  
*Ocimum benghalensis* Burm. f. 130  
*frutescens* L. 129  
*Ocotea lanceolata* Nees 136  
*Odina wodier* Roxb. 52  
**Oenothera** L. 75, 76  
*octovalvis* Jacq. 76  
*rosea* L. Herit ex Ait. 76  
**OLACACEAE** 25, 48  
**Olax** L. 48  
*nana* Wall. ex Benth. 48  
*Oldenlandia corymbosa* L. 82  
*gracilis* (Wall.) Hook. f. 82  
*nudicaulis* Roth. 82  
*verticillata* L. 83  
**Olea** L. 100  
*glandulifera* Wall. ex G. Don 100  
**OLEACEAE** 28, 100  
**ONAGRACEAE** 27, 75  
**OPHIOGLOSSACEAE** 34, 187  
**Ophioglossum** L. 187  
*flexuosum* L. 187  
*reticulatum* L. 187  
**Oplismenus** P. Beauv. 166, 179  
*burmanii* (Retz.) P. Beauv. 179  
*compositus* (L.) P. Beauv. 179  
**ORCHIDACEAE** 32, 150  
**OROBANCHACEAE** 30, 116  
**Orthanthera** Wight. 102, 103  
*viminea* Wight & Arn. 103  
**Orthosiphon** Benth. 126, 129  
*rubicundus* (D. Don) Benth. 129  
*Otosema extensa* Benth. 61  
*Ougeinia dalbergioides* Benth. 59

- OXALIDACEAE 25, 45**  
**Oxalis** L. 45, 46  
*corniculata* L. 46  
*reinwardtii* Zucc. 45  
**Pachystoma** Blume 150, 152  
*senile* (Lindl.) Reichb. f. 152  
**Panicum** L. 168, 179  
*accrescens* Trin. 173  
*antidotale* Retz. 179  
*austro-asiaticum* Ohwi 180  
*barbatum* Lamk. 182  
*bengalense* Spreng. 169  
*burmanii* Retz. 179  
*colonum* L. 174  
*compositum* L. 179  
*dactylon* L. 172  
*distachyum* L. 171  
*geniculatum* Lamk. 182  
*glaucum* L. 182  
*homonymum* Steud. 182  
*montanum* Roxb. 179  
*paniculiferum* Steud. 183  
*pumilum* Poir. 183  
*ramosum* L. 171  
*walense* Mez. 179, 180  
**PAPAVERACEAE 23, 36**  
*Parietaria zeylanica* L. 147  
**PARKERIACEAE 34, 188**  
**Paspalum** 167, 180  
*longiflorum* Retz. 174  
*scrobiculatum* L. 180  
**Passiflora** L. 78  
*foetida* L. 78  
**PASSIFLORACEAE 27, 78**  
**Pavetta** L. 80, 83  
*indica* L. Var. *tomentosa* (Roxb.)  
Hook. f. 83  
*tomentosa* Roxb. ex Smith 83  
**PEDALIACEAE 30, 117**  
*Petanthera solandra* Roth. 101  
**Pennisetum** Rich 166, 180  
*pedicellatum* Trin. 180  
**Pentanema** Cass. 85, 94  
*indicum* (L.) Ling. 94  
*vestitum* (Wall. ex DC.) Ling. 94  
*Peplis indica* Willd. 75  
**Perilepta** Bremek. 118, 121  
*auriculata* (Nees) Bremek. 121  
**Perilla** L. 126, 129  
*frutescens* (L.) Britt. 129  
*ocymoides* L. 129  
*Periploca arborea* Dennst. 102  
**Peristrophe** Nees 118, 122  
*bicalyculata* (Retz) Nees 122  
*speciosa* (Roxb.) Nees 122  
**Perotis** W. Ait. 166, 180  
*hordeiformis* Nees *apud* Hook. f. &  
Arn. 180  
**Persicaria** Mill. 133  
*barbata* (L.) Hara 133  
Var *barbata* Hara 133  
Var *gracilis* (Danser) Hara 133  
*glabra* (Willd.) Gomes de la Maza  
133, 134  
*hydropiper* (L.) Spach. 133, 134  
*nepalensis* (Meissn.) H. Gross 133,  
134  
*posumbu* (Buch.-Ham. H. Gross)  
ex D. Don 133, 134  
**Peucedanum** L. 78, 79  
*dhana* Wall. ex C.B. Clarke 79  
*Phalaris zizanioides* L. 184  
*Phaseolus radiatus* L. 65  
*trilobus* auct. pl. non (L.) Ait. 66  
**Phlogacanthus** Nees 118, 122  
*thyrsiflorus* (Roxb.) Nees 122  
*Phlomis cephalotes* Roth. 128  
*nepetaefolia* L. 128

- Phoebe** Nees 135, 136  
*lanceolata* (Nees) Nees 136
- Phoenix** L. 158  
*acaulis* Roxb. ex Buch.-Ham. 158  
*humilis* Royle ex Beccari & Hook. f. 158
- Phragmites** Trin. 168, 180  
*karka* (Retz.) Trin. ex Steud. 180
- Phyllanthus** L. 137, 141  
*debilis* Klein ex Willd. 141  
*emblica* L. 142  
*simplex* Retz. 142  
*urinaria* L. 142  
*virgatus* Forst. 142  
*virosus* Roxb. ex Willd. 143
- Phyllodium** Desv. 53, 63  
*pulchellum* (L.) Desv. 63
- Physallis** L. 110  
*minima* L. 109, 110
- PINACEAE** 33, 186
- Pinus** L. 186  
*longifolia* Roxb. ex Lamb. 186  
*roxburghii* Sargent 186
- Piper** L. 135  
*nepalense* Miq. 135
- PIPERACEAE** 31, 135
- Pistacia Oleosa* Lour. 51  
*Pladera decussata* Roxb. 104
- Plectranthus** L. Herit 126, 129  
*coetsa* Buch.-Ham. ex D. Don 129  
*japonicus* (Burm. f.) Koidz. 129  
*rubicundus* D. Don 129
- PLUMBAGINACEAE** 28, 98
- Plumbago** L. 98  
*zeylanica* L. 98
- Poa atrovirens* Desf. 175  
*japonica* Thunb. 175  
*tenella* L. 175  
*unioloides* Retz. 175
- POACEAE** 33, 165
- Pogonatherum** P. Beauv. 166, 180  
*contortum* Brongn. 181  
*paniceum* (Lamk.) Hack. 180
- Pogonia crispata* Blume 151
- Pogostemon** Desf. 126, 130  
*benghalensis* (Burm. f.) O. Kuntze 130  
*plectranthoides* Desf. 130
- Pollinia ciliata* Trin. 178
- Polygala** L. 38  
*arvensis* Willd. 38  
*chinensis auct. pl. non L.* 38  
*crotalarioides* Buch.-Ham. ex DC. 38
- POLYGALACEAE** 24, 38
- POLYGONACEAE** 31, 133
- Polygonum** L. 133, 134  
*alatum* Buch.-Ham. ex Spreng. 134  
*barbatum* L. 133  
*barbatum* Sub Sp. *gracile* Danser 133  
*glabrum* Willd. 134  
*hydropiper* L. 134  
*nepalense* Meissn. 134  
*plebeium* R. Br. 134  
*posumbu* Buch.-Ham. ex D. Don 134
- Polypodium crenatum* Forsk. 190  
*nudatum* Roxb. 189
- Pontederia hastata* L. 156  
*vaginalis* Burm. f. 156
- PONTEDERIACEAE** 32, 156
- Porana** Burm. f. 109  
*paniculata* Roxb. 109
- Portulaca** L. 39  
*Oleracea* L. 39
- PORTULACACEAE** 24, 39
- Potamogeton** L. 159

- crispus* L. 159  
*indicus* Roxb. 159  
*nodosus* Poir 159
- Pothos** L. 159  
*cathartii* Schott 159
- Pouzolzia** Gaud. 144, 146  
*indica* (L.) Gaud. 147  
*pentandra* (Roxb.) Benn. 146  
*zeylanica* (L.) Benn. & Brown 146, 147
- Premna** L. 123, 125  
*barbata* Wall. ex Schauer 125  
*herbacea* (Roxb.) Moldenke 125  
*mucronata* Roxb. 125
- Prenanthes acaulis* Roxb. 94  
*japonica* L. 96  
*procumbens* Roxb. 94
- PRIMULACEAE** 28, 98
- Pronephrium** Presl. 188, 189  
*nudatum* (Roxb.) Holtt. 189
- Prunella indica* Burm. f. 126-127
- Pseudopogonatherum* A. camus 165, 181  
*contortum* (Brongn.) A. camus 181
- Pseudosorghum* 166, 181  
*fasciculare* (Roxb.) A. camus 181
- PSILOTACEAE** 33, 186
- Psilotrichum* Blume 130, 132  
*ferrugineum* (Roxb.) Moq 132
- Psilotum* Swartz 186  
*nudum* (L.) Griseb. 186
- PTERIDACEAE** 34, 187
- Pteris* L. 187  
*biaurita* L. 187  
*farinosa* Forsk. 187
- Pueraria* DC. 53, 63  
*tuberosa* (Roxb. ex Willd.) Dc. 63
- Pupalia* Juss 130, 132  
*lappacea* (L.) Juss 132
- Putranjiva roxburghii* Wall. 140
- Pycerus globosus* Reichb. 162  
*pumilus* (L.) Domin 163
- Pygmaeopremna** Merr. 123, 125  
*herbacea* (Roxb.) Moldenke. 125
- Quamoclit pinnata* Boj 109  
*phoenica* Chois 108
- Rabdosia coetsa* (Buch.-Ham. ex D. Don) Hara 129  
*Randia dumetorum* (Retz.) Lamk. 84
- RANUNCULACEAE** 23, 35
- Ranunculus** L. 35  
*sceleratus* L. 35
- RHAMNACEAE** 25, 48
- Rhamnus oenoplia* L. 50  
*xylopyras* Retz. 50
- Rhynchoglossum** Blume 117  
*obliquum* Bl. 117
- Rhynchosia** Lour. 53, 64  
*minima* (L.) DC. 64
- Ricinus** L. 137, 142  
*communis* L. 142
- Robinia candida* Roxb. 65
- Rondeletia exserta* Roxb. 84
- Rorippa** Scop. 36, 37  
*nasturtium-aquaticum* (L.) Hayek 37
- ROSACEAE** 26, 70
- Rotala** L. 74  
*indica* (Willd) Koehne 75  
*mexicana* Cham. et Schlechtend 74, 75  
*rotundifolia* (Buch. Ham. ex Roxb) Kohne. 75
- Rottboellia** L. f. 168  
*exaltata* L. f. 181
- RUBIACEAE** 28, 79

- Rubus** L. 70, 71  
*ellipticus* Smith 71  
*lasiocarpus* Smith. 71  
*niveus* Thunb. 71  
**Ruellia** *anagallis* Burm. f. 113  
*antipoda* L. 113  
*beddomei* C.B. Clarke 120  
**Rumex** L. 133  
*dentatus* L. 135  
*hastatus* D. Don 135  
**Rungia** Nees 118, 122  
*parviflora* Nees Var *pectinata* (L.)  
C.B. Clarke 122  
*pectinata* (L.) Nees 122  
**RUTACEAE** 25, 46  
**Sabia** Colebr 51  
*paniculata* Edgew. 51  
**SABIACEAE** 26, 51  
**Saccharum** L. 168, 181  
*bengalense* Retz. 181  
*filifolium* Nees ex Steud. 175  
*filifolium* Steud. 175  
*narenga* (Nees ex Steud.) Hack.  
178  
*paniceum* Lamk. 180  
*spontaneum* L. 181  
*Sagenia macrodonta* Fee 191  
**SALICACEAE** 32, 150  
**Salix** L. 150  
*tetrasperma* Roxb. 150  
**Salvia** 126, 130  
*plebeia* R. Br. 130  
**SAPINDACEAE** 26, 51  
**Sapium** P. Br 137, 142  
*insigne* (Royle) Benth. ex Hook. f.  
142  
*insigne* Trimen 142  
**SAPOTACEAE** 28, 99  
**Saussurea** DC. 86, 94  
*candicans* (DC.) C.B. Clarke 94  
*heteromalla* (D. Don) Hand.-Mazz.  
94  
**Schleichera** Willd. 51  
**Oleosa** (Lour.) Oken. 51  
*trijuga* Willd. 51  
**Scirpus** L. 160, 164  
*barbatus* Rottb. 160  
*bisumbellatus* Forsk 164  
*chinensis* Munro 165  
*chinensis* Osb. 164  
*comosus* Wall. 163  
*dichotomus* L. 164  
*miliacea* L. 164  
*mucronatus* L. 164  
*ternatanus* Reinw. 164, 165  
**Scleria** Berg. 160, 165  
*hebecarpa* Nees 165  
*laevis* Retz. 165  
*parvula* Steud. 165  
*tesellata* auct non Willd. 165  
**Scoparia** L. 111, 115  
*dulcis* L. 115  
*Scrophularia chinensis* L. 116  
**SCROPHULARIACEAE** 29, 111  
**Scurrula** L. 136  
*cordifolia* (Wall.) G. Don 136  
**Scutellaria** L. 126, 130  
*japonica* Burm. f. 129  
*repens* Buch.-Ham. ex D. Don 130  
*Sebifera glutinosa* Lour. 135  
**Securinega** Comm. ex Juss 137,  
143  
*virosa* (Roxb. ex Willd.) Baill. 143  
**Selaginella** P. Beauv. 186  
*chrysocaulos* (HK. & Grev.) Spring  
186  
**SELAGINELLACEAE** 34, 186  
**Semecarpus** L. f. 51, 52

- anacardium* L. *f.* 52  
**Senecio** L. 85  
*nudicaulis* Buch.-Ham. ex D. Don 94  
*Serratula arvensis* L. 90  
**Sesamum** L. 117  
*indicum* L. 117  
*orientale* L. 117  
**Sesbania** Scop. 53, 64  
*aculeata* Pers. 64  
*bispinosa* (Jacq.) W.F. Wright 64  
**Setaria** P. Beauv. 166, 182  
*barbata* (Lamk.) Kunth 182  
*geniculata* (Lamk.) P. Beauv. 182  
*glauca* (L.) P. Beauv. 182  
*homonyma* (Steud.) Choiv. 182  
*paniculifera* (Steud.) Fourn. ex Hemsl. 182, 183  
*pallide-fusca* (K. Schum) Stapf & Hubb. 183  
*pumila* (Poir) Roem. & Schult. 182, 183  
**Shorea** Roxb. ex Gaertn. 39, 151  
*robusta* Gaertn. *f.* 39  
**Shuteria** Wight & Arn. 52, 64  
*densiflora* Benth. 64  
*involucrata* (Wall.) Wight & Arn. 64  
**Sida** L. 40, 41  
*acuta* Burm. *f.* 41  
*cordata* (Burm. *f.*) Borss 41  
*cordifolia* L. 41  
*indica* L. 40  
*rhombifolia* L. 41, 42  
*veronicaefolia* Lamk. 41  
**Siegesbeckia** L. 85, 95  
*orientalis* L. 95  
**SINOPTERIDACEAE** 34, 187  
***Styrbium nasturtium-aquaticum***  
L. 37  
**Smilax** L. 154, 156  
*macrophylla* Roxb. 156  
*ovalifolia* Roxb. ex D. Don 156  
**Smithia** W. Ait. 53, 64  
*sensitiva* W. Ait. 64  
**Solandra lobata** Murr. 40  
**SOLANACEAE** 29, 109  
**Solanum** 109, 110  
*anguivi* Lamk. 110  
*erianthum* D. Don 110  
*incanum* L. 110  
*indicum* auct. non L. 110  
*nigrum* L. 110  
*surattense* Burm. *f.* 110, 111  
*verbascifolium* auct. pl. non L. 110  
*viarum* Dunal 110, 111  
*xanthocarpum* Schrad & Wendl. 111  
**Soliva** Ruiz. et Pav. 84, 95  
*anthemifolia* (Juss.) R. Br. 95  
**Sonchus** L. 84, 95  
*arvensis* auct. pl. non L. 95  
*wightianus* DC. 95  
**Sonerila** Roxb. 73  
*tenera* Royle 73  
**Sorghum** Moench. 168, 183  
*halepense* (L.) Pers. 183  
*nitidum* (Vahl) Pers. 183  
*Spermacoce articularis* L. *f.* 81  
*hispida* L. 81  
*pusilla* Wall. 81  
**Spermadictyon** Roxb. 80, 83  
*suaveolens* Roxb. 83  
**Sphaeranthus** L. 84, 95  
*indicus* auct. pl. non L. 95  
*senegalensis* DC. 95

- Sponia politoria* Planch. 143  
**Sporobolus** R. Br. 166, 183  
*coromandelianus* (Retz.) Kunth 183  
*Stemodia repens* Benth. 112  
**STERCULIACEAE** 24, 42  
*Sterculia pallens* Wall. ex King. 43  
**Steriospermum** Cham. 117  
*chelonoidea* (L.f.) DC. 117  
*suaveolens* (Roxb.) DC. 117  
**Streblus** Lour. 147, 150  
*asper* Lour. 150  
**Striga** Lour. 111, 116  
*angustifolia* (D. Don) Saldanha 116  
*euphrasioides* auct. non Benth. 116  
*Strobilanthes auriculatus* Nees 121  
*Var edgeworthiana* 121  
**Syzygium** Gaertn. 73, 152, 186  
*cumini* (L.) Skeels 73, 186  
**TAMARICACEAE** 24, 39  
**Tamarix** L. 39  
*dioica* Roxb. ex Roth. 39  
*Tanacetum purpureum* D. Don 91  
**Tectaria** Cavanilles 191  
*macrodonga* (Fee) C. Chr. 191  
**Tephrosia** Pers. 53, 64  
*candida* (Roxb.) DC. 64, 65  
*purpurea* (L.) Pers. 65  
**Terminalia** L. 71, 72  
*alata* Heyne ex Roth 72  
*bellirica* (Gaertn) Roxb. 72  
*chebula* Retz. 72  
*tomentosa* (Roxb.) Wight. & Arn. 72  
*Tetranthera monopetala* Roxb. 135  
**Tetrastigma** Planch. 50  
*campylocarpum* (Kurz) Planch 50  
**Thalictrum** L. 35  
*javanicum* Bl. 35  
**THELYPTERIDACEAE** 34, 188  
**Themeda** Forssk. 168, 184  
*arundinacea* (Roxb.) Ridley 184  
*quadrivalvis* (L.) O. Kuntze 184  
*villosa* (Poir) A. Camus 184  
**Thespesia** Soland ex Correa 40  
*lampas* (Cav.) Dalz. & Gibs. 42  
*macrophylla* auct. pl. non Bl. 42  
**Thysanolaena** Nees 167, 184  
*maxima* (Roxb.) O. Kuntze 184, 185  
**TILIACEAE** 24, 43  
**Toona** M. Roem. 47  
*ciliata* Roem 47  
**Torenia** L. 111, 116  
*cordifolia* Roxb. 116  
**Trema** Lour. 143  
*politoria* (Planch) Blume 143  
**Trichodesma** R. Br. 105, 106  
*indicum* (L.) R.Br. 106  
**Trichosanthes** L. 77  
*bracteata* (Lamk.) Voigt. 77  
*cucumerina* L. 77  
*dioica* Roxb. 77, 78  
*palmata* Roxb. 77  
*tricuspidata* Lour. 77  
**Tridax** L. 85, 95  
*procumbens* L. 95  
**Triumfetta** L. 43, 44  
*annua* L. 44, 45  
*rhomboidea* Jacq. 44, 45  
**Typha** L. 159  
*angustata* Bory & Chaub 159  
*angustifolia* L. 159  
**TYPHACEAE** 33, 159  
**ULAMACEAE** 31, 143  
*Ulmus integrifolia* Roxb. 143

- Uraria** Desv. 53, 65  
*alopecuroides* (Roxb.) Wight 65  
*lagopodioides* (L.) Desv. 65  
*lagopus* Dc. 65  
*neglecta* Prain 65  
**Urena** L. 40, 42  
*lobata* L. 42  
*Urostigma arnottiana* Miq. 148  
**Urtica** L. 144  
*ardens* Link. 147  
*longifolia* Burm. f. 144, 146  
*parviflora* Roxb. 147  
*pentandra* Roxb. 146  
**URTICACEAE** 31, 144  
*Uvaria velutina* Dunal 36  
**Vallisneria** Burm. f. 101  
*heynei* Spreng. 101  
*solanacea* (Roth.) O. Kuntze 101  
**Vanda** Jones 152  
*parviflora* Lindl. 152  
*testacea* (Lindl.) Reichb. f. 152  
*? trichorhiza* Hook. 151  
*Vandellia crustacea* (L.) Benth. 114  
*nummularifolia* D. Don 114  
*pedunculata* Benth. 113  
*pyxidaria* (L.) Maxim. 114  
*sessiliflora* Benth. 114  
**Ventilago** Gaertn. 48, 49  
*denticulata* Willd. 49  
*maderaspatana* auct. non Gaertn. 49  
**Verbascum** L. 111, 116  
*chinense* (L.) Santapau 116  
*Verbena nodiflora* L. 125  
**VERBENACEAE** 30, 123  
*Verbesina acmella* L. 88  
*lavenia* L. 87  
*prostrata* L. 91  
**Vernonia** Schreb. 86, 96  
*anthelmintica* (L.) Willd. 96  
*cinerea* (L.) Less 96  
*squarrosa* (D. Don) Less 96  
*teres* Wall. ex DC. 96  
**Veronica** L. 111, 116  
*anagallis* L. 116  
*anagallis-aquatica* L. 116  
**Vetiveria** Lem.-Lisanc 168, 184  
*zizanioides* (L.) Nash 184  
**Vigna** Savi 53, 65  
*radiata* (L.) Wilizekin 65  
*trilobata* (L.) Verdc. 65, 66  
**Viscum** L. 136  
*articulatum* Burm. f. 136  
**VITACEAE** 25, 50  
**Vitex** L. 123, 125  
*negundo* L. 125  
*Vitis campylocarpa* Kurz 50  
*divaricata* Wall. ex Lawson 50  
*Volvulopsis nummularia* (L.) Roberty 108  
**WALLICHIA** Roxb. 158  
*densiflora* Mart. 158  
**Wendlandia** Bart. ex DC. 80, 84  
*exserta* (Roxb.) DC. 84  
**Woodfordia** Salisb. 74, 75  
*floribunda* Salisb. 75  
*fruticosa* (L.) Kurz 75  
**WOODSIACEAE** 34, 190  
**Wrightia** R. Br. 100, 102  
*arborea* (Dennst.) Mabb. 102  
*tomentosa* Roem. & Schult 102  
**Xanthium** L. 86, 96  
*strumarium* L. 96  
**Xeromphis** Raf. 80, 84  
*spinosa* (Thunb.) Keay 84  
**Youngia** Cass 85, 96  
*japonica* (L.) DC. 96  
**Zingiber** Boehm. 153



- capitatum* Roxb. 153  
*roseum* (Roxb.) Rosc 153  
**ZINGIBERACEAE** 32, 152  
*Ziziphus* Mill. 49  
*jujuba* Lamk. 47  
*mauritiana* Lamk. 49  
*oenopia* (L.) Mill. 49, 50  
*xylopyros* (Retz.) Willd. 49, 50  
*Zornia* J.F. Gmelin 53, 66  
*diphylla auct. pl.* non Pers. 66  
*gibbosa* Spanoghe 66

## ERRATA

Page No.	Line	Print as	Read As
27	24	altelrnate,	alternate,
29	31	Herb	Herbs
43	13	flowers	Flowers
43	33	<i>C. acutangulus</i>	<i>C. acutangulus</i> Lamk.
49	8	Aut.	Aug.
60	8	Iourn	Journ
67	1	Wanderlin	Waunderlin
67	1	Buch. Ham	Buch.-Ham
67	20	<i>bodue</i>	<i>bonduc</i>
70	35	P.L. lanzenfam.	Pflanzenfam.
81	17	<i>S. stricta</i>	<i>S. stricta</i>
93	21	<i>Amphæaphus</i>	<i>Amphêhapis</i>
94	34	Murcate	Muricate
97	15	<b>2. LOBELIA L.</b>	<b>2. LOBELIA L.</b>
97	18	<i>L. alsinoides</i> 2	<i>L. alsinoides</i> 1.
98	1	Sulatan Sot	Sultan Sot
105	20	Pl. Aegypt-Arab.	Fl. Aegypt.-Arab.
106	23	Sub orbicular	Suborbicular
106	33	Jhnston	Jhonston
107	34	Jhirha	Jhirna
109	9	Pesti-gridis	Pes-tigridis
112	23	Under surface	Undersurface
114	2	Saproduli	Sorpaduli
129	6	Netlets	Nutlets
129	30	** <i>P. japonicus</i>	** <i>P. japonicus</i>
130	4	Mas.	Mus.
132	22	Utricles	Utricles
133	33	brabata	Parbata
133	34	(2)	(12)
134	3	1986	1896
138	34	Leafless	Leaflets
140	15	189,193	189 & 193
142	22	Sep.;	Sept.;
156	13	sub-capitate	subcapitate
162	22	<b>C.Kyllinga</b>	<b>C. Kyllingia</b>
163	13	f.	fl.
163	28	withlong	with long
163	29	lanceolatye,	lanceolate,
163	30	ellisoid	ellipsoid
164	7	Pl.	Fl.
164	32	asingle	a single
164	33	leafyon	leafy on
167	11	face	faces
169	32	Indi.	Ind.
170	20	Tall all grass	Tall grass.
171	33	Jamanagawar	Jamnagawar
180	25	Bujrani	Bijrani
186	22	Burx.	Burx.