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## FOREWORD.

This publication "The Kandy Flora" has been prepared for the use of the Schools of Kandy and of students interested in the flora of the mid-country of Ceylon. It is intended subsequently to produce companion volumes dealing with "The Colombo", "The Jaffna", and possibly also "The Batticaloa" floras.

The area covered by the present volume includes all the country within easy walking distance of Kandy, but does not include the hill slopes of Hantane which have quite a different flora. Introduced species, now found wild, are printed in small capitals. Most of the species which may be expected to be found at elevations of 1,500 feet are included in this work but its use is not limited to this area. It will also be useful for schools at Colombo for the recognition of plants which are not sea-side species.

The work has been made as complete as possible but it is necessary to keep it within reasonable limits of size and several species which were not found in flower during its preparation have perforce had to be omitted.

The illustrations are mostly one-quarter natural size, but the dissections of the flowers have been enlarged. They have been prepared from unpublished paintings preserved in the Herbarium at Peradeniya with dissections of flowers by Dr. G. H. K. Thwaites, and from original drawings made by Messrs. A. de Alwis and A. G. Alwis under the supervision of the author.

The whole work has been written in popular language and the price has been kept down as low as possible in order that purchase may be within the means of every student. Botany should be encouraged by all schools in the Colony as a hobby as well as a class-room subject. It is a study which provides for healthy rambles in the open air and helps to train and to sharpen the powers of observation of all its followers.

Peradeniya, October 27, 1928.

F. A. STOCKDALE,  
Director of Agriculture.

## NOTE.

The completion of the manuscript of Mr. Alston's book on "The Kandy Flora" coincided with a period of financial depression in the Island and it was then decided that its publication must await more prosperous times. The financial situation has now improved to an extent which justifies the publication of this important contribution to our knowledge of the local flora and it is hoped that its appearance will be welcomed by all students of botany in Ceylon, not only in the mid-country districts but even further afield. I am indebted to Dr. J. C. Haigh, the present Botanist to the Department of Agriculture, for having revised the proofs of this publication.

Peradeniya, October 6, 1937.

E. RODRIGO,  
Acting Director of Agriculture.

## INTRODUCTION.

In tropical countries vegetation, when left in a natural state, is mainly influenced by two factors—rainfall and altitude. Peradeniya has an altitude of 1,550 ft. and a rainfall of 88 in. falling on an average of 170 days. The driest season of the year is from January to May. The mean average temperature is 76°F. but falls as low as 55°F. Though outside the area of this work the Hantan<sup>9</sup> mountain, 4,200 ft., shows the effect of altitude and incidentally of increased rainfall with its numerous species of *Syzygium*, with an undergrowth of *Strobilanthes*, abundance of epiphytic orchids, and hanging masses of Meteoriaceous mosses. While along the Ampitiya road *Phyllanthus polyphyllus* and *Dichrostachys cinerea* are stragglers from drier regions.

In a state of nature the whole region would be covered with a uniform forest, slightly altered in composition or replaced by reeds along the banks of rivers or in badly drained swampy places, the “ climatic climax ” for the region. Man, who cuts down the forests and burns the patanas, has substituted for the primaeval forest a large number of different groups of plants which habitually grow together in “ formations ” or “ associations ”. The large number of alien species found in some of the more artificial formations is especially noteworthy.

Taking first the dry land plants. These are mostly *mesophytes* and may be grouped in the following formations.

1. **Estate and Garden Weeds.**—The estate weeds fall into two classes.

1. Short lived plants that flower quickly and fruit abundantly :—*Cleome monophylla*, *Peperomia Fraseri*, *Cardamine hirsuta*, *Drymaria cordata*, *Portulaca oleracea*, *P. quadrifida*, *Biophytum Reinwardtii*, *Phyllanthus Niruri*, *Euphorbia hirta*, *E. thymifolia*, *Pilea microphylla*, *Hydrocotyle sibthorpioides*, *Centella asiatica*, *Hedyotis corymbosa*, *Richardia scabra*, *Mitracarpum villosum*, *Crepis japonica*, *Vernonia cinerea*, *Erechtites valerianaefolia*, *Erigeron sumatrensis*, *Ageratum conyzoides*, *Centipeda minima* (in damp places), *Gynura crepidioides*, *Solanum nigrum*, *Stemodia verticillata*, *Torenia crustacea*, *Scoparia dulcis*, *Commelina benghalensis*, *Cyperus uncinatus*, *Stenophyllus barbatus*, *Eragrostis pilosa*, *E. tenella*, *Echinochloa colona*, *Digitaria marginata*, *Urochloa reptans*, *Paspalum Commersonii*, *Selaginella proniiflora* (in the shade), *Schizaea digitata*, *Lygodium scandens*, *Ceropteris calomelanos* (on banks), *Hemionitis arifolia* and *Cheilanthes tenuifolia*.

2. Plants with underground rhizomes or tubers, e.g., *Oxalis corymbosa*, *O. latifolia*, *O. corniculata*, *Typhonium trilobatum*, *T. Roxburghii*, *Cyperus rotundus*, *Panicum repens*, *Imperata cylindrica*.

Seedlings of *Cyclea Burmanni* and some woody plants are also common, but do not become large enough to fruit.

If a garden or an estate is neglected, robust perennials can gain a foothold and the estate becomes a “ waste place ”.

2. **Weeds of Waste Places.**—*Cleome viscosa*, *C. monophylla*, *Gynandropsis pentaphylla*, *Brassica juncea*, *Rivina humilis*, *Petiveria alliacea*, *Amarantus spinosus*, *A. viridis*, *Aerua lanata*, *Achyranthes aspera*, *Alternanthera sessilis*, *Wikstroemia viridiflora*, *Mirabilis Jalapa*, *Passiflora foetida*, *P. suberosa*, *Begonia humilis*, *Psidium Guajava*, *Quisqualis indica*, *Triumfetta Bartramia*, *Waltheria indica*, *Abutilon indicum*, *Sida rhombifolia*, *S. acuta*, *Urena lobata*, *U. sinuata*, *Phyllanthus Urinaria*, *Acalypha indica*, *Desmanthus virgatus*, *Mimosa pudica*, *Cassia bicapsularis*, *C. occidentalis*, *C. hirsuta*, *C. Tora*, *C. alata*, *C. Leschenaultiana*, *Crotalaria incana*, *C. striata*, *C. Brownei*, *Tephrosia purpurea*, *Indigofera suffruticosa*, *Desmodium tortuosum*, *D. triflorum*, *Cardiospermum microcarpum*, *Eryngium foetidum*, *Isotoma longiflora*, *Sonchus arvensis*, *S. oleraceus*, *Vernonia cinerea*, *Erechtites valerianaefolia*, *Erigeron sumatrensis*, *Mikania scandens*, *Cosmos* sp., *Bidens chinensis*, *Gynura crepidioides*, *Synedrella nodiflora*, *Tithonia diversifolia*, *Tridax procumbens*, *Lochnera rosea*, *Heliotropium indicum*, *Solanum nigrum*, *S. auriculatum*, *S. torvum*, *S. aculeatissimum*, *S. surattense*, *Datura fastuosa*, *Thunbergia alata*, *Ruellia tuberosa*, *Stachytarpheta jamaicensis*, *S. indica*, *Ocimum gratissimum*, *O. sanctum*, *O. americanum*,

*Leucas zeylanica*, *Alocasia cucullata* (in the shade), *A. macrorrhiza* (in shade), *Canna indica*, *Eleusine indica*, *Dactyloctenium aegyptiacum*, *Sporobolus diander*, *Perotis indica*, *Setaria barbata*, *S. intermedia*, *Coix Lachryma-jobi*.

An increasing number of shrubs will soon transform this into "scrub jungle", but about Kandy these are usually cut down and a "short grass" vegetation results, or burnt off giving rise to "patana" land.

3. **Short Grass.**—The following species are characteristic of this formation: *Sebastiania Chamaelea*, *Mimosa pudica*, *Alysicarpus vaginalis*, *Desmodium heterophyllum*, *Spermacoce hispida*, *Hedyotis nitida*, *H. Auricularia*, *Elephantopus scaber*, *Vernonia cinerea*, *Emilia javanica*, *Hemidesmus indicus*, *Ipomoea angustifolia*, *I. obscura*, *Striga lutea* (semi-parasitic on grasses), *Leucas biflora*, *Typhonium cuspidatum*, *Ancilema spiratum*, *Cyperus compressus*, *C. Zollingeri*, *Mariscus Dregeanus*, *M. panicus*, *M. Roxburghianus*, *M. cyperinus*, *Kyllinga monocephala*, *K. brevifolia*, *Fimbristylis annua*, *F. monostachya* together with the following grasses *Eragrostis viscosa*, *Cynodon Dactylon*, *Chloris barbata*, *Arundinella leptochloa*, *Stenotaphrum secundatum* (in light shade), *Setaria glauca*, *Brachiaria distachya*, *B. miliiformis*, *Axonopus compressus*, *Panicum trypheron*, *Paspalidium flavidum*, *Hemigymnia javanica*, *Alloteropsis cimicina*, *Digitaria longiflora*, *Ischaemum ciliare*, *I. commutatum*, *Arthraxon rudis*, *Amphilophis pertusa*, *Chrysopogon aciculatus*, *Themeda australis*, *T. tremula*. The species are quite different where isolated large trees are found. For example *Cissampelos Pareira*, *Sida veronicaefolia*, *Teramnus mollis*, *Hydrocotyle javanica*, *Ichnocarpus frutescens*, *Elytraria acaulis*, *Phayloopsis imbricata*, *Rhinacanthus nasuta*, *Ruellia ringens*, *Rungia pectinata*, *Justicia procumbens*, *Commelina nudiflora*, *Ancilema malabaricum*, *Curculigo Finlaysonianae*, *Mariscus tenuifolius*, *Pseudechinolaena polystachya*, *Cyrtococcum trigonum* (usually dominant), *Hemigymnia Arnottiana*, *Paspalum conjugatum*, *Pogonatherum panicum* (on steep banks).

When neglected, shrubs invade these grassy areas and they become "scrub jungle". If the area is burnt to get rid of the shrubs the majority of the species are destroyed and replaced by robust "patana" grasses.

4. **Patana Lands.**—*Osbeckia octandra*, *Cassia mimosoides*, *Crotalaria evoluloides*, *Tephrosia tinctoria*, *Atylosia albicans*, *Calotropis gigantea*, *Imperata cylindrica*, *Pollinea argentea*, *Cymbopogon confertiflorus* (*Mana* grass), *Apluda varia*, *Gleichenia linearis* are common on the "patanas"; the *Mana* grass being dominant.

It is noticeable that the patana and the jungle are often bounded by sharp lines; according to Pearson (Journ. Linn. Soc. 34) this is due to burning. The patanas are burnt so that cattle can eat the young shoots of the *Mana* grass (or at high elevations to destroy the tussock forming grasses *Arundinella villosa* and *Chrysopogon zeylanicus* and replace them by more palatable grasses like *Ischaemum ciliare* var. *longipilum*). On these patanas only a few, gnarled, fire-resisting, usually thick-barked trees can survive, of these *Emblia officinalis*, *Careya arborea*, *Glochidion zeylanicum*, *Anacardium occidentale* (rare and not native) are examples. In sheltered ravines, where the fires are not stimulated by the breeze, a few shrubs join the trees and scrub jungle results.

If the patanas were never burnt the jungles would slowly advance across them; this advance would be very slow as the soil on the patanas has been thinned by erosion.

5. **Scrub Jungle.**—This formation is largely composed of plants with a good method of dispersal such as, (1) Fleshy fruits probably eaten by birds:—Shrubs: *Ladsiophon eriocephalus*, *Carallia brachiata*, *Grewia Microcos*, *Flueggea leucopyrus*, *Breynia retusa*, *B. rhamnoides*, *Trema orientalis*, *Ficus hispida*, *F. asperima*, *Loranthus tomentosus*, *L. falcatus*, *Zizyphus Oenoplia*, *Acronychia pedunculata*, *Brucea amarissima*, *Cipadessa baccifera*, *Dodonaea viscosa*, *Schleichera oleosa*, *Ixora coccinea*, *Lantana trifolia*, *L. aculeata*, *Callicarpa tomentosa*—Climbers: *Cyclea Burmanni*, *Cissampelos Pareira*, *Elaeagnus latifolia*, *Toddalia asiatica*, *Mussaenda frondosa*, *Argyrea populifolia*, *Asparagus falcatus*. (2) Fruits wind-carried:—*Hiptage benghalensis*, *Aristolochia indica*, *Verponia Hookeriana*, *V. zeylanica*, *Mikania scandens*, *M. rosglossa zeylanica*, *Alstonia scholaris*, *Ichnocarpus frutescens*, *Tylophora indica*, *Nephrolepis exaltata*. (3) Fruits carried by animals:—*Pseudarthria viscida*.

There are others with no very obvious methods of dispersal, whose seeds may retain their vitality over long periods. *Hibiscus furcatus*, *Melochia umbellata*, *Croton lacciferus*, *Macaranga peltata*, *Crotalaria laburnifolia*, *Caesalpinia Sappan* (not native), *Wendlandia thyrsoides*, *Justicia Betonica*; Climbers: *Centrosema pubescens*.

6. **Jungle.**—Plant life in the jungle is engaged in a struggle for light, the number of herbaceous types is therefore small and they have large thin leaves; thus exposing a large area to the diffuse sunlight. *Heckeria subpeltata*, *Impatiens bifida*, *Desmodium ormocarpoides*, *Desmodium heterocarpum*, *Pouzolzia zeylanica*, *Ophiorrhiza Mungos*, *O. radicans*, *Epithema carnosum* (on rocks), *Pogostemon Heyneanus*, *Aglaonema oblongifolium*, *Cyanotis zeylanica*, *Dracaena Thwaitesii*, *Dianella ensifolia*, *Anomum hypoleucum*, *A. echinocarpum*, *A. masticatorium*, *Zingiber Zerumbet*, *Costus speciosus*, *Mariscus pictus*, *Fimbristylis dura*, *Scleria lithosperma*, *Centotheca latifolia*, *Oplismenus compositus*, *Panicum brevifolium*, *Cyrtococcum oxyphyllum*, *Pollinia ciliata*, *Ischaemum timorense*, *Selaginella brachystachya*, *Angiopteris evecta*, *Dryopteris parasitica*, *Polystichum cristatum*, *Leptochilus zeylanicus* (on banks), *Blechnum occidentale*, *Nephrolepis exaltata*, *Schizoloma ensifolium*, *Doryopteris concolor*, *Adiantum caudatum*, *A. hispidulum*, *Pteris biaurita*, *P. ensiformis* are examples. The dominant plants in the struggle for light are naturally the large trees:—*Michelia Champaca*, *Canangium odoratum*, *Cyathocalyx zeylanicus*, *Gyrinops ualla*, *Terminalia bellirica*, *Garcinia Morella*, *Pterygota Thwaitesii*, *Gossampinus malabaricus*, *Mallotus philippinensis*, *M. tetracoccus*, *Albizia chinensis*, *A. odoratissima*, *Cassia siamea*, *Cellis cinnamomea*, *Gironniera cuspidata*, *Ficus asperrima*, *F. nervosa*, *F. cotoneaeifolia*, *F. lucescens*, *F. Mooniana*, *F. retusa*, *F. Tsjakela*, *Streblus asper*, *Artocarpus integra*, *A. nobilis*, *Allaeanthus zeylanicus*, *Aglaia Roxburghiana*, *Chuckrasia tabularis*, *Nephelium longana*, *Filicium decipiens*, *Pometia eximia*, *Meliosma simplicifolia*, *Turpinia malabarica*, *Mangifera zeylanica*, *Semecarpus obscura*, *Nothopegia Beddomei*, *Spondias pinnata*, *Diospyros Ebenum*, *D. Walkeri*, *Alstonia scholaris*, *A. macrophylla* (introduced), *Gmelina arborea*, *Vitex pinnata*, *Caryota urens*.

Many of the trees are notable for their slender trunks and great height, a line of evolution better shown by the palm and bamboo types. The ancestral palm-type was perhaps a stemless rosette plant, like *Phoenix pusilla* in the dry parts of Ceylon, to survive moist jungle it developed a stem and the palm resulted (as *Phoenix zeylanica*), a similar result can be attained by growing a rosette-plant like *Sempervivum* in a moist atmosphere. Similarly the bamboo is the adaptation of the grass type to forest conditions. Some trees like *Canangium odoratum* and *Cyathocalyx zeylanicus* shed their lower branches. The bark is comparatively smooth in nearly all the species and often very thin (under 1/10 in. in *Aglaia*).

Some plants reach the light by climbing on others of which examples are:—*Uvaria macropoda*, *Naravelia zeylanica*, *Hypserpa cuspidata*, *Anamirta Cocculus*, *Stephania japonica*, *Piper sylvestre*, *Passiflora stipulata*, *Adenia palmata*, *Croton caudatus*, *Rubus indicus*, *Caesalpinia Bonduc*, *Dumbaria Heynei*, *Dalbergia pseudo-Sissoo*, *Plecospermum spinosum*, *Hippocratea indica*, *Salacia reticulata*, *Cansjera Rheedii* (a root-parasite according to Barber Mem. Dept. Agr. Ind. Bot. Ser. II. Pt. I.) *Zizyphus rugosa*, *Gouania microcarpa*, *Ventilago maderaspatana*, *Cissus Heyneana*, *Columella pedata*, *Tetrastigma muricatum*, *Paramignya macrophylla*, *Alangium hexapetalum*, *Morinda umbellata*, *Jasminum angustifolium*, *Strychnos micrantha*, *Chonemorpha fragrans*, *Anodendron paniculatum*, *Ipomaea cymosa*, *I. obscura*, *Calamus Thwaitesii*, *C. pseudo-tenuis*, *C. zeylanicus*, *Pothos scandens*. Many of these have secondary wood of anomalous structure which as it is found in climbing plants of widely different affinities has probably some connection with the climbing habit.

Some plants have reached the light by growing on others (epiphytes); and as they cannot obtain water from the ground their leaves are generally fleshy or leathery and more or less xerophytic in structure; others like *Peperomia* have special water storing tissue: *Rhypsalis Cassytha*, *Ficus parasitica*, *Loranthus cuneatus* (semi-parasite), *L. neelgherrensis* (semi-parasite), *Schefflera stellata*, *Taeniophyllum Alwisii*, *Polystachya zeylanica*, *Angraecum holo-glottis*, *Cymbidum bicolor*, *Lactisia teretifolia*, *Dendrobium macrostachyum*, *Vanda testacea*, *V. spatulata*, *Dendrocolla*

*pulchella*, *Stenochlaena palustris*, *Drymoglossum heterophyllum*, *Pleopeltis phymatodes*, *Cyclophorus lanceolatus*, *Drynaria quercifolia* are examples. It is noticeable that they all have either fleshy fruits or minute seeds or spores.

Underneath the large trees are found a number of shrubs and small trees such as:—*Milium indica*, *Litsea longifolia*, *L. tomentosa*, *L. tersa*, *Neolitsea involucreata*, *Goniothalamus Gardneri*, *Cinnamomum zeylanicum*, *Myristica dactyloides*, *Flacourtia Ramontchi*, *Hydnocarpus venenatus*, *Ouratea zeylanica*, *Memecylon umbellatum*, *Syzygium Jambos*, *S. operculatum*, *Anisophyllea cinnamomoides*, *Grewia columnaris*, *G. orientalis*, *Calophyllum Inophyllum*, *Elaeocarpus serratus*, *Pterospermum canescens*, *Glochidion Moonii*, *G. stellatum*, *Aporosa Lindleyana*, *Antidesma Bunius*, *Mallotus Walkerae*, *Dichapetalum gelonioides*, *Myroxylon balsamum*, *Flemingia strobilifera*, *Celtis Wightii*, *Mappia ovata*, *Lea indica*, *Clausena dentata*, *Micromelum minutum*, *Glycosmis pentaphylla*, *Acronychia pedunculata*, *Thraulococcus erectus*, *Sapindus trifolius*, *Lepisanthes trichocarpa*, *Allophyllus Cobbe* (subscandent), *Pavetta indica*, *Ixora Thwaitesii*, *Canthium dicoccum*, *Psychotria nigra*, *Symplocos spicata*, *Maesa Perrottetiana*, *Ardisia humilis*, *A. Missionis*, *Fagraea zeylanica*, *Rejora dichotoma*, *Ehretia microphylla*.

Many herbaceous plants such as *Polygonum chinense*, *Dolichos falcatus*, *Vernonia Hookeriana*, *Daedalacanthus fastigiatus*, *Dioscorea spicata* are found chiefly along the margin of the jungle.

The formations requiring wet soil are divisible into three main classes:—(1) Plants found on river banks. Certain trees such as *Dillenia indica*, *Terminalia Arjuna*, *Syzygium zeylanicum*, *Mesua ferrea*, *Erythrina fusca*, *Pongamia pinnata*, *Madhuca neriifolia*, *Stereospermum tetragonum*, *Pandanus zeylanicus*, and herbs *Cryptocoryne Beckettii*, *C. lutea*, *C. Walkeri*, *C. Nevillii*, *Lagenandra ovata*, *Crinum defixum*, *Languas chinense*, *Saccharum arundinaceum* and *Themeda gigantea* are confined to river banks; and in rocky places on the banks of rivers, such plants as *Phyllanthus myrtifolius*, *Homonoia riparia*, *Justicia Hookeriana*, *Cyperus dehiscens* are dominant.

The ground on which many of these species grow is periodically flooded. It is possible that the fruits of *Dillenia indica*, for example, are water-carried and that the habitat may be connected with the fact that the leaves of many of the species (e.g. *T. Arjuna*, *S. zeylanicum*, *M. neriifolia* and *J. Hookeriana*) are narrower than those of their dry-land allies.

(2) Plants growing entirely submerged (hydrophytes). On submerged rocks in rapid perennial streams Podostemaceae abound, the larger species such as *Dicraea elongata* and *Podostemon subulatus*, being found in the quieter parts of the rapids, the smaller species *Lawia zeylanica*, *Dicraea stylosa*, *Hydrobryum olivaceum*, *Farmeria metzgerioides* in the more rapid places. They are monocarpic annuals, the seeds germinating at the beginning of the South-West monsoon (May) and flowering when the river falls at the end of February.

(3) Plants growing in marshy places (halophytes):—*Cyperus corymbosus*, *Marsilea minuta* appear to be only found in this district on the banks of Kandy Lake, which is an artificial sheet of water of comparatively recent origin.

The rice fields have a peculiar vegetation which is most noticeable after harvest, though *Dopatrium junceum*, *Fimbristylis miliacea* and *Monochoria vaginalis* are found among growing rice. *Nasturtium fontanum* (introduced), *Rotala indica*, *Ludwigia perennis*, *Hypericum japonicum*, *Lobelia trigona*, *Hydrolea zeylanica*, *Lindernia hyssopioides*, *L. pusilla*, *L. rotundifolia*, *L. cordifolia*, *L. antipoda*, *Limnophila conferta*, *L. aromatica*, *Microcarpaea minima*, *Razumovia indica*, *Eriocaulon truncatum*, *E. cinereum*, *Cyperus Iria*, *C. difformis*, *C. Haspan*, *C. fluvidus*, *C. pilosus*, *Pycreus patens*, *Scirpus supinus*, *Coelachne pulchella*, *Elytrophorus articulatus*, *Eragrostis unioides* and *Isachne australis* are found after harvest.

In wet places of a more permanent nature more robust species occur. For example: *Polypodium minus*, *P. glabrum*, *Alternanthera sessilis*, *Jussiaea tenella*, *J. suffruticosa*, *J. peruviana*, *Smithia conferta*, *Lobelia radicans* (introduced), *Epaltes divaricata*, *Elypta alba*, *Exacum trinerve*, *Artanema longifolia*, *Torenia cyanea*, *Utricularia coarctata*, *U. bifida*, *Caladium bicolor* (introduced), *Colocasia esculenta*, *Dieffenbachia Seguine* (introduced), *Cyperus distans*, *Pycreus sanguinolentus*, *P. polystachyus*,

*P. strictus*, *Fimbristylis quinquangularis*, *Lipocarpa argentea*, *Eragrostis gangetica*, *Leersia hexandra*, *Brachiaria mutica*, *Sacciolepis indica*, *Paspalum Metzii*, *Lycopodium cernuum* (often on steep banks), *Selaginella integerrima* and *Ceratopteris thalictroides*.

Xerophytes are not numerous in the Kandy district though a few are found in rocky places as at Hakkinda. *Bryophyllum pinnatum*, *Begonia malabarica*, *Opuntia vulgaris*, *Euphorbia Antiquorum*, *Dolichos biflorus*, *Pouzolzia Walkeriana*, *Cyanotis fasciculata* and *Sansevieria zeylanica* are confined to such places. Some epiphytes (see under jungle) also exhibit xerophytic features.

The author wishes to acknowledge his indebtedness to Mr. N. Subramaniam and Mr. J. E. Senaratna, both of the Agricultural Department, for revising the spelling of the vernacular names in accordance with the Governor's Minutes of August 28, 1866 (republished November 16, 1869), and for numerous additions to them.

May 6, 1929.

A. H. G. ALSTON.

## KEY TO THE FAMILIES.

Leaves net-veined ; parts of the flowers usually in fours or fives ; cotyledons 2 .. .. .	I. DICOTYLEDONS	
Leaves parallel-veined ; parts of the flowers usually in threes or sixes ; cotyledons 1 .. .. .	II. MONOCOTYLEDONS.	
I. DICOTYLEDONS.		
1. Carpels free, usually more than one ; ovary superior.		
2. Petals and sepals similar, or petals wanting ;		
3. Trees.		
4. Petals and sepals 9-12, yellow .. .. .	<i>Michelia</i> , p. ..	1
4*. Sepals 5, green .. .. .	<i>Pterygota</i> , p. ..	19
3*. Climbing plants .. .. .	<i>Anamirta</i> , p. ..	3
2*. Petals present, different from the sepals :		
5. Petals free, or united at apex ( <i>Goniothalamus</i> ) :		
6. Leaves simple.		
7. Plants without prickles.		
8. Flowers hermaphrodite .. .. .	2. <i>Annonaceae</i> , p. ..	1
8*. Flowers unisexual .. .. .	6. <i>Menispermaceae</i> , p. ..	3
7*. Plants prickly .. .. .	<i>Rubus</i> , p. ..	24
6*. Leaves compound :		
9. Leaves opposite .. .. .	<i>Naravelia</i> , p. ..	3
9*. Leaves alternate :		
10*. Stamens inserted outside the disk .. .. .	<i>Brucea</i> , p. ..	40
10. Stamens inserted inside the disk .. .. .	58. <i>Sapindaceae</i> , p. . .	41
5*. Petals united :		
11. Fruit follicular :		
12. Fruit of 4 follicles ; plants without latex .. .. .	<i>Bryophyllum</i> , p. ..	6
12*. 3b. Fruit of 2 follicles ; plants with latex.		
13. Pollen powdery .. .. .	71. <i>Apocynaceae</i> , p. ..	47
13*. Pollen united in masses .. .. .	72. <i>Asclepiadaceae</i> , p. ..	48
11*. Fruit drupaceous ; plants without latex .. .. .	<i>Cyclea</i> , p. ..	3
1*. Carpels solitary or united.		
14. Petals and sepals similar or petals wanting :		
15. Ovary superior :		
16. Ovary 2 or more-celled .. .. .	42. <i>Euphorbiaceae</i> , p. ..	21
17. Seeds numerous ; fruit a capsule.		
18. Sepals 4 ; leaves opposite .. .. .	21. <i>Lythraceae</i> , p. ..	11
18*. Sepals 2-3 ; leaves distichous or minute .. .. .	12. <i>Podostemaceae</i> , p. ..	6
17*. Seed 1-2 .. .. .	23. <i>Thymelaeaceae</i> , p. ..	12
16*. Ovary 1-celled :		
19. Leaves with stipules :		
20. Stipules forming a sheath round the stem .. .. .	<i>Polygonum</i> , p. ..	8
20*. Stipules not forming a sheath :		
21. Woody plants :		
22. Erect.		
23* Flowers unisexual ; plants usually with latex .. .. .	47. <i>Moraceae</i> , p. ..	33
23* Flowers hermaphrodite ; tree without latex .. .. .	<i>Cyathocalyx</i> , p. ..	1
22*. Climbers .. .. .	<i>Piper</i> , p. ..	5
21*. Herbs :		
24. Flowers hermaphrodite ; fruit fleshy, red. . .	<i>Rivina</i> , p. ..	9
24*. Flowers unisexual ; fruit more or less dry, green .. .. .	48. <i>Urticaceae</i> , p. ..	36
19*. Leaves without stipules :		
25. Woody plants :		
26. Sepals united :		

27. Flowers unisexual; perianth 3-lobed ..	4. <i>Myrsinaceae</i> , p...	3
28. Leaves without scales ..	23. <i>Thymelaeaceae</i> p.	12
28*. Leaves densely covered with silver scales beneath ..	53. <i>Elaeagnaceae</i> , p.	38
27*. Flowers hermaphrodite; perianth 4-5 lobed.		
26*. Sepals free:		
29. Fruit a winged capsule ..	58. <i>Sapindaceae</i> p...	41
29*. Fruit fleshy ..	3. <i>Lauraceae</i> , p.	2
25*. Herbs:		
30. Sepals present ..	18. <i>Amarantaceae</i> , p.	9
30*. Sepals wanting ..	8. <i>Piperaceae</i> , p.	5
15*. Ovary inferior:		
31. Leaves exstipulate; ovules numerous:		
32. Herbs; capsule winged, 3-celled ..	26. <i>Begoniaceae</i> , p...	13
32*. Climbing plants; capsule not winged, 6-celled ..	<i>Aristolochia</i> , p.	4
31*. Leaves with stipules:		
33. Leaves gland-dotted; stamens numerous ..	30. <i>Myrtaceae</i> , p.	15
33*. Leaves not gland-dotted; stamens 4-10 ..		
34. Flowers in heads ..	74. <i>Compositae</i> , p.	51
34*. Flowers not in heads:		
35. Stamens twice as many as the petals ..	32. <i>Combretaceae</i> , p.	16
35*. Stamens as many as the petals ..	52. <i>Rhamnaceae</i> , p...	37
14*. Petals present, different from the sepals:		
36. Petals quite free.		
37. Ovary superior.		
38. Leaves gland-dotted.		
39. Shrubs; fruit a berry ..	55. <i>Rutaceae</i> , p.	39
39*. Herbs; fruit a capsule ..	<i>Hypericum</i> , p.	17
38*. Leaves not gland-dotted.		
40. Leaves simple.		
41. Leaves alternate or radical.		
42. Stamens more than twice as many as the petals.		
43. Stamens free.		
44. Leaves fleshy ..	<i>Portulaca</i> , p	8
44. Leaves not fleshy.		
45. Leaves with stipules ..	<i>Ovatea</i> , p.	14
45*. Leaves without stipules ..	36. <i>Tiliaceae</i> , p.	18
43*. Stamens more or less united.		
46. Anthers 2-celled ..	37. <i>Sterculiaceae</i> , p...	19
46*. Anthers 1-celled ..	40. <i>Malvaceae</i> , p.	20
42*. Stamens as many to twice as many as the petals.		
47. Plant without tendrils.		
48. Herbs.		
49. Ovary 1-celled*; leaves fleshy ..	15. <i>Portulacaceae</i> , p.	8
49*. Ovary 2-celled; leaves not fleshy ..	10. <i>Cruciferae</i> , p.	6
48*. Woody plants.		
50. Leaves with stipules ..	<i>Dichapetalum</i> , p.	24
50*. Leaves without stipules:		
51. Flowers in heads ..	<i>Lasiosiphon</i> , p.	12
51*. Flowers in panicles or racemes:		
52. Stamens alternate with or twice as many as the petals; ovary 1-celled ..	61. <i>Anacardiaceae</i> , p.	43
52*. Stamens opposite the petals; ovary 2-celled ..	<i>Meliosma</i> , p.	43
47*. Plants climbing by tendrils ..	54. <i>Vitaceae</i> , p.	38

41*.	Leaves opposite or whorled :			
53.	Herbs.			
54.	Flowers pink ; sepals 4 ; leaves not 3-nerved ..	..	<i>Rotala</i> , p. ..	11
54*.	Flowers yellow ; sepals 2 ..	..	15. <i>Portulacaceae</i> , p.	8
54*.	Flowers white ; sepals 4-5.			
55.	Leaves 3-5 nerved from the base ; ovary 1-celled ..	..	<i>Drymaria</i> , p. ..	7
55*.	Leaves penninerved ; ovary 3-5-celled	..	<i>Mollugo</i> , p. ..	8
53*.	Woody plants :			
56.	Flowers irregular ; stamens 10 ; petals spurred ..	..	<i>Hiptage</i> , p. ..	21
56*.	Flowers regular ; shrubs or Climbers.			
57.	Stamens 2-5 ;			
58.	Stamens 4-5, opposite the petals ..	..	52. <i>Rhamnaceae</i> , p. . .	37
58*.	Stamens 2-4, alternate with the petals	..	<i>Salacia</i> , p. ..	36
57*.	Stamens numerous ; trees ..	..	35. <i>Guttiferae</i> , p. ..	17
40*.	Leaves compound :			
59.	Herbs :			
60.	Flowers pink or yellow ; plants erect :			
61.	Sepals 5 ..	..	19. <i>Oxalidaceae</i> , p. ..	10
61*.	Sepals 4 ..	..	<i>Cleome</i> , p. ..	5
60*.	Flowers white :			
62.	Climbing plants ..	..	<i>Cardiospermum</i> , p. ..	41
62*.	Erect or creeping plants ..	..	10. <i>Cruciferae</i> , p. ..	6
59*.	Woody plants :			
63.	Seeds immersed in cotton ..	..	39. <i>Bombacaceae</i> , p.	19
63*.	Seeds hairless :			
64.	Stamens united to form a tube ..	..	57. <i>Meliaceae</i> , p. ..	40
64*.	Stamens free :			
65.	Climbing ..	..	54. <i>Vitaceae</i> , p. ..	38
65*.	Erect.			
66.	Leaves opposite, with stipules ..	..	<i>Turpinia</i> , p. ..	43
66*.	Leaves alternate :			
67.	Ovary 2-many-celled			
68.	Stamens alternate with the petals ; mostly erect plants ..	..	58. <i>Sapindaceae</i> , p. . .	41
68*.	Stamens opposite the petals ; plants usually climbing ; leaves with stipules ..	..	54. <i>Vitaceae</i> , p. ..	38
67*.	Ovary 1-celled :			
69.	Fruit a drupe ..	..	61. <i>Anacardiaceae</i> , p.	43
69*.	Fruit a legume ..	..	45. <i>Leguminosae</i> , p.	25
37*.	Ovary inferior :			
70.	Plants leafless ..	..	27. <i>Cactaceae</i> , p. ..	14
70*.	Plants leafy :			
71.	Leaves simple :			
72.	Plants not parasitic :			
73.	Fruit capsular :			
74.	Flowers yellow ; herbs ; leaves not 3-nerved from base :			
75.	Leaves thin ; sepals 4-5 ..	..	22. <i>Onagraceae</i> , p. ..	11
75.	Leaves fleshy ; sepals 2 ..	..	15. <i>Portulacaceae</i> , p.	8
74*.	Flowers reddish-purple or blue ; if herbs, leaves 3-nerved from base ..	..	31. <i>Melastomaceae</i> , p. .	16
73*.	Fruit indehiscent ; woody plants ..	..	30. <i>Myrtaceae</i> , p. ..	15
72*.	Plants semi-parasitic ..	..	51. <i>Loranthaceae</i> p. .	37
71*.	Leaves compound ..	..	<i>Schefflera</i> , p. ..	44

## 36\*. Petals united, at least at the base :

## 76. Ovary inferior :

77. Plants leafless .. .. . 27. *Cactaceae*, p. .. 14
- 77\*. Plants leafy :
78. Leaves with interpetiolar stipules .. 73. *Rubiaceae*, p. .. 49
- 78\*. Leaves without stipules :
79. Calyx wanting or represented by a pappus of hairs or scales .. 74. *Compositae*, p. .. 51
- 79\*. Calyx normally developed :
80. Stamens 5 ; ovary 2-3-celled .. 75. *Lobeliaceae*, p. .. 55
- 80\*. Stamens 2-4 ; ovary 1-celled .. *Epithema*, p. .. 61

## 76\*. Ovary superior :

81. Stamens the same number as and opposite the petals or more than the petals ; woody plants :
82. Flowers usually unisexual ; plants without latex *Diospyros*, p. .. 45
- 82\*. Flowers hermaphrodite ; plants with latex .. *Madhuca*, p. .. 45
- 81\*. Stamens the same number as, and alternate with, or fewer than the petals :
83. Leaves alternate :
84. Fruit a drupe shrub .. .. . *Mappia*, p. .. 36
- 84\*. Fruit a capsule or berry ; usually herbs :
85. Capsule explosive ; posterior sepals spurred 20. *Balsaminaceae*, p. 10
- 85\*. Capsule not explosive ; sepals not spurred :
86. Ovules very numerous in each cell : •
87. Woody plants with compound leaves 84. *Bignoniaceae*, p. 61
- 87\*. Herbs :
88. Fruit a small capsule .. 81. *Scrophulariaceae*, p. 58
- 88\*. Fruit fleshy, or, in *Datura*, a prickly capsule .. 79. *Solanaceae*, p. .. 56
- 86\*. Ovules 4 .. .. . 78. *Boraginaceae*, p. 56
- 83\*. Leaves opposite :
89. Fruit a loculicidal capsule ; flowers usually in the axils of large bracts .. 85. *Acanthaceae*, p. .. 62
- 89\*. Fruit of 4, indehiscent nutlets ; flowers not bracteate .. .. . 87. *Labiatae*, p. .. 65.

## II. MONOCOTYLEDONS.

## 90. Ovary superior :

## 91. Plants erect :

## 92. Plants with woody stems over 1 inch thick :

93. Leaves simple, spinous .. .. . 88. *Pandanaceae*, p. . . 65
- 93\*. Leaves pinnate or fan-shaped .. .. . 89. *Palmaceae*, p. .. 66

## 92\*. Plants herbaceous :

94. Flowers in fleshy spikes (spadices) surrounded by large bracts (spathes) .. .. . 90. *Araceae*, p. .. 67

## 94\*. Flowers not in fleshy spikes :

## 95. Ovary 3-celled :

96. Petals white or coloured ; flowers not in round heads. •
97. Three perianth segments petaloid .. 91. *Commelinaceae*, p. • 69
- 97\*. Six perianth segments petaloid :
98. Leaves stalked (petiolate) .. 92. *Pontederiaceae*, p. 70
- 98\*. Leaves not stalked .. 93. *Liliaceae*, p. .. 70
- 96\*. Petals white, usually with a black spot : flowers in round heads .. .. . *Eriocaulonaceae*, p. .. 76

95*.	Ovary 1-celled, perianth represented by small scales or bristles, or wanting :			
..	99.	Stems solid and without nodes	..	<i>Cyperaceae</i> , p. .. 76
..	99*.	Stems hollow between the nodes	..	<i>Gramineae</i> , p. .. 76
91.*	Plants climbing :			
100.	Leaves compound ; stems over 1 inch thick.			
100*.	Leaves simple :			
101.	Leaf-stalk (petiole) winged	..	..	<i>Pothos</i> , p. .. 67
101*.	Leaf-stalk not winged	..	..	<i>Smilax</i> , <i>Asparagus</i> p. 71
90*.	Ovary inferior :			
102.	Plants climbing	..	..	95. <i>Dioscoreaceae</i> , p. 72
102*.	Plants erect :			
103.	Flowers regular	..	..	94. <i>Amaryllidaceae</i> , p. 72
103*.	Flowers irregular :			
104.	Flowers bilaterally symmetrical :			
105.	Ovary 3-celled ; stamens free	..	..	96. <i>Zingiberaceae</i> , p. 73
105*.	Ovary 1-celled, stamen united with the stigma to form a column	..	..	98. <i>Orchidaceae</i> , p. .. 74
104*.	Flowers asymmetric	..	..	97. <i>Cannaceae</i> , p. .. 74

# THE KANDY FLORA.

## 1. MAGNOLIACEAE (Magnolia Family).

Trees ; leaves alternate, simple, entire ; flowers large, regular ; sepals and petals 9-12, similar, spirally arranged ; stamens and carpels numerous, also spirally arranged ; carpels with 2-4 ovules. *MICHELIA* Linn. Stipules present ; flowers bisexual ; fruit a spike of follicles, each splitting down the back, and with one or two seeds. (Named after P. A. Micheli, an Italian botanist). *M. CHAMPACA* Linn. *Gini-hapu*, *Miung-hapu* or *Sapu*. S., *Chenpakam*, T. A large tree with thick, smooth, grey bark ; young parts silky ; stipules enclosing the bud, soon falling ; flowers solitary, bright yellow ; fruits brownish-green with pale spots ; seeds red outside. Common in the jungle about Kandy, but not native. (Fig. 1.)

## 2. ANNONACEAE (Custard Apple Family).

Trees or shrubs ; leaves alternate, simple, entire, without stipules ; flowers hermaphrodite, regular (actinomorphic) ; sepals 3 ; petals 6 ; stamens usually numerous ; carpels numerous or few, distinct, indehiscent, often stalked when ripe.

Several cultivated plants belong to this family, as *Annona muricata* Dun. *Sour Sop*, E., *Katu-Anoda*, S. *Sitha*, T., *A. squamosa* Linn. *Sugar Apple* or *Sweet Sop* of the West Indies, but called *Custard Apple* in Ceylon. *A. reticulata* Linn. *Bullock's Heart*, *Anoda*, or *Atta*, S. *Ramsitha*, T., which is the *Custard Apple* of the West Indies.

### Shrubs:

Leaves 1-3 in. long ; flowers greenish-yellow with purple blotches at base	..	1.	<i>Miliusa</i>
Leaves 5-9 in. long ; flowers green	..	2.	<i>Goniothalamus</i>
Climbers	..	3.	<i>Uvaria</i>
Trees : flowers green or greenish-yellow ; leaves 6-10 in. long :			
Fruit a large berry	..	4.	<i>Cyathocalyx</i>
Fruit of 10-12 stalked carpels	..	5.	<i>Canangium</i>

1. **MILIUSA** Lesch. Sepals very small, ovate ; petals in 2 whorls, the outer small and sepaloid, the inner large ; stamens 20-30 ; carpels numerous, 1-2 seeded. (Named after J. Milius Vottolina, a 16th century botanist).

**M. indica** Lesch. *Kekili-messa*, S. Leaves hairless or with a few hairs on the veins beneath ; flowers solitary ; petals yellowish-green with a purple blotch at the base ; fruits purple. Rather a common undershrub in the jungle. Flowers February-March. (Fig. 2.)

2. **GONIOTHALAMUS** Blume. Woody plants ; sepals free ; petals in 2 rows, not overlapping in bud, inner row united to form a cap ; carpels numerous, with 1-2 ovules.

**G. Gardneri** Hk. f. & Th. Erect shrub, 4-12 ft. high ; leaves 5-9 in. long, narrowly oblong-elliptic, hairless ; flowers solitary, axillary, bright green ; fruit orange-yellow. Rather common in the jungle. Flowers November-January. (Fig. 3.)

3. **UVARIA** Linn. Climbing shrubs ; inflorescence fasciculate or flowers solitary ; sepals 3, not overlapping in bud ; petals 6, in two whorls ; carpels numerous, with many ovules.

Flowers red ; leaves 6-9 in. long	..	1.	<i>U. macropoda</i>
Flowers yellowish-green ; leaves 3-6 in. long	..	2.	<i>U. Narum</i>

1. **U. macropoda** Hk. f. & Th. Twigs hairless ; leaves 6-9 in. long, shining above ; flowers  $1\frac{1}{2}$  in. across, red ; calyx splitting irregularly into 2 or 3 segments ; ripe carpels  $2-3\frac{1}{4}$  in. long, red. Rather common in the jungle. Flowers September. (Fig. 4.)

2. **U. Narum** Wall. Twigs hairless ; leaves 3-6 in. long, not shining ; flowers up to 2 in. across, green ; calyx regularly 3-lobed ; ripe carpels 1-1½ in. long, red. Common in the jungle. Flowers April. (Fig. 5.)

4. **CYATHOCALYX** Champ. Tree ; inflorescence fasciculate ; sepals 3, united into a cup ; petals 6, in two whorls ; carpels solitary, with many ovules.

**C. zeylanicus** Champ. *Kekala, Ipetta*, S. A large tree with smooth bark and slender horizontal branches which soon fall leaving the lower part of the trunk bare ; leaves elongate-elliptic, 6-10 in. long ; flowers bright green ; fruit ovoid, 2½-3 in. long, green becoming blackish-brown. Common in the jungle. Flowers May-July. (Fig 6.)

5. **CANANGIUM** Baill. Trees ; flowers axillary ; sepals 3, inconspicuous ; petals 6, almost equal ; in two whorls ; carpels numerous, with many ovules.

**CANANGIUM ODORATUM** Baill. (*Cananga odorata* Hk. f. & Th.) *Vanahapu*, S. A tall tree with horizontally spreading branches ; leaves glabrous, 7-8 in. long, rounded at base ; flowers drooping, greenish-yellow, sweet-scented ; fruit of 10-12 black stalked carpels. Common in jungle about Kandy, but not native. Flowers February-March. It is the source of the scent *Ilang-ilang*. (Fig. 7.)

### 3. LAURACEAE (Laurel Family).

Trees or shrubs ; leaves simple, entire, exstipulate ; flowers small, regular (actinomorphic), bisexual or unisexual ; perianth segments usually 6 ; ovary superior, 1-celled, with a solitary pendulous ovule.

Leaves penninerved .. .. .	1. <i>Litsea</i>
Leaves 3-nerved at base :	
Anther cells all opening inwards .. .. .	2. <i>Neolitsea</i>
Anther cells of third row of anthers opening outwards .. .. .	3. <i>Cinnamomum</i>

1. **LITSEA** Lamk. Small or moderate-sized trees ; leaves alternate ; flowers unisexual, male and female on different trees (dioecious) ; bracts 4, sepaloid ; anthers 4-celled all opening inwards (introrse) ; fruit globose, succulent. (The scientific name is from *Litsé*, the Chinese name for one of the species.)

Perianth segments wanting .. .. .	1. <i>L. tomentosa</i>
Perianth segments 4 or 6 .. .. .	2. <i>L. longifolia</i>

1. **L. longifolia** Benth. & Hk. f. (*L. cauliflora* Trim.) *Rat-keliya*, S. A small tree ; bark grey, rough ; leaves 4-8 inches long, elongate-elliptic covered with short grey hair beneath ; inflorescence umbellate ; flowers greenish-yellow, on the old wood ; perianth segments 6 ; stamens 9 ; fruit ½ in. Very common in the jungle. Flowers November-March. (Confined to Ceylon). (Fig. 8.)

2. **L. tomentosa** Heyne. *Kosboda, Landittan*, S. A moderate-sized tree ; bark green, smooth ; twigs rather thick ; leaves 4-10 in. long ; elliptic, thickly covered with short rusty hair beneath ; inflorescence umbellate ; flowers pale yellow ; perianth segments wanting ; stamens about 20 ; fruit ¾ in. round. Common in the jungle. Flowers September-October. (Fig. 9.)

2. **NEOLITSEA** Merr. Trees or shrubs ; leaves alternate, opposite or whorled, 3-nerved at base ; flowers dioecious ; involucre bracts 4, deciduous ; perianth segments 4 ; stamens 6 in male flowers ; stigma in female flowers peltate ; fruit a one-seeded berry.

**N. involucrata** Alst. (*Litsea zeylanica* Nees.) *Davul-Kurundu, Kudu-davula*, S. A small tree with smooth grey bark ; leaves clustered at the end of tree branches, 3-5 in. long, glaucous below ; flowers green, in small sessile umbels ; perianth segments 4, deciduous ; fruit dark purple. Common in the jungle. Flowers April. (Fig. 10.)

3. **CINNAMOMUM** Bl. Leaves opposite or alternate, usually 3-nerved from the base ; inflorescence paniculate ; flowers hermaphrodite, or male, female and hermaphrodite flowers on the same tree ; perianth-segments 6 ; perfect stamens not more than 9, those of the 3rd. row opening outwards (extrorse). The flowers are protogynous, the three extrorsé stamens being at first pressed down against the

introrse stamens leaving the stigma exposed in the centre of the flower, later the stigma withers and the extrorse stamens straighten out covering the stigma and leaving the introrse stamens exposed.

**C. zeylanicum** Bl. *Cinnamon*, E., *Kurundu*, S., *Karuva*, T. A moderate-sized tree; bark reddish; leaves usually opposite, 3-10 in. long hairless, 3-5-nerved from the base, dark green, pink when young, flowers pale yellow; calyx segments persistent; fruit  $\frac{1}{2}$  in. long, oblong-ovoid, dark purple. Rather common in the jungle. Flowers February. (Fig. 11.)

#### 4. MYRISTICACEAE (Nut-meg Family).

Trees; leaves alternate, exstipulate; flowers unisexual, male and female on different plants (dioecious); perianth 2-4-lobed; lobes not overlapping in bud; stamens 3-30, wanting in female flowers; ovary superior 1-celled, with one erect, basal, anatropous ovule; fruit fleshy, tardily dehiscent; seeds arillate.

**MYRISTICA** Linn. Perianth 3-lobed; stamens 12-30, united to form a column; stigmas united, 2-lobed.

**M. dactyloides** Gaertn. (*M. laurifolia* Hk. f. & Th.) *Malaboda*, S., *Palmanikkam*, T. Bark orange-grey, rather smooth; leaves 5-9 in. long, lanceolate, hairless; flowers orange-yellow; fruit ovoid, about 2 in. long, brown, hairy; endosperm yellow; seed dark brown. Not uncommon in the jungle. Flowers October-June. (Fig. 12.)

#### 5. RANUNCULACEAE (Buttercup Family).

Climbing shrubs or perennial herbs; leaves opposite or alternate, compound or simple, stipules wanting; flowers regular (actinomorphic) hermaphrodite, the parts spirally arranged; sepals and petals usually similar; stamens numerous, free; carpels numerous, usually with a single ovule.

**NARAVELIA** DC. Woody climber; leaves opposite, 3-foliolate, with the central leaflet usually transformed into a trifid tendril; inflorescence axillary, compound; sepals 4; petals about 12, fruit a head of achenes, each with a long bearded tail. (Scientific name taken from the Sinhalese name.)

**N. zeylanica** DC. *Nara-vel*, S. Branches pubescent; leaflets broadly ovate, hairless above, more or less densely silkily hairy beneath; sepals ovate-elliptic, falling when the bud opens; petals linear-spathulate, green. Climbing on under-shrubs in the jungle, uncommon. Flowers September-December. (Fig. 13.) The stem has anomalous woodstructure of the *Aristolochia* type.

#### 6. MENISPERMACEAE (Moonseed Family).

A family of twining, usually shrubby plants with alternate simple, entire, exstipulate leaves, and anomalous stem structure; flowers small, dioecious; stamens 6 or 4; ovules 2 reduced to 1 by abortion; fruit drupaceous; seed often curved like a horse-shoe.

Leaves not peltate; flowers in drooping panicles; sepals 6; carpels 3-many:

- |   |                    |
|---|--------------------|
| Petals 6; stamens free; drupes sessile; fruits reddish-purple; leaves ovate-lanceolate; anthers longitudinally dehiscent .. | 1. <i>Hypserpa</i> |
| Petals wanting; stamens connate into a round head; drupes stalked; fruits black; leaves broadly ovate ..                    | 2. <i>Anamirta</i> |

Leaves peltate; carpels solitary; stamens connate:

- |   |                       |
|---|-----------------------|
| Petals free, 3 in male flowers, 6 in female flowers; drupes hairless, crimson; male and female flowers in compound umbels; leaves glabrous broadly ovate .. | 3. <i>Stephania</i>   |
| Petals of male flower 4-5 connate, of female solitary; leaves glabrous or pubescent:  |                       |
| Drupes glabrous, white, male and female flowers in panicles; leaves elongate-triangular ..  | 4. <i>Cyclea</i>      |
| Drupes hairy, red; male flowers in compound umbels; female flowers in racemes of small cymes, subtended by cordate bracts; leaves broadly ovate ..          | 5. <i>Cissampelos</i> |

1. **HYP SERPA** Miers. Slender, woody climber; flowers in small panicles; sepals petals and stamens 6; carpels 3.

**H. cuspidata** Miers. (*Limacia cuspidata* Hk. f. & Th.) Leaves  $1\frac{1}{2}$ -3 in. long, ovate-lanceolate, hairless, somewhat 3-nerved at base; flowers yellow, in axillary racemes, much shorter than the leaves; fruit purple, obovoid. Rather rare in the Kandy jungle. Flowers July-September. (Fig. 14.)

2. **ANAMIRTA** Colebr. Large woody climber; flowers in long panicles on the old wood; sepals 6; petals 0; stamens numerous, with the filaments united into a central column; female flowers with 10 staminodes and 3-5 carpels; seed kidney-shaped.

**A. Cocculus** W. & A. (*A. paniculata* Colebr.) *Titta-vel*, S., *Kakkaikollivirai*, T. Leaves 3-6 in. long, broadly ovate, hairless; petioles 2-4 in.; flowers  $\frac{1}{4}$  in. in diameter pale greenish-yellow, sweet scented; anthers in a round head; ripe carpels usually 2, globose round, black. A large climber, very common in the Kandy jungles. Flowers May-June. (Fig. 15.)

3. **STEPHANIA** Lour. Slender climber; flowers in umbels; male flowers with 6 sepals, 3 petals, and 6 stamens, the latter being united to form a central column with the anthers in a ring; female flowers with 3-5 sepals, 6 petals, no staminodes, and one carpel with a trifid style; seed curved almost into a ring.

**S. japonica** Miers. (*S. hernandifolia* Trim. non Walp.) Leaves 2-4 in. long rounded-ovate, peltate, hairless; petiole 1-2 in.; flowers small, greenish-white; ripe carpels solitary, sessile, glabrous, scarlet. Rather common in jungle and waste places. Flowers July. (Fig. 16.)

4. **CYCLEA** Arn. Shrubby climbers; inflorescence axillary, paniculate; male flowers with 4-8-lobed calyx, 4-8 petals, and 4-6 stamens, the latter burst transversely and are united to form a column; female flowers with one sepal, one petal, a 3-5 lobed style, and one carpel.

**C. Burmanni** Miers. *Kehi-pittan*, S. A small perennial, rather woody climber; leaves 3-4 in. long, peltate, elongate-triangular, acute, hairy on both surfaces in young plants; flowers green; fruit white. Common in scrub jungle and young plants in cultivated ground. Flowers September. (Fig. 17.)

5. **CISSAMPELOS** Linn. Shrubby climbers; inflorescence cymose when male, racemose when female; male flowers with 4 sepals, 4 petals, and 4 stamens which burst transversely and are united to form a column; female flowers with one sepal, one petal, a 3-lobed style, and one carpel.

**C. Pareira** Linn. *Diyamitta*, S., *Pon-muchiddai*, *Vaddatirupi*, T. A small woody climber; leaves  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, broadly ovate, slightly peltate, hairy or not; flowers light green; fruit red. Common in scrub jungle and small plants among grass under large trees. Flowers all the year. (Fig. 18.)

## 7. ARISTOLOCHIACEAE (Birthwort Family).

Perennial herbs or shrubs, often climbing; leaves alternate, exstipulate; flowers hermaphrodite, usually irregular, axillary; perianth tubular or 3-lobed; stamens 6 or 9; fruit capsular.

**ARISTOLOCHIA** Linn. Perennial herbs; perianth irregular, tubular, inflated at base; stamens 6, with anthers sessile in a circle round the style; ovary inferior, 6-celled, with numerous ovules; style short, 6-lobed; capsule septically dehiscent. (Named from reputed medicinal properties.)

Several species are cultivated such as *A. ridicula* N. E. Br., *A. ringens* Vahl., *A. gigas* Linn. *Pelican Flower*, E. and *A. elegans* Mast.

**A. indica** Linn. *Sap-sanda*, S., *Perumaruntu*, *Talaisuruli*, *Ichura muli*, T. Stem twining, slightly woody at base, glabrous; flowers 2-4, in a stalked corymb; perianth greenish-white with a dark purple lip; seeds winged, flat, black. Climbing over low shrubs, not uncommon. Flowers November-January. (Fig. 19.)

## 8. PIPERACEAE (Pepper Family).

Erect or climbing herbs or shrubs ; flowers minute, sessile in leaf-opposed or terminal spikes or racemes ; perianth wanting ; stamens 1-4, ovary 1-celled ; fruit indehiscent, one-seeded.

Erect plants ; fruit minute ; leaves exstipulate :

Stigmas 3 ; spikes in umbels ; plant 3-5 ft. high .. 1. *Heckeria*  
Stigmas solitary ; plants up to 1 ft. high .. 2. *Peperomia*

Climbing plants ; spikes solitary ; fruits pulpy ; leaves stipulate .. 3. *Piper*

1. **HECKERIA** Kunth. Erect herbs ; leaves exstipulate, with sheathing petioles ; bracts pedicelled peltate, flowers very minute, hermaphrodite, stigmas 3, fruit a trigonous berry.

**H. umbellata** Kunth. (*Piper subpellatum* Willd.) *Maha-labu*, S. An erect, perennial herb, 3-5 ft. high, stem thickened at the nodes, leaves 8-12 in. across, cordate, entire, subglabrous, petiole 4-8 in., spikes 2-5 together, in stalked axillary umbels, flowers pale green, stamens 2, fruit brown. Common in the jungles. Flowers December. (Fig. 20.)

2. **PEPEROMIA** Ruiz. & Pav. Herbs, leaves exstipulate, inflorescence spicate, terminal or leaf-opposed, flowers hermaphrodite, stamens 2, ovary with one erect ovule.

*P. clusiaefolia* A. Dietr. is sometimes grown for ornament.

Leaves hairless .. .. . 1. *P. Fraseri*  
Leaves hairy .. .. . 2. *P. dindigulensis*

1. **P. FRASERI** C. DC. Herb up to 9 in. high, stem translucent, leaves ovate, whitish beneath, hairless, spikes yellowish-green, fruit dark-green. Common in waste places. Flowers February. A native of Ecuador. The specific name is doubtful. (Fig. 21.)

2. **P. dindigulensis** Miq. Herb up to 1 ft. high, stem usually reddish, leaves obovate-elliptic, 3-nerved from the base, densely hairy, fleshy, spikes yellowish-green, hairless, fruit viscous. Rather common in rocky places. Flowers November-January. (Fig. 22.)

3. **PIPER** Linn. Shrubs or rarely herbs, stipules usually present, inflorescence spicate or racemose ; flowers unisexual, male and female on different plants ; stamens 2-4. The cultivated pepper is *P. nigrum* Linn., Betel is *P. Belle* Linn., while *P. longum* Linn. (*Tippili*, S. and T.) is grown as a medicinal plant.

**P. sylvestre** Lamk. *Val-gammiris-vel*, *Mala-miris-vel*, S. Leaves 3-5 in long, ovate, acuminate, usually hairless, 5-nerved ; stamens of male flowers usually 3, styles 3-4, fruit  $\frac{1}{8}$  in. in diameter, round. Common in the jungle. Flowers October-February. (Fig. 23.)

## 9. CAPPARIDACEAE (Caper Family).

Annual herbs, climbing shrubs or small trees, leaves alternate, flowers bisexual, sepals 4, free, petals 4 or rarely 2, stamens usually numerous, more rarely 6 or 4, inserted at the base of, or half way up the gynophore ; ovary usually at the end of a long gynophore, 1-celled ; carpels 2, placentation parietal ; fruit indehiscent ; seeds numerous.

*Gynandropsis speciosa* DC. is commonly cultivated in gardens.

**CLEOME** Linn. Annual herbs ; flowers regular or nearly so ; sepals and petals ; stamens 4 ; ovary sessile or with a short gynophore.

**C. viscosa** Linn. *Val-aba*, *Ran-manissa*, S., *Nayk-kaduku*, *Nay-velai*, T. Plant softly glandular hairy and viscid throughout ; leaves 3-5-foliolate ; flowers lemon-yellow ; stamens 12-24 ; anthers blue-black ; pods without a gynophore, very viscous ; seeds black. Common in waste places. Flowers January-March. (Fig. 24.)

*Moringa oleifera* Lamk. (*M. pterygosperma* Gaertn.) *Horse-radish tree* or *Drymstick plant* E., *Murunga*, S. and T., which is cultivated, belongs to the Moringaceae.

## 10. CRUCIFERAE (Cabbage Family).

Herbs with alternate exstipulate leaves ; flowers regular, bisexual ; sepals 4 ; petals 4 or 0 ; stamens 6 in one whorl of 4 and one of 2 ; fruit 2-celled.

Flowers yellow .. .. .	1. <i>Brassica</i>
Flowers white .. .. .	2. <i>Cardamine</i>

1. **BRASSICA** Linn. Inflorescence racemose ; lateral sepals usually saccate at base ; petals yellow ; pod dehiscent, rounded or angular in cross-section ; cotyledons conduplicate (*i.e.*, folded over the radicle).

B. **JUNCEA** Coss. *Aba*, S., *Kaduku*, T. Annual herb, about 2½ ft. high ; leaves simple or pinnate ; oblanceolate in outline, 2-5 in. long ; petals lemon-yellow ; pod 1¼ in. long. Common in waste places. Flowers February, May, October. (Fig. 25.)

2. **CARDAMINE** Linn. Sepals not saccate ; petals if present, clawed ; stamens and pods dehiscent, flattened, tapering at both ends ; cotyledons accumbent (*i.e.* with their margins directed towards the radicle).

C. **HIRSUTA** Linn. *Kadukup-pillu*, T. Annual herb up to 6 inches high, rarely branched ; leaves pinnate ; leaflets 5-7, shortly stalked, irregularly lobed ; inflorescence racemose ; petals 4, white ; stamens 4 ; pod linear, with about 16 seeds. Very common on estates and in gardens. Flowers March. (Fig. 26.)

## 11. CRASSULACEAE (Stone-crop Family).

Herbs ; leaves exstipulate ; flowers regular ; sepals 4 ; petals 4-8 ; stamens as many or twice as many as the petals ; carpels superior ; fruit follicular.

**BRYOPHYLLUM** Salisb. Perennial herbs ; leaves opposite ; inflorescence terminal, paniculate ; flowers hermaphrodite ; sepals united with 4 short lobes ; petals 4, united ; stamens 8, in two whorls ; follicles 4, many-seeded.

B. **pinnatum** Kurz. (*B. calycinum* Salisb.) *Kata-gova*, *Akka-pana*, S., *Malai-kalli*, T. Stems up to 4 ft. high ; leaves succulent, crenate, glabrous, simple or 3-foliolate ; calyx green, purplish at base ; lobes of corolla reddish ; calyx and corolla persisten ; in fruit. Common in rocky places, but not native. Flowers February-March (Fig. 27.)

Probably originally from Tropical Africa.

## 12. PODOSTEMACEAE (River-weed Family).

Submerged herbs ; leaves distichous, simple ; flowers usually terminal, opening in the dry season, when exposed to the air, hermaphrodite, said to be wind-fertilized (anemophilous) ; perianth segments 0 or 3 ; stamens 1-3, united by their filaments ; anthers opening inwards ; staminodes 2-3 ; ovary superior, 2-3-celled, usually with many ovules in each cell ; fruit usually septicidally dehiscent.

Plant mainly free-floating :

Plant greenish-brown ; leaves very short .. .. .	2. <i>Dicraea elongata</i>
Plant red when growing ; leaves long .. .. .	3. <i>Podostemon</i>

Plant mainly attached to the rock :

Plants red when growing ; leaves short :	
Stamens 3, free ; plant apparently hairy on the upper surface .. .. .	1. <i>Lawia</i>
Stamens 2, united by their filaments ; root over 1/10 in. broad .. .. .	2. <i>Dicraea stylosa</i>

Plants emerald green when growing :

Stamens 2 ; roots plate-like ; leaves long .. .. .	4. <i>Hydrobryum</i>
Stamens 1 ; roots under 1/10 in. ; leaves short ; flowers not in the axils of the root branches .. .. .	5. <i>Farmeria</i>

1. **LAWIA** Griff. (not of Wight) Stem flattened, attached to the rock by minute hairlike roots ; leaves simple, minute, in fascicles at the apices of the stem ; flowers regular, terminal on short lateral shoots in the axils of leafy cupules, stalked ; perianth segments 3 ; stamens 3 ; staminodes wanting ; ovary superior, 3-celled ; stigmas 3, simple ; capsule 9-ribbed, splitting into 3 valves.

**L. zeylanica** Tul. Stem red, turning green when taken out of the water, over  $1/10$  in. broad; flowers solitary; petals often persistent in fruit; ovary ellipsoid. Very common on submerged rocks in the swiftest parts of rapids of the Mahaweli. Flowers February. (Fig. 28.)

2. **DICRAEA** Thouars. Roots mainly free floating; stems very short when young, with fascicles of small leaves; flowers solitary, terminal, irregular, enclosed in a spathe; perianth segments wanting; stamens usually 2, united by their filaments; staminodes 2; ovary 2-celled; capsule many-seeded.

Root cylindrical, free floating .. .. . 1. *D. elongata*  
 Root flattened, creeping .. .. . 2. *D. stylosa*

1. **D. elongata** Tul. (*Podostemon elongatus* Gardn.) Roots round in cross-section, greenish-brown; stems distichously arranged, with tufts of red leaves when young, later with 2-5 distichously arranged scales; stigmas 2; capsule 8-ribbed. Rather rare on submerged rocks in the eddies of rapids on the Mahaweli. Flowers February (Confined to Ceylon). (Fig. 29.)

2. **D. stylosa** Tul. (*Podostemon algaeformis* Trim.) Roots strapshaped, freely branched, red turning olive-green when taken out of the water, usually more than  $1/10$  in. broad; spathe opening irregularly at the top; flowers long-stalked; stigmas 2; capsule 8-ribbed. Rather rare on submerged rocks in the less swift parts of the rapids of the Mahaweli. Flowers February. (Fig. 30.)

3. **PODOSTEMON** Michx. Roots creeping; stem erect, usually dichotomously branched; leaves, linear, distichous; flowers irregular, terminal, surrounded by an irregularly lobed spathe; stamens 1-2; staminodes 2; ovary ellipsoid; stigmas 2, simple; capsule unequally lobed, 8-ribbed, one valve persistent, the other deciduous.

**P. subulatus** Gardn. Roots thread-like; stems flattened; leaves inrolled, about 4 inches long, red, turning green when taken out of the water; stamens 2; ovary pale green, not winged. Common on submerged rocks in eddies of the rapids of the Mahaweli. Flowers February. (Fig. 31.)

4. **HYDROBRYUM** Endl. Roots creeping, flattened, branches arising from the surface, attached by root hairs to the surface of the rock; leaves simple, usually not present when the plant is in flower; flowers surrounded by a boat-shaped spathe; perianth wanting; stamens 1-2; staminodes 2; ovary ellipsoid; stigma simple or lobed.

**H. olivaceum** Tul. (*Podostemon olivaceus* Gardn.) Roots forming a lobed plate, bright green; stem represented by an erect process crowned by a tuft of linear green leaves; stamens 2; stigmas short simple. Common on submerged rocks in the swiftest parts of the rapids of the Mahaweli. Flowers February. (Fig. 32.)

5. **FARMERIA** Willis. Roots more or less flattened; stems very short, springing from behind the branches of the root, at first with a few linear green leaves, later with bracts; spathe boat-shaped; perianth wanting; stamens 1-2; ovary broadly ovoid; stigmas 2, simple; fruit 2-4 seeded.

**F. metzgerioides** Willis. Root ribbon-like, emerald-green, under  $1/20$  inch broad; flowers stalkless; stamen 1; staminodes 2; fruit 2-seeded. Very common in submerged rocks in the less swift parts of the rapids of the Mahaweli. Flowers February. (Confined to Ceylon.) (Fig. 33.)

### 13. CARYOPHYLLACEAE (Stitchwort Family).

Herbs, rarely shrubby; leaves opposite; stipules small or wanting; flowers usually hermaphrodite; sepals 4-5, free or united, overlapping in bud; petals 4-5, sometimes wanting; stamens 3-10; ovary 1-celled, or imperfectly 3-5-celled, usually superior; styles 2-5; fruit usually capsular.

**DRYMARIA** Willd. Herbs; leaves simple; stipules small; sepals 5; petals 5; stamens 5; ovary 1-celled; style 3-fid; fruit a 3-ovuled capsule.

**D. cordata** Willd. *Kukulu-pala*, S., *Pattanip-pillu*, *Kadalaip-pillu*, T. A prostrate, annual herb; stem 1-2 ft. long, with many branches; leaves broadly ovate, 3-5-nerved from the base, hairless; flowers white, petals deeply notched; stamens 2 or rarely 3; capsule 1-seeded. A common weed on estates. Flowers January-May. Doubtfully native. (Fig. 34.)

## 14. MOLLUGINACEAE.

Herbs; leaves exstipulate, or stipules fugacious; flowers regular, bisexual, solitary or cymose; sepals free or united at base; petals small or 0; stamens hypogynous or slightly perigynous; filaments free or connate; ovary usually superior, syncarpous; fruit capsular.

**MOLLUGO** Linn. Leaves whorled or radical, exstipulate; flowers small; sepals 5, free; petals 5 or 0; stamens 3-10, hypogynous; ovary superior, 3-5-celled; fruit a membranaceous, loculicidally dehiscent capsule, enclosed in the persistent calyx; seeds numerous. (The scientific name is an old Latin one for some soft plant.)

**M. stricta** Linn. (= *pentaphylla* Linn. ?) Annual herb with many procumbent branches; leaves 2-6 in a whorl, narrowly linear-lanceolate,  $\frac{1}{2}$ -1 in. long; inflorescence cymose, terminal flowers white; capsule minute round. In waste ground, rather common. (Fig. 35.)

## 15. PORTULACACEAE. (Purslane Family).

Herbs or low shrubs; leaves alternate or opposite, with or without stipules; flowers regular, bisexual, sessile, terminal; sepals 2, slightly connate, deciduous; petals 4-5, distinct, perigynous; stamens 4-16; ovary half-inferior, unicellular; fruit capsular or indehiscent.

*Talinum patens* Willd., *Gas-niviti*, S., is cultivated.

**PORTULACA** Linn. Leaves fleshy; fruit a capsule, transversely dehiscent with a deciduous lid; seeds numerous, not winged. (The scientific name is an old Latin name of unknown meaning.)

Leaves alternate, obtuse, flat .. 1. *P. oleracea*  
Leaves opposite, acute, almost round in cross-section .. 2. *P. quadrifida*

1. **P. oleracea** Linn. *Common Purslane*, E., *Genda-kola*, S. *Pulikkirai*, *Pulichchan-kirai*, *Nilap-pachali*, *Parupuk-kirai*, *Pachchalik-kirai*, *Karik-kirai*, T. Annual herb, usually prostrate; leaves alternate, obovate  $\frac{1}{2}$ -1 in. long fleshy, often reddish, without stipules; flowers in terminal heads yellow; petals 4-5; stamens 8-12. A very common weed in cultivated ground. Flowers all the year. (Fig. 36.)

2. **P. quadrifida** Linn. *Hin-genda-kola*, S., *Chinna-parupuk-kirai*, *Chirupachalik-kirai*, T. A prostrate annual herb; leaves  $\frac{1}{4}$  in. long, opposite, almost stalkless, elliptic, fleshy; stipules represented by white hairs; flowers solitary, lemon yellow; petals 4; stamens 8. A common weed in cultivated ground. The flowers are open only in the middle of the day. (Fig. 37.)

## 16. POLYGONACEAE (Buckwheat Family).

Herbs, annual or perennial; leaves alternate; stipules united, forming a tubular membranous sheath (ochrea), sometimes obsolete; flowers regular, bisexual, in small bracteate clusters in spikelike racemes or capitulate inflorescences; perianth uniseriate, with 4-6 lobes; stamens 4-12, perigynous; ovary 1-celled, superior; styles 2-3; fruit 1-seeded.

**POLYGONUM** Linn. Erect or subscandent herbs; perianth usually 5-lobed, often coloured and petaloid; stamens 4-9.

Leaves lanceolate; flowers in spike-like racemes; erect herb .. 1. *P. minus*  
Leaves ovate; flowers in round heads; subscandent herb .. 2. *P. chinense*

1. **P. minus** Huds. Plants 9-18 in. high; leaves narrowly elliptic-lanceolate,  $1\frac{1}{2}$ -4 in. long; not spotted, hairless; stipular sheath sparsely hairy; flowers greenish-white, in lax racemes. Wet places among grass, common. Flowers February-April. (Fig. 38.)

2. **P. chinense** Linn. *Meyan-kola*, S. Young parts glabrous; leaves ovate 2-5 inches long, with a blackish stain on the lower part of the upper surface, entire midrib hairy beneath; stipules up to 2 in.; flowers pinkish-white, in round head, arranged in terminal corymbs; perianth persistent in fruit. Common on the margins of jungles. Flowers all the year. (Fig. 39.)

## 17. PHYTOLACCACEAE (Poke-weed Family).

Herbs or woody plants; leaves simple, alternate; inflorescence racemose or spicate; perianth segments 4-5; stamens 4-numerous, alternate with the perianth segments; carpels usually superior, 1-ovuled.

*RIVINA* Linn. Herbs, somewhat shrubby below; leaves alternate or almost opposite; inflorescence racemose; flowers hermaphrodite; perianth segments 4; stamens 4; carpel one; fruit a berry.

*R. HUMILIS* Linn. *Bloodberry*, E. Herb 1-2 ft. high; leaves almost hairless; flowers pinkish-white; fruit bright scarlet. Waste places, rather rare. Native of Tropical America. (Fig. 40.)

## 18. AMARANTACEAE (Pigweed Family).

Herbs or undershrubs; leaves opposite or alternate, exstipulate; flowers small, bisexual or unisexual, with a scarious bract and 2 bractlets at the base; perianth 5, free, persistent; ovary superior, 1-celled; fruit usually indehiscent; seed solitary.

*Gomphrena globosa* Linn. Globe Amaranth or Bachelor's Buttons and *Telanthera ficoidea* Miq. (*Alternanthera tricolor* Hort.) are cultivated.

Leaves alternate; plant erect; flowers green	..	..	1. <i>Amarantus</i>
Leaves opposite:			
Anthers 2-celled; staminodes 5; erect herbs:			
Sepals herbaceous; flowers white	..	..	2. <i>Aerua</i>
Sepals coriaceous; flowers yellowish-green	..	..	3. <i>Achyranthes</i>
Anthers 1-celled; staminodes 2-3; prostrate herb	..	..	4. <i>Alternanthera</i>

1. **AMARANTUS** Linn. Annual herbs; flowers unisexual, monoecious, in clusters, which are often in terminal spikes; perianth 3 or 5; stamens 2-5 free; staminodes wanting; fruit circumscissile or indehiscent.

*A. frumentaceus* Ham. (*Rana-tampala*, S.) and *A. gangeticus* Linn. (*Sudu-tampala*, S., *Chiruk-kirai*, *Arik-kirai*, T.) are cultivated.

Plants spiny; sepals and stamens 5	..	..	1. <i>A. spinosus</i>
Plant spineless; sepals and stamens 2-3	..	..	2. <i>A. viridis</i>

1. **A. spinosus** Linn. *Spiny Pig-weed*, E., *Katu-tampala*, S., *Mud-kirai*, *Mulluk-kirai*, T. Herb, 12-18 in. high, with a pair of opposite spines in the leaf-axils; leaves 1-2½ in. long, ovate-lanceolate, entire; flowers pale green; styles 2, long. Very common in waste places. Flowers September-December. (Fig. 41.)

2. **A. viridis** Linn. *Green Pig-weed*, E., *Kura-tampala*, S. Herb 12-18 inches high; stem usually purplish; leaves 1½-2½ in. ovate; usually with a dark blotch in the upper surface; flowers palegreen; styles 2 or 3, short. Very common in waste places. Flowers October-December. The leaves are eaten as a spinach. *Basella rubra* (Basellaceae) is also called Spinach, but *Spinacia oleracea* Linn. (*Niviti*, S., *Pasalai*, T.) is the English Spinach. (Fig. 42.)

2. **AERUA** Forsk. Herbs or under-shrubs; leaves alternate or opposite; flowers bisexual or unisexual, in dense spikes; perianth segments 4-5, tomentose; stamens 4-5; staminodes 4-5; fruit indehiscent.

**A. lanata** Juss. (*A. persica* Merr.) *Pol-kudu-pala*, S., *Tenkai-pu-kirai*, *Chirupulai-ver*, T. Erect herb often slightly woody at base; leaves alternate, ¼-1¼ in. long, elliptic, more or less white-tomentose below; flowers greenish-white, sessile, in dense axillary heads or spikes; stigmas 2; short. Very common in waste places. Flowers February, October. (Fig. 43.)

3. **ACHYRANTHES** Linn. Herbs; leaves opposite; flowers deflexed, in elongated terminal spikes; bracts deflexed; bractlets 2, transformed into sharp spines; perianth segments 5, becoming hard in fruit; stamens 2-5, connate at base; staminodes 5; style long.

**A. aspera** Linn. *Chaff-flower*, E., *Gas-karal-heba*, S., *Nayuruvi*, T. Erect herb, stem 1-2 ft., pubescent; leaves elliptic, shortly petiolate; spikes 12-15 in.; flowers yellowish-green; fruit small, enclosed in the hardened perianth. Very common in waste places. (Fig. 44.)

4. **ALTERNANTHERA** Forsk. Herbs; leaves opposite; flowers in sessile, axillary heads; perianth segments 5; stamens 3 or 2; staminodes 2 or 3 in the same whorl as the stamens and connate with them at base; stigma sessile.

**A. sessilis** R. Br. (*A. triandra* Lamk.) *Mukunu-venna*, S., *Ponnankani*, T. A prostrate herb, up to 2 ft.; stem subquadrangular, glabrous, often purple; leaves subsessile, glabrous; flowers white, densely crowded in sessile axillary heads. Very common in wet waste places. Flowers all the year round. Eaten as a vegetable. (Fig. 45.)

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

Perennial herbs or small trees; leaves compound, alternate, exstipulate; flowers hermaphrodite, regular; calyx 5; petals 5; stamens 10 with the outer whorl opposite the petals (obdiplostemonous); ovary superior, with 8 carpels; fruit a capsule or berry.

*Averrhoa Carambola* Linn. (*Kamaranga*, S.) and *A. Bilimbi* Linn. (*Blimbing*, E., *Bilin*, S.) are cultivated.

Leaves pinnate .. .. .	1. <i>Biophytum</i>
Leaves trifoliate .. .. .	2. <i>Oxalis</i>

1. **BIOPHYTUM** DC. Annual or perennial herbs; leaves crowded at the nodes and ends of the stem and branches, pinnate; leaflets subopposite, sessile; flowers in axillary, stalked umbels; sepals and petals 5; stamens 10; 5 inner ones longer; ovary 5-celled; styles 5; capsule loculicidally dehiscent.

**B. Reinwardtii** Klotzsch. (*B. sensitivum* Trim. not DC.) *Gas-nidi-kumba*, S. Annual; stem erect, 1-2 in. high, red, simple; leaves crowded at the top of the stem, spreading; petiole red; leaflets 10-16 pairs; flowers golden-yellow with red veins. A very common weed in gardens and on estates. Flowers all the year. (Fig. 46.)

2. **OXALIS** Linn. Herbs; roots often tuberous; leaves alternate, trifoliate; stipules small, sometimes absent; flowers regular (actinomorphic), axillary; sepals 5; petals 5; stamens 10, connate at base, the five inner longer; ovary 5-celled; styles 5; fruit a loculicidal capsule. (Scientific name from a Greek word meaning *sour*)

Flowers yellow; plant creeping .. .. .	1. <i>O. corniculata</i>
Flowers pink; plants upright:	
Leaf lobes rounded; petiole hairy .. .. .	2. <i>O. corymbosa</i>
Leaf lobes acute; petiole hairless .. .. .	3. <i>O. latifolia</i>

1. **O. corniculata** Linn. *Hin-embul-embiliya*, S., *Kodip-puliyarai*, T. A perennial creeping herb; stem green or purple; leaves alternate, green or purple; stipules present, small, adnate to the petiole; flowers yellow, in axillary umbels; capsule 5-angled, pubescent, green. A very common weed in gardens and on estates. Flowers all the year round. (Fig. 47.)

2. **O. corymbosa** DC. (*O. violacea* Trim. not Linn.) *Periya-puliyarai*, T. Erect, bulbous herb; petioles hairy; leaflets heart-shaped, with rounded angles; flowers pinkish-mauve, in umbels on long scapes; capsule hairless. A common weed on estates. Flowers November. (A native of South America.) (Fig. 48.)

3. **O. latifolia** H.B.K. (*O. violacea* Trim. not Linn.). Erect, bulbous herb; petioles hairless; leaflets broadly triangular, with acute angles; flowers pink, in umbels on long scapes; capsules hairless. Rather a common weed in gardens and on estates. Flowers November, May. (A native of Mexico.) (Fig. 49.)

#### 20. BALSAMINACEAE. (Balsam Family).

Herbs; leaves alternate or opposite simple, usually without stipules; flowers irregular (zygomorphic), hermaphrodite; sepals 3-5, overlapping in bud, the lowest spurred; petals 3-5, stamens 5; ovary 5-celled, with axile placentation and many ovules; fruit usually a capsule.

**IMPATIENS** Linn. Annual or perennial herbs; flowers usually large, axillary, solitary or racemose, resupinate; sepals 3-5 the posterior one (lip) coloured, usually spurred; petals 3-5, the anterior (standard) erect; anthers coherent; disk wanting; capsule loculicidally dehiscent; seeds numerous. (The scientific name is from the sudden bursting of the capsules when touched).

**I. bifida** Thumb. (*I. flaccida* Arn.) *Kudalu-mal*, S., *Attai-pu*, T. Annual; stems 1-2 ft., glabrous, succulent; leaves alternate,  $2\frac{1}{2}$ -4 in. long, elliptic, glandular-serrate, pale below; flowers 1-1 $\frac{1}{2}$  in. diam., purplish-pink or rarely white; lateral sepals minute; lip saccate, keeled; spur slender, curved; standard keeled; lateral petals lobed; capsule up to 1 in. ovoid, dehiscent when touched. Common in the jungle. (The Tamil name has the same meaning as the Latin one.) (Fig. 50.)

## 21. LYTHRACEAE (Loosestrife Family).

Herbs or woody plants; leaves simple, exstipulate; flower usually regular and hermaphrodite; calyx 3-6 lobed; petals 0-6; ovary 2-6 celled, with many ovules in each cell.

*Lagerstroemia speciosa* Pers. (*L. Flos-reginae* Retz.) *Muruta*, S., which is round the Kandy Lake, belongs to the Lythraceae.

**ROOTALA** Linn. Annual herbs; leaves opposite or whorled; flowers solitary, axillary; petals 0-5; stamens 3-5; ovary 2-3-celled; fruit a septicidal capsule.

**R. indica** Koehne. (*Ammanvia peploides* Spreng.) Plant 4-12 in. high; leaves opposite,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, obovate, hairless; flowers pink; petals 4 or 0; stamens 4. Common in rice fields. Flowers all the year. (Fig. 51.)

## 22. ONAGRACEAE (Willowherb Family).

Herbs; leaves opposite or alternate; flowers solitary, axillary, regular, hermaphrodite; sepals and petals 4 or 5 free; stamens 4-10; ovary inferior or half-inferior, 4-5 celled; fruit a membranaceous, many-seeded capsule.

Stamens 8	..	..	..	..	1. <i>Jussiaea</i>
Stamens 4	..	..	..	..	2. <i>Ludwigia</i>

2. **JUSSIAEA** Linn. Herbaceous perennials; leaves alternate, simple, entire; stamens 8-10; ovary inferior; style short; stigma large; capsule irregularly dehiscent between the vertical ribs. (Named after Bernard de Jussieu, a French botanist).

Capsule narrowly oblong; flowers under 1 in. in diameter:

Sepals linear	..	..	..	..	1. <i>J. tenella</i>
Sepals ovate	..	..	..	..	2. <i>J. suffruticosa</i>

Capsule tapering downwards; flowers over 1 in. in diameter	..	..	..	..	3. <i>J. peruviana</i>
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1. **J. tenella** Burm. f. (?*Ludwigia prostrata* Trim.) Annual herb; stem 1-3 ft. high; leaves 1 $\frac{1}{2}$ -3 $\frac{1}{2}$  in. long; ovate-lanceolate, acuminate, almost hairless; flowers  $\frac{1}{4}$  in., yellow; sepals linear; capsule  $\frac{3}{4}$  in. long, rounded, not tapering downwards. Common in wet places. Flowers November. (Fig. 52.)

2. **J. suffruticosa** Linn. (*J. suffruticosa* var. *subglabra* Trim.) Perennial herb; stem 2-3 ft. high; leaves 2-4 in. long, narrowly lanceolate, sparsely hairy; flowers  $\frac{3}{4}$  in. across, yellow; sepals ovate; capsule 1 $\frac{1}{2}$  in. long, round, not tapering downwards. Wet places, rather rare. Flowers November. (Fig. 53.)

3. **J. peruviana** Linn. (*J. suffruticosa* Trim. in part) Perennial 3-4 ft. high; leaves 2-4 in. long, lanceolate, densely hairy; flowers 1 $\frac{1}{2}$ -1 $\frac{3}{4}$  in. across, yellow; sepals ovate; capsule about 1 in. long, 4-angled, tapering downwards. Common in wet places. Flowers May-October. (Fig. 54.)

2. **LUDWIGIA** Linn. Leaves simple, alternate; flowers solitary, axillary, almost sessile; calyx lobes 3-5; petals 0-5; stamens 3-5; ovary inferior.

**L. perennis** Linn. (*L. parviflora* Roxb.) Annual herb, 6-18 in. high; leaves usually about 1 $\frac{1}{2}$  in. long, linear-lanceolate, hairless; flowers yellow; stamens 4; capsule up to  $\frac{1}{2}$  in. long. Common in rice fields. Flowers December-May. (Fig. 55.)

## 23. THYMELAEACEAE (Spurge-laurel Family).

Trees or shrubs ; leaves simple, entire, exstipulate ; flowers regular, hermaphrodite ; calyx segments 4-5 united ; petals minute or wanting ; stamens 5-10 ; ovary 1-2 celled ; ovules 1-2 ; fruit indehiscent.

Shrubs ; fruit indehiscent :

Perianth segments 5 ; leaves alternate ; flowers in heads	..	1. <i>Lasiosiphon</i>
Perianth segments 4 ; leaves opposite ; flowers in racemes	..	2. <i>Wikstroemia</i>
Tree ; perianth segments 5 ; leaves alternate	..	3. <i>Gyrinops</i>

1. **LASIOSIPHON** Fresen. Shrubs ; leaves alternate ; flowers in terminal, bracteate heads ; 5 small, scale-like petals alternating with the calyx segments ; stamens 10, in two whorls inserted at the top of the perianth-tube ; ovary superior unilocular ; fruit dry indehiscent, included in the perianth tube.

**L. eriocephalus** Dcne. *Naka*, S. Shrub 6-10 ft. ; leaves 2-3 in. long, glabrous or villous ; flowers sessile, yellow, silky outside, surrounded by large elliptic villous bracts ; anthers subsessile, included. In scrub jungle on the patanas, rather rare. Flowers most of the year. (Fig. 56.)

2. **WIKSTROEMIA** Endl. Shrubs ; leaves opposite ; flowers in axillary racemes ; petals wanting ; stamens 8, in 2 whorls inserted in the upper part of the tube ; ovary 1-celled ; stigma globose, sessile ; fruit indehiscent, 1-seeded.

**W. INDICA** C. A. Mey. (*W. viridiflora* Meissn.). A shrub, about 3 ft. high ; leaves 1-1½ in. long, obovate-oblong, hairless, grey-green beneath ; flowers yellow-green ; fruit ellipsoid. Common on the race-course at Peradeniya and spreading to waste places. (Fig. 57.)

3. **GYRINOPS** Gaertn. Trees ; leaves alternate ; perianth segments 5 ; scales united to form a ring ; stamens 5 ; ovary 2-celled ; fruit a capsule.

**G. Walla** Gaertn. *Valla*, *Patta-valla*, S. Bark thin, smooth reddish brown ; leaves 2½-4 in. long, lanceolate ; slightly acuminate, not toothed, with numerous fine lateral veins ; flowers pale yellow ; capsule obovate, reddish-brown. Rather common in the jungle. Flowers December. (Fig. 58.)

*Mirabilis jalapa* (*Four-o'clock-flower*, *Marvel of Peru*, E., *Sendrikka*, S.) *Bougainvillea* spp. and *Pisonia Morindaefolia* R. Br., (*Lettuce tree*, E., *Lechchaikedda*, *Chandi*, T.) which are often cultivated, belong to the Nyctaginaceae.

*Grevillea robusta* A. Cunn., which is commonly planted in estates for shade, belongs to the Proteaceae.

## 24.—FLACOURTIACEAE (Chaulmoogra Family).

Trees or shrubs ; leaves simple, alternate, stipulate ; flowers hermaphrodite or unisexual ; petals with a scale inside ; stamens numerous or few, hypogynous, free ; ovary unilocular, placentation parietal ; fruit usually an indehiscent berry or drupe.

*Bixa Orellana* Linn.—*Annatto*, E., *Kaha*, S.—belongs to the allied family Bixaceae

Fruit pulpy ; spines present on stem ; petals wanting	..	1. <i>Flacourtia</i>
Fruit with a hard rind ; spines wanting ; petals present	..	2. <i>Hydnocarpus</i>

1. **FLACOURTIA** Comm. Trees or shrubs ; flowers unisexual, dioecious, in axillary clusters ; sepals 4-5 ; petals wanting ; disk annular ; fruit a few-seeded, pulpy berry.

*F. inermis* Roxb., *Lovi-lovi*, E., is cultivated.

**F. Ramontchi** L'Hérit. *Uguressa*, S., *Kaddukkali*, *Karumurukki*, T. A small tree, often with large branched spines on the trunk ; bark smooth, grey ; leaves 2-3 in. more or less crenate-serrate ; male flowers with reflexed sepals ; female flowers yellowish-white, with 5-6 stigmas ; berry inky-purple. In the jungle, not uncommon. Flowers January-February. (Fig. 59.)

2. **HYDNOCARPUS** Gaertn. Small trees ; flowers dioecious, in axillary panicles or fasciculate ; petals 5-6 ; stamens 5-8, sterile in female flowers ; ovary unilocular ; stigmas 3-5 sessile ; fruit a berry with a hard rind and several seeds.

*Taraktogenos Kurzii* Hassk. (*Hydnocarpus Kurzii* Warb.) yields Chaulmoogra Oil.

**H. venenata** Gaertn. *Makulu*, S., *Makal*, *Niradi-muttu*, *Marra-vitai*, T. A small tree with smooth whitish bark; leaves 4-6 in. long, lanceolate, pubescent on the veins beneath; stipules deciduous; male flowers in short axillary panicles; female flowers dirty white, solitary or in few-flowered axillary fascicles; stamens 5; fruit covered with a thick black or brownish tomentum. In the jungle, rather common. Flowers March-April. (Fig. 60.)

## 25. PASSIFLORACEAE (Passion-flower Family).

Herbaceous or shrubby climbers with tendrils, rarely erect trees or shrubs; leaves alternate, simple, entire or lobed, stipulate.

1. **PASSIFLORA** Linn. Leaves with leafy stipules often represented by tendrils; flowers solitary or inflorescence cymose; sepals united; petals 5; corona of thread-like petaloid bodies inside the petals; stamens 5, united below to the ovary to form a column (gynophore); ovary 1-celled; styles 3; fruit a berry.

*P. quadrangularis* Linn. *Granadilla*, *P. edulis* Sims, *Passion-fruit* or *Sweet-cup* are cultivated.

Flowers green; fruit small, dark blue	..	..	1. <i>P. suberosa</i>
Flowers white; fruit large, yellow or green:			
Leaves hairless	..	..	2. <i>P. stipulata</i>
Leaves hairy	..	..	3. <i>P. foetida</i>

1. **P. SUBEROSA** Linn. Perennial herb; leaves ovate, entire or more or less 3-lobed, almost hairless; petioles with 2 glands; flowers solitary or 2 together; calyx light green; corona purplish; fruit oblong, dark blue. Common in waste places. Flowers January. (Fig. 61.)

2. **P. STIPULATA** Aubl. (*P. glauca* Ait.) Leaves 3-lobed, hairless, dull green, with 2 leafy stipules at base; sepals white, greenish outside; petals white; corona white; berry about 2 inches across, green. In the jungle, not very common. Flowers February-March, August. (Fig. 62.)

3. **P. FOETIDA** Linn. Leaves ovate, with short lobes, densely hairy, with glands; leaf-stalk without glands; bract and bractlets deeply divided; sepals apiculate, white, greenish outside; petals white, corona purple; berry about 1 in. across, yellow. Rather common in waste places. Flowers January. (Fig. 63.)

2. **ADENIA** Forsk. Inflorescence cymose; cymes with sterile branches converted into tendrils; flowers unisexual; sepals united; petals 5, free; corona, if present, consisting of a ring of thread-like bodies; stamens 5, represented by staminodes in the female flowers; fruit a capsule.

**A. palmata** Engl. (*Modecca palmata* Lamk.) *Hondala*, *Potu-honda*, S. Perennial, climbing herb, becoming woody at base; stems covered with glaucous bloom; leaves 4-9 in. long, usually palmately 5-lobed, hairless, often red-spotted beneath, with 2-6 glands towards the base; calyx bell-shaped, 5-lobed, pale green; petals linear, hairy; fruit orange. Rather rare in the jungle. Flowers May-August. (Fig. 64.)

The following Cucurbitaceae are cultivated:—

*Trichosanthes anguina* Linn.—*Snake-gourd*, E., *Patola*, S., *Pudal*, *Podivi-langu*, T.; *Lagenaria leucantha* Rusby (*L. vulgaris* Ser.)—*Bottle-gourd*, E., *Diya-labu*, S., *Churai*, T.; *Luffa aegyptiaca* Mill.—*Niyam-veta-kolu*, S., *Pal-pisukku*, *Piku*, *Pidukku*, T.; *Luffa acutangula* Roxb.—*Veta-kolu*, *Dara-veta-kolu*, S., *Karukku-pisukku*, *Peyyidukku*, T.; *Benincasa hispida* Cogn. (*B. cerifera* Savi.)—*Ash-pumpkin*, E., *Alu-puhul*, S., *Neatu-puchini*, *Puchini*, T.; *Cucumis sativus* Linn.—*Cucumber*, E., *Rata-kekiri*, S., *Vellari*, T.; *Cucumis* sp.—*Hen-kekiri*, S.; *Sechium edule* Sw.—*Cho-cho*, E.

## 26. BEGONIACEAE.

Herbs or shrubs; leaves alternate or falsely whorled—stipulate; inflorescence cymose or paniculate; flowers unisexual, both sexes in the same plant (monoecious); male flowers with 2 or 5 sepals, 0-6 petals and many stamens; female flowers with 2-8 perianth segments; ovary inferior or half-inferior, 2-5 celled, with many seeds in each cell; fruit a capsule or berry.

**BEGONIA** Linn. Leaves unequal-sided ; male flowers with 2 outer and 0 or 2 inner perianth segments ; female flowers with 2-5 perianth segments ; ovary inferior, 2-4-celled ; fruit usually a winged capsule.

*B. Rex* Putz., *B. semperflorens* Link. & Otto., *B. Bismarckii* Hort., *B. tomentosa* Schott., *B. sceptrum* Hort., *B. heracleifolia* Ch. & Schl. and other species are cultivated.

Leaves hairless ; flowers pink	..	..	..	1. <i>B. malabarica</i>
Leaves hairy ; flowers white	..	..	..	2. <i>B. humilis</i>

1. **B. malabarica** Lamk. *Hak-ambala*, S. Stem erect, 2-3 ft. high, hairless ; leaves 4-6 in. long, very unequal-sided, slightly scabrous and often with pale spots above ; flowers rose-pink ; fruit pale-brown papery. Common in rocky, shaded places. Flowers all the year. (Fig. 65.)

2. **B. HUMILIS** Dryand. Stem erect, up to 2 ft. high, hairless ; leaves 1-3 in. long, unequal-sided, hairy and pale green in the upper surface ; flowers white ; capsule winged. Common in the jungle at Kandy. Flowers July, September. Native of Tropical America. (Fig. 66.)

## 27. CACTACEAE (Prickly-pear Family).

Herbs or woody plants ; leaves usually wanting or represented by spines ; flowers hermaphrodite, usually solitary, regular or rarely slightly irregular ; perianth segment indefinite, often spirally arranged ; stamens numerous ; ovary 1-celled, with many ovules on parietal placentas ; fruit a berry.

**RHIPSALIS** Gaertn. Fleshy epiphytes ; branches rounded or flattened ; leaves represented by small scales ; flowers solitary ; styles elongated, with a rayed stigma.

**R. cassytha** Gaertn. *Vel-navahandi*, S. Perennial ; stems pendulous, green, fleshy, cylindrical ; leaves represented in young shoots by small scales ; flowers greenish-white, scattered along the branches ; berry white, translucent. A common epiphyte. Flowers July-September. Native in Ceylon, Tropical Africa, and Tropical America, but not found elsewhere in Asia. (Fig. 67.)

**OPUNTIA** Mill. *Prickly Pears*, E. Herbs or woody plants, areoles bearing leaves, spines, bristles, and flowers ; leaves scale-like, soon falling (caducous) ; flowers usually solitary, regular ; sepals petals and stamens numerous.

**O. VULGARIS** Mill. (*O. monacantha* Haw., *O. Dillenii* Trim. not Haw.) Plant up to 5 ft. high ; joints of stem obovate, bright green ; spines usually solitary, straight, dark at apex ; flowers bright yellow, the outer petals reddish ; fruit green, falling and growing vegetatively. Rocky places ; rather rare. Flowers October. (Fig. 68.)

*Thea sinensis* Linn. (*Camellia Thea* Lamk., *C. theifera* Dyer, and *C. sinensis* O. Ktze). The tea plant belongs to the *Theaceae*.

## 28. OCHNACEAE.

Trees or shrubs, with watery sap ; leaves alternate, simple, stipulate ; flowers hermaphrodite, solitary, racemose, or paniculate ; sepals and petals 4-10, free ; stamens few or numerous ; staminodes present or absent ; ovary superior, usually deeply lobed ; fruit a drupe with an enlarged torus, or a septicidal capsule.

**OURATEA** Aubl. Small trees ; flowers in terminal panicles ; sepals and petals 5 ; stamens 10 ; anthers dehiscent by terminal pores ; ovary of 5 carpels ; ripe carpels separated on an enlarged torus, each one-seeded.

**O. zeylanica** Alst. (*Gomphia angustifolia* Vahl.) *Bo-kerá*, S. Leaves 2½-5 in. long, lanceolate, serrate, glabrous ; stipules deciduous ; flowers yellow, with red sepals ; style stout, longer than the stamens ; ripe carpels usually 5, purplish-black. Common in the jungle. Flowers January-April. (Fig. 69.)

## 29. ANCISTROCLADACEAE.

Climbing shrubs ; leaves simple, alternate exstipulate ; flowers regular, hermaphrodite ; sepals enlarged in fruit ; ovary inferior, unilocular ; fruit indehiscent ; seed solitary.

**ANCISTROCLADUS** Wall. Climbing by woody hooks (? leafless petioles); leaves entire; inflorescence paniculate; sepals 5, united at base; petals 5, slightly connate; stamens 5; free, adnate to the base of the petals; style articulate on a persistent conical base.

**A. hamatus** Prain. (*A. VahlII* Arn.) Bark pale brown, smooth; a few large leaves up to 20 in. on the main stem, but mostly crowded at the ends of the branches and about 4 in. long, narrowly obovate-lanceolate, pinkish-orange when young; flowers pale yellow. In scrub and jungle, rather common. Flowers March to June. (Fig. 70.)

### 30. MYRTACEAE (Myrtle Family).

Woody plants or rarely herbs; leaves simple, alternate whorled or opposite, usually exstipulate; flowers regular, hermaphrodite; sepals 4-5; stamens numerous; ovary inferior or half-inferior, 2-4 locular; ovules numerous; style simple; fruit a capsule or berry.

*Barringtonia asiatica* Kurz. (*B. speciosa* Forst.) *Mudilla*, S. has been planted in the streets of Kandy. *Eugenia malaccensis* Linn., *Malay Apple*, E., is also cultivated

Leaves opposite :

Inflorescence many-flowered .. .. .	1. <i>Syzygium</i>
Inflorescence 1-3-flowered .. .. .	2. <i>Psidium</i>
Leaves alternate .. .. .	3. <i>Careya</i>

#### 1. SYZYGIUM Gaertn.

Flowers cream-coloured 2 in. across; fruit greenish-white .. 1. *S. Jambos*

Flowers  $\frac{1}{2}$  in. across :

Fruit white .. .. .	2. <i>S. zeylanicum</i>
Fruit blackish-purple :	
Panicles springing from the axils of leaf-scars .. .. .	3. <i>S. operculatum</i>
Panicles terminal .. .. .	4. <i>S. caryophyllatum</i>

1. **S. JAMBOS** Alst. (*Eugenia Jambos* Linn.) *Rose Apple*, E., *Jambu* S. A small tree; leaves lanceolate, 5-7 in. long, acuminate; inflorescence terminal. 4-5 flowered; flowers cream-coloured; petals not falling off as a cap; fruit round. Cultivated and often found in the jungle as an escape. Flowers September. (Fig. 71.)

2. **S. zeylanicum** DC. (*Eugenia spicata* Lamk.) *Maran*, *Maranda*, S., *Marunji*, T. A shrub or small tree with furrowed brown bark; leaves up to 3 in. long, linear lanceolate to ovate-elliptic, acuminate, hairless; flowers white; petals more or less united and falling off as a cap; fruit under  $\frac{1}{4}$  in. round, white. Rocks on the banks of rivers. Flowers March-April. (Fig. 72.)

3. **S. operculatum** Nied. (*Eugenia operculata* Roxb.) *Bata-damba*, *Kobo-mal*, S. A small tree; bark grey, flaking off in pieces; leaves 4-6 in. long, oblong-lanceolate, acuminate, light green, hairless; flowers cream-coloured; petals united at the top and falling off as a cap; fruit  $\frac{3}{8}$  in. round, purplish-black. Rather common in jungle. Flowers February-April. (Fig. 73.)

4. **S. caryophyllatum** Alst. (*Eugenia corymbosa* Lamk.) *Hin-dan*, S. Shrubs or small tree; bark grey, smooth; young plants pubescent; leaves  $2\frac{1}{2}$ - $3\frac{1}{2}$  in. long, obovate elliptic; flowers white; petals connate in a cap, which falls off when the flowers expand; fruit black, juicy. Very common in the scrub jungle on the patanas. Flowers February-May. (Fig. 74.)

2. **PSIDIUM** Linn. Woody plants; leaves opposite; inflorescence 1-few-flowered; calyx lobes not overlapping in bud; petals 4-5; ovary inferior, with axile placentation; fruit a berry. *P. Cattleianum* Sabine, *Purple* or *Calcutta Guava*, E., is sometimes cultivated.

**P. GUAJAVA** Linn. *Guava*, E., *Pera*, S., *Koyya*, T. A shrub or small tree; twigs 4-cornered; leaves 5 in. long, oblong, gland-dotted, covered with adpressed hairs on the lower surface; inflorescence 1-3-flowered; petals white; fruit round, yellow. Very common in waste places. A native of Mexico. (Fig. 75.)

3. **CAREYA** Roxb. Tree; leaves alternate; inflorescence spicate; sepals 4; petals 4; stamens numerous, epigynous; ovary inferior, 4-locular; fruit fleshy, indehiscent with numerous seeds.

**C. coccinea** A. Chev. (*C. arborea* Roxb.) *Patana Oak*, E., *Kahata*, S., *Kachaddai*, T. A moderate sized tree; bark thick, dark grey, rough; young parts hairless; leaves 6-12 in., obovate; flowers large  $3\frac{1}{2}$ -4 in. across; petals pale green; stamen filaments red; fruit  $2\frac{1}{2}$ -3 in. diameter, green. Common in the patanas. Flowers November-March. (Fig. 76.)

### 31. MELASTOMACEAE.

Trees, shrubs or herbs; leaves opposite, exstipulate; flowers regular, hermaphrodite; sepals and petals 3-6; stamens 3-10; anthers appendaged, opening by terminal pores; ovary 1-6 celled; placentation free-central, axile or parietal; fruit a capsule or berry.

**OSBECKIA** Linn. Herbs and shrubs; leaves 3-7 nerved from the base; flowers large, in terminal cymes; sepals and petals 4-5; stamens 8-10 with often 2 small appendages at the apex of the filament; fruit a capsule, loculicidally dehiscent at the apex by pores; seeds numerous. (Named after P. Osbeck, a Swedish traveller.)

**O. octandra** DC. An erect shrubby perennial or small shrub; leaves lanceolate, almost glabrous above, 3-nerved from the base; flowers reddish purple,  $1\frac{1}{2}$  in. across; calyx-tube usually perfectly glabrous, calyx-lobes bristle-tipped. Common among short grass on the patanas and on banks. Flowers all the year. (Fig. 77.)

**MEMECYLON** Linn. Woody plants; leaves thick; flowers in axillary cymes or umbels; calyx 4-lobed; petals 4; stamens 8; ovary inferior, 1-celled, with 6-20 ovules and free-central placentation; fruit a berry, usually 1-seeded.

**M. umbellatum** Burm. *Kora Kaha*, S., *Pandik-kaya*, T. A shrub; leaves  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, elliptic, obtuse, not shining, thick and not flexible, veins almost invisible; flowers dark blue; fruit  $\frac{1}{4}$  in. diameter. Rather common in the jungle. Flowers March-September. (Fig. 78.)

### 32. COMBRETACEAE.

Trees or scandent shrubs; leaves simple, exstipulate; flowers hermaphrodite or polygamous or unisexual; sepals 2-7; petals 0 or 4-5; stamens 4-10; staminodes 4; ovary inferior, unilocular, ovules 1-5; fruit 1-seeded, indehiscent, dry or fleshy. *Quisqualis indica* L., *Drunken Sailor*, is commonly cultivated.

**TERMINALIA** Linn. Trees; leaves alternate or opposite, flowers polygamous; inflorescence spicate or paniculate, axillary or terminal; sepals 4-5; petals wanting; stamens 8-10; ovary unilocular; fruit dry, drupaceous.

*T. Catappa* L., *Indian Almond*, E., *Kottamba*, S., is cultivated.

Fruit not winged .. .. .	1. <i>T. bellirica</i>
Fruit winged .. .. .	2. <i>T. Arjuna</i>

1. **T. bellirica** Roxb. *Bulu*, S., *Yanti*, T. A large tree with vertically-furrowed brown bark; leaves alternate, 4-6 in. long, obovate-oblong, glabrous; flowers pale greenish-yellow, strongly scented, in spikes or panicles; fruit  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long obovoid, not winged. Common in the jungle. Flowers February. (Fig. 79.)

2. **T. Arjuna** W. & A., (*T. glabra* W. & A.) *Kumbuk*, S., *Marutu*, T. A very large tree with thick, smooth, pale often greenish bark, which flakes off in large flat pieces; young plants slightly pubescent; leaves subopposite, 3-6 in. long, glabrous, petiole usually with 1 or 2 glands at the top, immediately below the leaf; flowers greenish-white, sessile, in axillary spikes or terminal panicles; fruit about 2 in. long, winged at the angles. Very common on the banks of rivers. Flowers April-May. (Fig. 80.)

### 33. RHIZOPHORACEAE (Mangrove Family).

Woody plants; leaves opposite or alternate, stipulate or exstipulate; inflorescence axillary; calyx segments 4-14, not overlapping in bud; petals 4-14; ovary inferior or half inferior 1-5-celled, with 1 or 2 ovules in each cell; fruit usually a berry or drupe, rarely dehiscent.

Leaves opposite, stipulate .. .. .	1. <i>Carallia</i>
Leaves alternate exstipulate .. .. .	2. <i>Anisophyllea</i>

1. **CARALLIA** Roxb. Leaves opposite; stipules interpetiolar (*i.e.*, the stipules of opposite leaves united in pairs); inflorescence cymose; calyx 5-8-lobed; petals 5-8; ovary 1-celled, fruit a 1-seeded berry.

**C. brachiata** Merr. (*C. integerrima* DC.) *Davata*, S. A tree with smooth bark; leaves  $3\frac{1}{2}$ - $4\frac{1}{2}$  in. long, obovate-elliptic, hairless, toothed in young plants; stipules deciduous; petals 7-8, crisped, creamy-white; fruit  $\frac{1}{2}$  in. round, reddish. Not uncommon in the jungle. Flowers February. (Fig. 81.)

2. **ANISOPHYLLEA** R. Br. Leaves exstipulate, alternate, dimorphic, the smaller ones stipuliform, 3-5-nerved from the base; calyx segments 4; petals 4; stamens 8; ovary 4-celled, with one ovule in each cell; fruit a 1-seeded drupe.

**A. cinnamomoides** Alst. (*A. zeylanica* Benth.) *Veli-penna*, S. A tree with dark brown bark; leaves of 2 kinds, the larger 4-5 in. long, ovate-lanceolate, long acuminate, hairless, purplish when young, the smaller  $\frac{1}{2}$  in. long, with a purplish gland (?) in the axil; inflorescence racemose, above the axils; flowers greenish-white; petals deeply divided into thread-like segments; fruit 1 in. long, ellipsoid. Rather rare in the jungle. Flowers April-October. (Confined to Ceylon.) (Fig. 82.)

### 34. HYPERICACEAE (St. John's-wort Family).

Herbs, shrubs or trees, rarely climbers; juice resinous; leaves simple, opposite or verticillate, exstipulate; flowers regular; stamens numerous; ovary superior; fruit a capsule or berry.

**HYPERICUM** Linn. Herbs or shrubs; leaves opposite, entire; flowers hermaphrodite, solitary or cymose; sepals and petals 5, free; stamens numerous; ovary either unilocular with 3 parietal placentas or 5-celled with axile placentation; fruit a septical capsule; seeds numerous.

**H. japonicum** Thunb. Erect or procumbent annual; leaves  $\frac{1}{4}$ - $\frac{3}{8}$  inch long, ovate-elliptic, pellucid-punctate; flowers yellow;  $\frac{1}{2}$  in. across, in dichotomous cymes; ovary unilocular, with 3 parietal placentas; styles 3. In rice-fields, rather common. Flowers all the year. (Fig. 83.)

### 35. GUTTIFERAE (Gamboge Family).

Woody plants; leaves simple, opposite or whorled, usually exstipulate; flowers regular; sepals 2-6; petals 2-6, rarely wanting; stamens numerous, often united; ovary superior; fruit usually a berry.

1. **GARCINIA** Linn. Trees, often with yellow juice; male, female and hermaphrodite flowers on the same tree; stamens represented by staminodes in the female flowers; ovary 2-12-celled, with one ovule in each cell; stigma peltate.

*G. Mangostana* Linn.—*Mangosteen*, E., *Mangus*, S. and T., *G. tinctoria* W. F. Wright (*G. Xanthochymus* Hk. f.)—*Rata-goraka*, S., *Seemai-goraka*, T. are cultivated.

**G. Morella** Desr. *Kana-goraka*, S., *Korakkap-puli*, *Makki*, T. Bark smooth, brown; leaves elliptic, shining; flowers stalkless, female solitary, male 1-3 together, greenish-white; stamens united; ovary 4-celled; fruit  $\frac{3}{4}$  in. in diameter, round. In the jungle, rather rare. Flowers May. (Fig. 84.)

2. **MESUA** Linn. Trees; flowers usually hermaphrodite; sepals 4; petals 4-5; stamens numerous; ovary 2-celled but becoming 1-celled in fruit; style long; fruit rather fleshy, ultimately dehiscent, 1-4-seeded.

**M. ferrea** Linn. *Ceylon Ironwood*, E., *Na*, S. *Naka*, T. A moderate-sized tree, with smooth, pale brown bark; leaves 3-4 in. long, lanceolate, acuminate, dark green above, grey beneath, red when young; flowers solitary, axillary, 3-4 in. across; petals usually 4, white, crumpled; fruit broadly oblong-ovoid, pointed, 1-1 $\frac{1}{2}$  in. long, becoming brown and splitting. Wild at Hakkinda; planted around Kandy Lake. Flowers April-June. (Fig. 85.)

3. **CALOPHYLLUM** Linn. Trees; leaves with numerous parallel lateral veins; inflorescence paniculate; male, female and hermaphrodite flowers in the same tree; sepals and petals 4-12, the latter often wanting; stamens numerous; ovary 1-celled, with one ovule; style long; fruit a drupe.

**C. Inophyllum** Linn. *Domba, Tel-domba, S., Punnai, Dommakottai, Punnakam, T.* Bark grey, smooth; leaves 4-8 in. long, elliptic; flowers in axillary racemes, 1 inch across; petals 4, white; fruit round, green, about  $1\frac{1}{2}$  inches in diameter. In the jungle, rather rare, but often cultivated. Flowers May. Probably not native about Kandy. (Fig. 86.)

### 36. TILIACEAE (Linden Family).

Trees, shrubs or herbs; leaves simple, alternate, stipulate; flowers regular, hermaphrodite; sepals and petals 5; stamens numerous, free; ovary 2-5-locular; fruit a drupe or a loculicidal capsule.

*Corchorus olitorius* Linn. the jute plant belongs to this family.

Petals entire, yellow; anthers opening by slits:

Trees or shrubs .. .. .	1. <i>Grewia</i>
Herbs; fruit burr-like .. .. .	2. <i>Triumfetta</i>
Petals lacinate, white; anthers opening by pores .. .. .	3. <i>Elaeocarpus</i>

1. **GREWIA** Linn. Shrubs, small trees, or scandent shrubs; sepals and petals 5; stamens numerous, free; ovary 2-4-locular; fruit a fleshy, indehiscent, often 4-lobed drupe, with 1-6 seeds in each loculus. (Named after Nehemiah Grew, a 17th century botanist.)

Inflorescence axillary; fruit yellow

Fruit more or less 4-lobed .. .. .	1. <i>G. columnaris</i>
Fruit rounded, not lobed .. .. .	2. <i>G. orientalis</i>
Inflorescence terminal; fruit purple .. .. .	3. <i>G. Microcos</i>

1. **G. columnaris** Sm. *Kodittaviddai, T.* A climbing (?) shrub; leaves 2-3 inches long, elliptic lanceolate, toothed, hairy; flowers yellowish-white, in axillary cymes; fruit slightly 4-lobed, yellow. Common in the jungle. Flowers July-November. (Fig. 87.)

2. **G. orientalis** Linn. *Vel-keliya, Vel-mediya, S., Taviddai, T.* Shrub; leaves 3-4 inches long, finely toothed, hairless, 3-nerved at base; nerves often black; flowers white, umbellate cymes; fruit round, yellow. Common in the jungle. Flowers February-April. (Fig. 88.)

3. **G. Microcos** Linn. *Keliya, Kohu-Kirilla, S.* Shrub; young parts stellate-tomentose; leaves 4-9 in. long, lanceolate, glabrous above, with stellate hairs below, and 3-nerved at base; flowers greenish-white, in terminal panicles; ovary trilobular; fruit purplish. In scrub on the patanas, common. Flowers June-July. (Fig. 89.)

2. **TRIUMFETTA** Linn. Annual or perennial herbs; leaves lobed or serrate; flowers small, in leaf-opposed clusters or terminal spikes; sepals and petals 5, free; stamens 5-25 free; ovary 2-5-locular; fruit indehiscent, spiny. (Named after J. B. Triumfetti, an Italian botanist).

**T. Bartramia** Linn. (*T. rhomboidea* Jacq.) *Paroquet Burr, E., Epala S., Adai-oddi, T.* Herb  $1\frac{1}{2}$ -3 ft. high; leaves 1-3 in. more or less trilobed, coarsely and irregularly serrate, hairy; flowers yellow; stamens 8-15; fruit covered with hooked spines. Very common in waste places. Flowers November-February. (Fig. 90.)

3. **ELAEOCARPUS** Linn. Trees; inflorescence axillary, racemose; sepals and petals 5, free; disk present; stamens 15-35; anthers dehiscing by terminal pores; ovary 2-3-locular; style simple; fruit drupaceous, 1-seeded.

**E. serratus** Linn. *Wild olive, E., Verabu, S.* A medium-sized tree; young parts pubescent; leaves 2-4 in. long, obovate-elliptic, crenate-serrate, glabrous, with glandular thickenings in the axils of the veins, turning red as they die; axes of racemes red; flowers drooping; pedicels green; sepals green; petals white, lacinate; stamens 25-35, with a tuft of bristles at the top of one another; disk orange; ovary trilobular; fruit with a tuberculate stone. Common in the jungle. Flowers January July-August. (Fig. 91.)

## 37. STERCULIACEAE (Cola-nut Family).

Trees, shrubs, or herbs; leaves usually simple, alternate, stipulate; flowers usually regular, hermaphrodite or unisexual; sepals and petals 5, usually united at base; stamens 5-20, often united; carpels 2-5.

*Theobroma Cacao* Linn. is the *Cocoa* tree, *Cola acuminata* Schott. & Endl. the *Cola Nut*. There are some small trees of *Sterculia Balanghas*, Linn., *Nava*, S., planted near the Queen's Hotel.

Trees :

Stamens 10-20 :				
Petals wanting	..	..	..	1. <i>Pterygota</i>
Petals 5	..	..	..	2. <i>Pterospermum</i>
Stamens 5	..	..	..	3. <i>Melochia</i>
Herbs, stamens 5	..	..	..	4. <i>Waltheria</i>

1. **PTERYGOTA** Schott & Endl. Trees, leaves simple; inflorescence paniculate; flowers unisexual or hermaphrodite; petals wanting; stamens 5-10, united to form a column; fruit of 3-5, many-seeded follicles; seeds winged.

There is a large tree of *Pterygota alata* R. Br. near the Hospital.

**P. Thwaitesii** Alst. (*Sterculia Thwaitesii* Mast.) Tall tree, slightly buttressed at base, with longitudinally cracked bark; leaves 5-8 in. long, ovate-oblong, hairless; veins green beneath; flowers pale green; stamens 10; follicles  $2\frac{1}{2}$  in. long, woody, dark brown. Near the river at Hakkinda. Flowers October. Confined to Ceylon. (Fig. 92.)

2. **PTEROSPERMUM** Schreb. Trees; flowers solitary, axillary; sepals and petals 5, connate at base; stamens 20, connate at base; staminodes 5; ovary 5-locular; fruit a loculicidal, woody capsule; seeds winged.

**P. canescens** Roxb. (*P. suberifolium* Lamk.) *Velanga*, S., *Vinnanku*, *Tada*, T. A small tree, with thick, longitudinally-fissured bark; young parts finely tomentose; leaves 2-4 in. long, often lobed especially in young plants, yellow-white beneath; flowers yellowish-white, very sweet-scented; capsule 2-2 $\frac{1}{2}$  in. Common in the jungle. Flowers May. (Fig. 93.)

3. **MELOCHIA** Linn. Herbs or woody plants; leaves simple; sepals united at base; stamens opposite the petals, united at base; anthers opening outwards (extrorse); ovary 5-celled, with 2 ovules in each cell; fruit a loculicidally-dehiscent capsule.

**M. UMBELLATA** Stapf. A small tree; leaves heart-shaped, irregularly toothed, greyish-green, densely covered with short hairs; leaf-blade 3 $\frac{1}{2}$ -6 in. long; petals pink. In scrub jungle; rather common. Flowers December-January. (Fig. 94.)

4. **WALTHERIA** Linn. Perennial herbs, flowers small, in axillary clusters; sepals, petals, and stamens 5, connate; ovary unilocular; fruit a single-seeded capsule.

**W. indica** Linn. (*W. americana* Linn.) *Punnikki*, T. Erect 1-3 ft. high; leaves ovate, 1-2 $\frac{1}{2}$  in. long, crenate-serrate, pubescent; flowers yellow; capsule small, enclosed in the calyx; seed black. Rather common in waste places. Flowers November-February. (Fig. 95.)

## 39. BOMBACACEAE. (Baobab Family).

Large soft-wooded trees; leaves simple or digitate, alternate; stipules deciduous; flowers hermaphrodite, large; sepals usually 5, united; petals 5 or 0; ovary superior, 2-5-locular; fruit a loculicidally-dehiscent capsule, or indehiscent; seeds numerous.

*Durio abethinus* Linn. is the *Durian*, *Adansonia digitata* Linn. (*Papparappuli*, *Perukka*, T.) the *Baobab*, and *Ceiba pentandra* Gaertn. (*Eriodendron anfractuosum* DC) the *silk-cotton Tree*.

**GOSSAMPINUS** Ham. Large tree; leaves digitate, deciduous; flowers solitary, axillary; bracteoles wanting; calyx truncate or irregularly lobed; petals 5, free; stamens numerous, connate at base; ovary 5-locular; fruit a leathery, loculicidal capsule; seeds imbedded in cotton.

**G. malabaricus** Alst. (*Bombax malabaricum* DC.). *Cotton tree*, E., *Katu-imbul*, S., *Parutti*, T. A tall tree; trunk straight, erect, with small buttresses; bark smooth, light grey, often spiny; leaves digitate, deciduous; leaflets lanceolate, 4-8 in. long; flowers 3 in. across, light red, in the axils of fallen leaves, appearing when the tree is leafless; seeds ovoid, black. Planted by roadsides and occasionally found in the jungle. Flowers January-February. (Fig. 96.)

#### 40. MALVACEAE. (Mallow Family).

Herbs, shrubs or small trees; leaves alternate, simple, stipulate; flowers regular, hermaphrodite; sepals and petals 5, often connate; stamens numerous, usually united to form a tube; fruit apocarpous, with dehiscent or indehiscent 1-5 seeded carpels, or a loculicidal capsule.

*Thespesia populnea* Soland is often planted as a hedge plant.

Styles as many as the carpels; flowers yellowish-white:

Carpels 3 or more seeded	..	..	..	1. <i>Hibiscus</i>
Carpels 1-seeded	..	..	..	2. <i>Sida</i>

Styles twice as many as the carpels; flowers pink .. 3. *Urena*

1. **HIBISCUS** Linn. Herbs, shrubs or trees; leaves simple; flowers solitary and axillary, or in terminal racemes; bracteoles 0-12; sepals 5, connate at base or spathaceous; petals 5; staminal tube antheriferous throughout its length; styles 5; fruit a 5 or spuriously 10-celled, loculicidally-dehiscent capsule; seeds numerous. (Scientific name an old Greek one of unknown meaning.)

*H. esculentus* Linn.—*Ladies Fingers*, E., *Bandakka*, S., *Vandakkai*, T.; and *H. Rosa-sinensis* Linn.—*Sho flowers*, E., so called because the petals were formerly used for polishing shoes, are cultivated. *H. schizopetalus* Hk. f., a similar species to *H. Rosa-sinensis* but with drooping flowers, is also cultivated.

**H. furcatus** Roxb. *Napiritta*, S. A perennial, scrambling, spiny herb; leaves 2-3 in. long; stipules linear-lanceolate; bracteoles 10-12, linear, setaceous; flowers yellow with a dark crimson centre; capsule ovoid, covered with coarse hair. Common in scrub jungle. Flowers December-February. (Fig. 97.)

2. **SIDA** Linn. Perennial herbs; leaves simple; flowers solitary, axillary; bracteoles wanting; sepals and petals 5, connate at base; stamens numerous, connected into a tube; carpels 5-10, separating from the axis, irregularly dehiscent, 1-seeded.

Prostrate herb .. .. . 1. *S. veronicaefolia*

Erect herbs:

Flowers bright orange-yellow, 0.9 in. across; pedicels usually green; leaves half as broad as long, bright green beneath	..	..	..	2. <i>S. rhombifolia</i>
Flowers pale orange, 0.5 in. across; pedicels usually reddish; leaves 3 times as broad, grey-green beneath	..	..	..	3. <i>S. acuta</i>

1. **S. veronicaefolia** Lamk. (*S. humilis* Cav.) *Bevila*, S., *Palampadu*, *Palampachi*, T. Leaves  $\frac{1}{2}$ -2 in. long, ovate, cordate at base, sparsely hairy; stipules minute; flowers pale yellow; carpels 5, slightly bicuspidate, smooth. In the shade of large trees; rather common. Flowers December-March. (Fig. 98.)

2. **S. rhombifolia** Linn. *Kotikan-bevila*, S., *Chittamaddi*, *Atipala-cheddu*, T. Leaves 1-2 inches long, rhomboid-lanceolate, glabrous; stipules as long as the petioles; carpels 10, beaked or not. Common in waste places. Flowers all the year. (Fig. 99.)

3. **S. acuta** Burm. *Gas-bevila*, S., *Vaddatiruppi*, *Malai-tanki*, *Visha-peti*, T. Leaves  $\frac{1}{2}$ -2 $\frac{1}{2}$  in. long, lanceolate, glabrous; stipules exceeding the petioles; flowers pale yellow; carpels 5-10, with two sharp beaks. Common in waste places. Flowers all the year. (Fig. 100.)

3. **URENA** Linn. Perennial herbs; leaves simple or lobed; flowers solitary, axillary; bracteoles 5; sepals and petals 5, connate at base; stamens numerous; united into a tube; styles 10; carpels 5, separating from the axis, indehiscent, covered with glochidiate spines.

*U. lobata* Linn. *Patta-epala*, S. Erect herb, 2-4 ft. high; leaves 2-3 in. long, rounded, shallowly 5-lobed, stellate hairy on both surfaces; bracts rather longer than the calyx; flowers bright pink. Waste places, very common. Flowers December-February. (Fig. 101.)

#### 41. MALPIGHIACEAE.

Erect or climbing herbs; leaves simple, opposite, exstipulate; flowers hermaphrodite, racemose; sepals 5, connate at base; petals 5, clawed, free; stamens 10; ovary trilocular.

**HIPTAGE** Gaertn. Climbing shrubs; leaves entire, flowers shortly irregular; the uppermost petals larger than the others; one stamen longer than the rest; fruit of 1-3, dry, winged, indehiscent, 1-seeded nuts.

*H. bengalensis* Kurz. (*H. Madablota* Gaertn.) *Puvak-gediya-vel*, S., *Nerunkate*, T. Young parts pubescent, leaves 4-7 in. long, glabrous; flowers  $\frac{3}{4}$  in. across, white with a yellow blotch on the back petal. Rather common in scrub jungle. Flowers March, September. (Fig. 102.)

#### 42. EUPHORBIACEAE (Spurge Family).

Herbs, shrubs or trees, leaves alternate or opposite, simple or compound; stipules usually present; flowers usually small, unisexual; perianth segments usually in one whorl; ovary superior, usually trilocular; fruit usually capsular. *Hevea brasiliensis* Muell. Arg. is the *Para rubber*, *Manihot Glaziovii* Muell. Arg. *Cecara rubber*, *M. utilisissima* Pohl, *Manioc* or *Tapioca*. *Jatropha Curcas* Linn.—*Physic nut*, E., *Rata-Endaru*, S., *Kaddamanakku*, T.—is often planted as a hedge. *Aleurites moluccana* Willd. (*A. triloba* Forst.)—*Candle-nut*, E., *Rata-kekuna*, *Tel-kekuna*, S—is cultivated. *Codiaeum variegatum* Bl. is the *Garden Croton*.

- Inflorescence of stamens with a pedicelled ovary contained in a perianth-like involucre . . . . . 14. *Euphorbia*
- Inflorescence of unisexual flowers :
- Cells of the ovary 2-ovuled; flowers apetalous :
- Male flowers solitary or fascicled :
- Leaves under 1 in.; styles free or slightly connate :
- Herbs or shrubs :
- Fruit dry . . . . . 1. *Phyllanthus*
- Fruit fleshy :
- Stamens 5; filaments distinct . . . . . 2. *Flueggea*
- Stamens 3; filaments united . . . . . 3. *Breynia*
- Trees; fruit fleshy . . . . . 4. *Emblica*
- Leaves over 1 in.; styles confluent into a column . . . . . 5. *Glochidion*
- Male flowers spicate :
- Disk wanting; sepals 4; fruit yellow . . . . . 6. *Aporosa*
- Disk present; sepals 3; fruit black . . . . . 7. *Antidesma*
- Cells of the ovary 1-ovuled :
- Male flowers with petals; inflorescence terminal . . . . . 8. *Croton*
- Flowers apetalous :
- Male calyx well developed :
- Filaments free :
- Annual herbs . . . . . 9. *Acalypha*
- Trees or shrubs :
- Leaves not peltate . . . . . 10. *Mallotus*
- Leaves peltate . . . . . 11. *Macaranga*
- Filaments connate; riverside shrub . . . . . 12. *Homonoia*
- Male calyx minute; plant herbaceous . . . . . 13. *Sebastiania*

1. **PHYLLANTHUS** Linn. Herbs or shrubs ; leaves small, simple, distichous ; flowers axillary ; perianth 5-6, free ; stamen filaments free or connate ; ovary trilocular ; fruit capsular.

Herbs :

- |                                     |                          |
|-------------------------------------|--------------------------|
| Fruit mucronate ; stems red .. .. . | 1. <i>P. Urinaria</i>    |
| Fruit smooth ; stems green .. .. .  | 2. <i>P. Niruri</i>      |
| Shrub .. .. .                       | 3. <i>P. myrtifolius</i> |

1. **P. Urinaria** Linn. *Rat-pitavakka*, S., *Chivappuk-kilkay-nelli*, T. Stem erect, 1-2 ft. high ; leaf-bearing branches short ; leaves  $\frac{1}{4}$ - $\frac{1}{3}$  in. ; flowers numerous, solitary, yellowish ; fruit  $\frac{1}{8}$  in., muriculate. Common in waste places and among grass. Flowers all the year. (Fig. 103.)

2. **P. Niruri** Linn. *Pitavakka*, S., *Vellaik-kilkay-nelli*, T. Stem erect 1-2 ft. ; leaf-bearing branches slender, longer than in *P. Urinaria* ; leaves  $\frac{1}{2}$ - $\frac{3}{4}$  in. long ; flowers solitary, yellowish ; fruit  $\frac{1}{12}$  in. smooth. A very common weed on estates and in waste places. Flowers all the year. (Fig. 104.)

3. **P. myrtifolius** Moon. Stem erect 3-8 ft. high ; young parts slightly pubescent ; leaves  $\frac{3}{8}$ - $\frac{5}{8}$  in. long, lanceolate ; flowers fasciated, reddish ; fruit  $\frac{1}{8}$  in. Common among rocks on the banks of streams, as at Hakkinda. Flowers April and September. (Confined to Ceylon.) (Fig. 105.)

2. **FLUEGGEA** Willd. Shrubs ; leaves simple, distichous ; flowers axillary, unisexual ; male and female in different plants ; perianth segments 5 ; stamens 5 in male flowers ; ovary 1-3-celled, with 2 ovules in each cell.

**F. leucopyrus** Willd. *Hin-katu-pila*, S., *Mudpulantti*, T. Twigs often ending in spines ; leaves  $\frac{1}{2}$ -1 in. long, obovate, often notched at apex, grey-green beneath, hairless ; flowers green ; berry up to  $\frac{1}{4}$  in. in diameter, round, white. Common in scrub jungle. Flowers May-June, August. (Fig. 106.)

3. **BREYNIA** Forst. Shrubs or small trees ; leaves distichous, stipulate ; flowers axillary, unisexual, male and female on the same plant (monoecious) ; perianth 6-lobed ; stamens 3, united into a column, wanting in the female flowers ; ovary 3-celled, with 2 ovules in each cell ; fruit dehiscent or indehiscent.

1. **B. retusa** Alst. (*B. patens* Hk. f.) *Val-murunga*, S. A shrub, with smooth grey bark ; leaves  $\frac{1}{2}$ -1 in. long, oblong, usually slightly notched at the apex ; flowers solitary ; flowers pale green ; fruit round, depressed, vermilion, fleshy, dehiscent. Common in scrub jungle. Flowers April-June. (Fig. 107.)

2. **B. rhamnoides** Muell. Arg. *Gas-kayila*, S., *Manipputanti*, T. A shrub or small tree ; bark yellowish-grey ; leaves ovate-oblong, 1-1 $\frac{1}{2}$  in. long ; flowers greenish-yellow ; fruit round,  $\frac{1}{8}$  in. in diameter, dull red. Common in scrub jungle. Flowers July. (Fig. 108.)

4. **EMBLICA** Gaertn. Trees ; leaves small, distichous ; flowers small, monoecious, apetalous, axillary ; perianth segments 6 ; disk wanting ; stamens 3, connate ; fruit large, fleshy. (The fruit *E. officinalis* is the "*Emblie Myrobalan*" of the old pharmacists).

**E. officinalis** Gaertn. (*Phyllanthus Emblica* Linn.) *Nelli*, S., *Toppu-nelli*, T. A small tree ; bark thin, grey ; young parts pubescent ; leaves  $\frac{1}{2}$  in. long ; male flowers numerous, greenish-yellow, pedicelled, fasciated ; female flowers subsessile ; fruit  $\frac{1}{2}$  in. Common on the patanas. Flowers October. (Fig. 109.)

5. **GLOCHIDION** Forst. Shrubs or small trees ; leaves distichous, stipulate ; flowers monoecious, apetalous, solitary or in axillary fascicles ; perianth-segments 6 ; disk wanting ; styles connate into a column ; fruit a trilocular capsule, with 2 ovules in each locus.

**G. Moonii** Thw. *Bu-hunu-kirilla*, S. A shrub ; leaves 2-7 in. long ; male flowers greenish-yellow, pedicelled, hairy ; female flowers green, subsessile ; style usually 3 times as long as the perianth segments, hairy, persistent. A common shrub in the jungle. Flowers January-March. (Confined to Ceylon.) (Fig. 110.)

6. **APOROSA** Blume. Trees ; flowers dioecious, apetalous ; male in spikes ; perianth segments 4-5 ; disk wanting ; stamens 2-3 ; ovary 2-3-locular, with 2 ovules in each locus.

**A. Lindleyana** Baill. *Kebella, Barana-embilla*, S. A medium-sized tree; bark brown, smooth; young parts glabrous; leaves  $2\frac{1}{2}$ –4 in. long; elliptic-lanceolate, dark green, hairless; petioles swollen at the apex; flowers pale green; sepals 4; fruit under  $\frac{1}{2}$  in. diameter, round. Very common in the jungle. Flowers January, February. (Fig. 111.)

7. **ANTIDESMA** Linn. Woody plants; stipules present; inflorescence spicate; perianth segments 3–7; disk present; ovary 1-celled; ovules 2; stigmas 2–4; fruit drupaceous.

**A. Bunias** Spreng. *Karavala-kebella*, S. A small tree; bark greyish-brown; young parts pubescent; leaves 4–6 in. long, stipules deciduous; flowers reddish; calyx tomentose; stigmas 3; fruit juicy, black. Common in the jungle. Flowers April-May, September. (Fig. 112.)

8. **CROTON** Linn. Woody plants; flowers monoecious; sepals 5; petals 5 in male flowers, wanting in female; disk glands opposite the sepals; stamens 12–30; fruit a trilobular, 3-seeded capsule. (Scientific name from the Greek name for the Castor oil plant, *Ricinus communis*.)

**C. lacciferus** Linn. (*C. aromaticus* var *lacciferus* Trim.) *Gaskeppetiya*, S., *Teppadi, Vid-pimai*, T. A shrub; bark smooth, grey; leaves  $2\frac{1}{2}$ –4 in. long, ovate, turning red as they die, covered with numerous, white, stellate hairs; inflorescence a racemose panicle; flowers greenish-white, stamens about 20; fruit under  $\frac{1}{2}$  in. round, green with white hairs. Very common in scrub jungle. Flowers August–November. (Fig. 113.)

9. **ACALYPHA** Linn. Herbs or shrubs; leaves alternate; inflorescence spicate; male flowers:—sepals 4, disk wanting; stamens 8; pistillode wanting; female flowers:—sepals 3–6; styles 3; fruit a trilobular, 3-seeded capsule. (Scientific name from the Greek name for the Nettle, *Urtica dioica*.)

*A. hispida* Burm. and other species are cultivated in gardens.

**A. indica** Linn. *Kuppameniya*, S., *Kuppameni, Punaivananki*, T. Erect, annual herb 1–2 ft. high; leaves  $1\frac{1}{2}$ –3 in. long; female flowers green, subtended by large leafy bracts; ovary hispid. Common in waste places. Flowers all the year. (Fig. 114.)

10. **MALLOTUS** Lour. Woody plants; flowers dioecious; perianth segments 3–5; stamens numerous; fruit a 2–3-celled capsule, with one seed in each cell.

Capsule covered with soft spines:

Leaves silvery-white below .. .. .

Leaves glabrous; green below .. .. .

Capsule covered with red scurfy powder .. .. .

1. *M. tetracoccus*

2. *M. Walkerae*

3. *M. philippinensis*

1. **M. tetracoccus** Kurz. (*M. albus* Muell. Arg.) *Bu-kenda*, S. A tree; bark yellowish grey, smooth; leaves 4–6 in. long, silvery-white below; spikes paniced; flowers creamy white; styles plumose. Common in the jungle. Flowers September. (Fig. 115.)

2. **M. Walkerae** Hk. f. A shrub or small tree; leaves 2–7 in. long, usually opposite, obovate-lanceolate, shallowly toothed, acuminate, hairless; flowers greenish-white; capsule 3-lobed, green with soft deciduous spines. Rather common in the jungle. Flowers March–May, September. (Confined to Ceylon.) (Fig. 116.)

3. **M. philippinensis** Muell. Arg. *Hamparila*, S., *Kapila, Kamala-ma*, T. A moderate-sized tree with smooth bark; leaves elliptic or lanceolate, grey beneath, 3-nerved from the base; flowers greenish-yellow; capsule  $\frac{1}{3}$  inch across, covered with red scurfy powder. Very common in the jungle. Flowers August. (Fig. 117.)

11. **MACARANGA** Thouars. Trees; leaves simple, alternate, peltate; flowers apetalous; male flowers:—sepals 3–4; stamens 2–14; pistillode wanting; female flowers; calyx 2–4 lobed or spathaceous; ovary 1–6-locular with one ovule in each loculus; fruit capsular.

**M. peltata** Muell. Arg. (*M. tomentosa* Wt.) *Pat-kenda*, S., *Vaddakkanni*, T. A small tree; leaves 9–12 in. long; stipules large, deciduous; inflorescence paniculate; flowers dioecious; stamens 2–5; ovary unilocular; styles peltate; fruit  $\frac{1}{4}$  in., warted. Common in scrub jungle. Flowers October. (Fig. 118.)

12. **HOMONIOIA** Lour. Shrubs; leaves simple; flowers dioecious, apetalous; inflorescence axillary, spicate; male flowers:—sepals 3; stamens numerous; pistillode wanting; female flowers:—sepals 5–8 caducous; fruit trilocular, 3-seeded.

**H. riparia** Lour. Young parts pubescent; leaves 3–6 in. long, glabrous above, scaly beneath; capsule puberulous. Common in rocky places on the banks of rivers. Flowers August. (Fig. 119.)

13. **SEBASTIANIA** Spreng. Annual herbs; leaves simple, alternate; flowers monoecious, apetalous; male flowers:—calyx 5-lobed; stamens 1–4; pistillode wanting; female flowers:—sepals 3; fruit a trilocular, 3-seeded capsule.

**S. Chamaelea** Muell. Arg. *Rat-pitavakka*, S. Herb 1–2 ft. high; leaves  $\frac{1}{2}$ –3 in. long, linear-lanceolate, minutely serrate, glabrous; stipules ovate; male flowers yellowish, in short axillary or leaf-opposed spikes; female flowers solitary; fruit under  $\frac{1}{4}$  in. covered with short wart-like spines. Common in open grassy places. Flowers October. (Fig. 120.)

14. **EUPHORBIA** Linn. Herbs or woody plants, with milky juice; inflorescence consisting of numerous male flowers and one female flower, surrounded by a perianth-like involucre (cyathulum); male flowers with one stamen; female flowers with a 3-celled ovary, with one ovule in each cell; fruit a capsule.

*E. pulcherrima* Willd. is the *Poinsettia* of gardens.

Trees with green fleshy branches .. .. .	1. <i>E. Antiquorum</i>
Annular herbs:	
Leaves over $\frac{2}{3}$ in. long, hairy above .. .. .	2. <i>E. hirta</i>
Leaves under $\frac{1}{2}$ in. long; hairless above .. .. .	3. <i>E. thymifolia</i>

1. **E. Antiquorum** Linn. *Spurge-cactus*, E., *Daluk*, S., *Chaturakkalli*, T. A tree; branches green, 3-winged, jointed; leaves minute, soon falling; stipules represented by short spines; heads in cymes of 3, yellow-green. Common in rocky places, as at Hakkinda. Flowers September–February. (Fig. 121.)

2. **E. hirta** Linn. *Bu-dada-kiriya*, S., *Palavi*, *Maddup-pachcharichippillu*. T. Annual herb, 6–12 in. high; leaves opposite,  $\frac{3}{4}$ –1 $\frac{1}{2}$  in. long, ovate-lanceolate, acute, shortly toothed, hairy; flower-heads greenish; capsule hairy. A very common weed in cultivated ground. Flowers all the year. (Fig. 122.)

3. **E. thymifolia** Linn. *Bin-dada-kiriya*, S., *Chittirai-Palavi*, *Amman-pach charichip-pillu*, T. A hairy herb; leaves up to  $\frac{1}{2}$  in. long, opposite, oblong, slightly hairy beneath; stipules minute; heads pink; capsule hairy. Very common in cultivated ground. Flowers all the year. (Fig. 123.)

#### 43. CHAILLETIACEAE.

Woody plants; leaves alternate, simple, stipulate; inflorescence cymose; sepals 5, overlapping in bud; petals 5, free 2–4-lobed; stamens 5; ovary superior, 2–3-celled, with 1 ovule in each cell; fruit a drupe.

**DICHAPETALUM** Thouars. Male, female, and hermaphrodite flowers on different plants; sepals united at base; fruit with a fleshy mesocarp.

**D. gelonioides** Engl. (*Chailletia sumatrana* Trim. not Miq.). A shrub; leaves 2–3 inches long, obovate-elliptic, with transparent veins, hairless; flowers greenish-white; fruit  $\frac{5}{8}$  in. across, 2-celled, hairy, grey-green; stone surrounded by a red coat (mesocarp). Rather rare in the jungle. Flowers March. (Fig. 124.)

#### 44. ROSACEAE (Rose Family).

Herbs or woody plants; leaves stipulate, usually alternate; flower usually regular and hermaphrodite; calyx usually 5-lobed; petals 5, rarely wanting; stamens usually numerous; fruits usually achenes, berries or drupelets, rarely capsular.

**RUBUS** Linn. Herbs or shrubs, usually prickly; leaves alternate; inflorescence paniculate; calyx lobes 5; petals 5; stamens numerous; carpels numerous, free, with 2 ovules in each; fruit of 1-seeded drupelets, on a convex receptacle.

**R. indicus** Thunb. (*R. moluccanus* Trim. in part) *Vel-bute*, S. Stem densely woody, armed with large thorns; leaves simple, about 3 in. long, woolly beneath; stipules soon falling; petals white; fruit purplish-red. Common in the jungle. Flowers all the year. (Fig. 125.)

#### 45. LEGUMINOSAE (Legume Family).

Petals regular, not overlapping in bud; stamens few or numerous .. 1. *Mimosaceae*  
 Petals irregular, overlapping in bud, stamens few :  
 Stamens free; flowers slightly irregular .. .. 2. *Caesalpiniaceae*  
 Stamens united; flowers very irregular .. .. 3. *Papilionaceae*

#### (1) MIMOSACEAE (Sensitive-plant Sub-family).

Woody plants or rarely herbs; leaves pinnate; flowers regular, usually hermaphrodite, in heads or spikes; calyx 3-6 lobed, lobes not overlapping in bud; petals 3-6, free or united; stamens 5-numerous; ovary superior; fruit a pod (legume). *Enteolobium Saman* Prain. (*Pithecolobium Saman* Benth., *Inga Saman* Willd.), *Rain tree* E. (in Ceylon); and *Pithecolobium dulce* Benth., *Madras Thorn*, E. are commonly cultivated. *E. Saman* Prain is not the Rain Tree of Hiero which is *Oreodaphne foetens* Nees. *Leucaena glauca* Benth. is planted for shade on estates.

Stamens 8-10 :

Woody climbers with huge pods; flowers in spikes .. 1. *Entada*  
 Shrubs or herbs :  
 Thornless; flowers white, in round heads .. .. 2. *Desmanthus*  
 Thorny; flowers pink, in round heads; leaflets sensitive .. .. 3. *Mimosa*  
 Stamens numerous; flowers pale yellow :  
 Stamens free; thorny climbers .. .. 4. *Acacia*  
 Stamens united; trees .. .. 5. *Albizzia*

1. **ENTADA** Adans. Woody climbers; leaves bipinnate, with the rachis usually ending in a tendril; hermaphrodite, male and female flowers on the same plant; inflorescence spicate; calyx cup-shaped, 5-toothed; corolla 5-toothed; stamens 10; free; pod 1 or more feet long, composed of several, 1-seeded joints.

**E. Pursaetha** DC. (*E. scandens* Trim. in part, not Benth.). *Pus-vel*, S. Stem flattened and spirally twisted; leaves about 6 in. long; pinnae 2 pairs, with 6-8 leaflets; leaflets  $1\frac{1}{2}$ -2 in. long, obovate-oblong, notched at the tip, glabrous; spikes axillary; petals green; stamens yellow; pod about a foot long, flat; seeds  $1\frac{1}{4}$  in. in diameter. Not uncommon in the jungle. I am doubtful of the correct name of this species. (Fig. 126.)

2. **DESMANTHUS** Willd. Perennial herbs, often shrubby at base; inflorescence of globose axillary heads; male, female, and hermaphrodite flowers on same plant; calyx cup-shaped, 5-toothed; petals slightly united at base; stamens 10; pod many-seeded, dehiscent, straight.

**D. VIRGATUS** Willd. Shrubby perennial, 4 ft. high; leaves bipinnate; pinnae 2-5-pairs; leaflets 10-25 pairs; flower heads with 6-8, yellowish-white flowers; pods 4 in. long, flat. A native of tropical America occasionally found in waste places. (Fig. 127.)

3. **MIMOSA** Linn. Woody plants or herbs; leaves bipinnate, with sensitive leaflets; male, female and hermaphrodite flowers on same plant, in round heads; calyx cup-shaped, shortly toothed; petals usually 4, joined towards the base; stamens 4-10, free; pod of 1-seeded joints that separate when ripe.

**M. PUNICA** Linn. *Sensitive plant*, E. (in Ceylon), *Nidi-kumba*, S., *Todda-chinunki*, *Todda-vadik-kodi*, T. Herb, stems prostrate, prickly; pinnae 2 pairs; leaflets 15-25 pairs,  $\frac{1}{3}$  inch long; flower-heads pink; stamens 4; pod  $\frac{2}{3}$  in. long, 3-4-jointed, bristly. A tropical American plant now very common in waste and grassy places. (Fig. 128.)

This is called "Shame weed" in Jamaica and perhaps the name *Sensitive plant* should be restricted to *M. sensitiva*.

4. **ACACIA** Mill. Woody plants; leaves bipinnate; flowers all hermaphrodite, or male, female and hermaphrodite flowers on same plant; calyx shortly toothed; petals usually 5, joined; stamens numerous, free; pod not jointed.

Leaflets 0.4 in. long, 10-17 pairs	..	..	1. <i>A. caesia</i>
Leaflets 0.1 in. long, 50 pairs	..	..	2. <i>A. tomentella</i>

1. **A. caesia** Willd. *Hinguru*, S. A large thorny climber; leaves about 6 inches long; pinnae 6-8 pairs; leaflets 10-17 pairs, about 0.4 in. long; flowers creamy-white, in round heads, arranged in terminal panicles; pod red, 6 inches long, dehiscent. Common in scrub jungle. (Fig. 129.)

2. **A. tomentella** Zipp. A large climber with small prickles; leaf-rachis 2-6 inches long; pinnae 11-17 pairs; leaflets about 50 pairs, 0.3 in. long; flowers creamy-white, in round heads, arranged in terminal panicles; pod  $4\frac{1}{2}$  in. long. In the jungle, rather common. Flowers February, September. (Fig. 130.)

5. **ALBIZZIA** Durazz. Trees; leaves bipinnate; flowers in round heads, hermaphrodite; calyx usually 5-toothed; petals joined below the middle; stamens numerous, joined at base; pod large and flat, indehiscent.

*A. falcata* Backer (*A. moluccana* Miq.) is cultivated on estates as a shade tree.

Leaflets under $\frac{1}{2}$ in. long, acute	..	..	1. <i>A. chinensis</i>
Leaflets over $\frac{3}{4}$ in. long, obtuse	..	..	2. <i>A. odoratissima</i>

1. **A. chinensis** Merr. (*A. stipulata* Boiv.) *Kabal-mara*, *Hulan-mara*, S. Bark smooth, pale grey; young parts reddish, covered with rusty hair, leaflets under  $\frac{1}{2}$  in. long, unequal-sided, acute; stipules large, soon falling; flowers sweet-scented; stamen filaments pink at apex, white below; pod 6-8 in. long,  $1\frac{1}{4}$  in. broad. Rather common in the jungle. Flowers February-May. (Fig. 131.)

2. **A. odoratissima** Benth. *Suriya-mara*, S., *Ponnaimurunkai*, *Karu-nakai*, *Karu-venkai*, *Karu-naka*, T. Bark rough, grey; leaflets over  $\frac{3}{4}$  inch long, somewhat unequal-sided, obtuse; stipules small, linear, soon falling; flowers white, sweet-scented; pod 4-7 in. long,  $1\frac{1}{4}$  in. broad. In the jungle; rare. (Fig. 132.)

## (2) CAESALPINIACEAE (Cassia Sub-family).

Woody plants or rarely herbs; leaves pinnate; inflorescence racemose; flowers bilaterally symmetrical (zygomorphic), hermaphrodite; calyx lobes 4-5, usually overlapping in bud; petals usually 5, free; stamens 10, some often sterile or wanting; fruit a pod (legume).

*Delonix regia* Raf. (*Poinciana regia* Boj.), *Flamboyant*, E., *Peltophorum inerme* Naves (*P. ferrugineum* Benth) are planted round Kandy Lake.

Leaves bipinnate:

Pod not winged; small tree	..	..	1. <i>Caesalpinia</i>
Pod red, winged; thorny climber	..	..	2. <i>Mezoneurum</i>

Leaves pinnate; unarmed shrubs or trees:

Pod many-seeded	..	..	3. <i>Cassia</i>
Pod one-seeded	..	..	4. <i>Myroxyton</i>

1. **CAESALPINIA** Linn. Woody plants; leaves bipinnate; inflorescence racemose; calyx deeply lobed; petals usually clawed, the lower larger than the upper, stamens 10, free.

*C. pulcherrima* Sw., the *Peacock flower*, is sometimes cultivated.

Tree	..	..	..	1. <i>C. Sappan</i>
Climbing shrub	..	..	..	2. <i>C. Nuga</i>

1. **C. SAPPAN** Linn. *Sappan*, E., *Patangi*, S. A small tree; leaf-rachis spineless or with a few small spines; leaflets  $\frac{1}{2}$  in. long, unequal-sided, hairless; flowers yellow; pods 3- $3\frac{1}{2}$  in. long. Sometimes found apparently wild. Flowers April-May. (Fig. 133.)

2. **C. NUGA** Ait. *Diya-vavul-etiya*, S. A climbing shrub; leaf-rachis with numerous recurved prickles; leaflets 1- $1\frac{1}{2}$  in. long, ovate, hairless; flowers yellow; pods 2 inches long. Rather common in the jungle. Flowers August, December. (Fig. 134.)

2. **MEZONEURUM** Desf. Spiny woody climbers; leaves bipinnate; inflorescence racemose; calyx irregular, with the lowest lobe the longest; stamens free, pod flat, induratescent, winged.

**M. furfuraceum** Prain (*M. enneaphyllum* W. & A.) *Goda-varul-etiya*, S. Leaf-rachis 7-12 in. long; leaflets  $\frac{3}{4}$  in. long; oblong, hairless, flowers  $\frac{3}{4}$  in. across yellow; pod 5-7 in. long,  $1\frac{1}{4}$  in. broad, thin, red. Common in scrub jungle. Flowers July-September. (Fig. 135.)

3. **CASSIA** Linn. Erect, usually woody plants; leaves once-pinnate; calyx segments joined at base; petals 5, the upper often larger; pod many-seeded. (Scientific name of unknown origin.)

In many, two forms of flowers occur, one in which the lower stamens project to the left, the other in which they project to the right. It was once thought that this *enantiostyly* was a kind of dimorphism, but both types of flower occur on one plant. It would appear to be simply a case of variation in symmetry. The same structure is found in *Exacum*. In many species a division of labour takes place among the stamens; the insect visitors eat the pollen of the short stamens and carry away on their bodies that of the long. There is no honey.

*Cassia nodosa* Ham. (pink), *C. grandis* Linn. f. (reddish) *Horse Cassia*, E., and *C. multijuga* Rich. (yellow) are often cultivated.

Pod round in section; shrub .. .. .	1. <i>C. bicapsularis</i>
Pod flattened:	
Large tree .. .. .	2. <i>C. siamea</i>
Shrubs:	
Leaflets large, few:	
Pod not winged:	
Leaflets 8-10, acute:	
Leaflets glabrous; petioles black .. .. .	3. <i>C. occidentalis</i>
Leaflets hairy; petioles green .. .. .	4. <i>C. hirsuta</i>
Leaflets 6, obtuse .. .. .	5. <i>C. Tora</i>
Pods with 2 lateral wings .. .. .	6. <i>C. alata</i>
Leaflets small, very numerous:	
Leaflets about 50, 0.15 in. long .. .. .	7. <i>C. mimosoides</i>
Leaflets about 30, 0.4 in. long .. .. .	8. <i>C. Leschenaultiana</i>

1. **C. BICAPSULARIS** Linn. Shrub, 4-6 ft. high; leaflets 3-5 pairs, obovate-oblong, obtuse, hairless, with a club-shaped gland between the lowest pair of leaflets; inflorescence racemose; flowers yellow; pod cylindric. Occasionally found in waste places; a native of Tropical America. (Fig. 136.)

2. **C. siamea** Lamk. *Va, Aramana*, S., *Vakai, Munka-konnai*, T. A moderate-sized tree; leaflets 2 $\frac{1}{2}$ -3 in. long, 6-10 pairs, oblong-lanceolate, hairless; flowers in terminal, racemose panicles, yellow; fertile stamens 2, longer than the staminodes; pod 8-12 in. long, flat, covered with fine hair. Rather common in the jungle. Flowers March, November. (Fig. 137.)

3. **C. OCCIDENTALIS** Linn. *Peni-tora*, S., *Ponnantakarai*, T. A shrubby annual, 2-3 ft. high; leaf-rachis purplish; leaflets 2-4 in. long, 4-5 pairs, lanceolate; hairless; flowers  $1\frac{1}{2}$  in. across, usually in pairs in the leaf-axils; fertile stamens 7; pod 3 $\frac{1}{2}$ -4 $\frac{1}{2}$  in. long, flattened, hairless. Very common in waste places; probably a native of Tropical America. Flowers March, June. (Fig. 138.)

4. **C. HIRSUTA** Linn. *Parangi-tora*, S. A shrubby annual, 2-3 ft. high; leaf-rachis green; leaflets 3 pairs, 2 $\frac{1}{2}$ -4 in. long, lanceolate, hairy; flowers in axillary panicles, yellow; pod about 6 in. long, narrow, hairy. Similar places to *C. occidentalis* but not so common. (Fig. 139.)

5. **C. TORA** Linn. *Peti-tora*, S., *Vadda-takarai, Pandi-takarai*, T. An annual herb, 1-2 ft. high; leaflets 6, 1-1 $\frac{1}{2}$  in. long, obovate, finely silky beneath; flowers pale orange-yellow, axillary; pod 6-8 in. long, less than  $\frac{1}{4}$  in. in diameter. Waste places and about rice fields. Flowers January, August. (Fig. 140.)

6. **C. ALATA** Linn. *Rata-tora*, S., *Chimai-akatti, Vandukolli*, T. Shrub about 6 ft. high; leaflets 7-8-pairs; 5 in. long, oblong, obtuse; rachis without glands; inflorescence racemose; bracteoles large, orange; flowers orange-yellow; pod winged. Rather rare in waste places and on the borders of rice fields. Flowers October. Native of Tropical America. (Fig. 141.)

7. *C. mimosoides* Linn. *Bin-siyambala*, S. Annual herb, 2-3 ft. high; leaf-rachis  $2\frac{1}{2}$ -3 in. long, with a flat stalkless gland near the base; leaflets 60-100,  $\frac{1}{8}$  inch long; flowers axillary, yellow; pod  $2-2\frac{1}{4}$  in. long. Rather rare on the patanas. Flowers April, August, December. (Fig. 142.)

8. *C. LESCHENAULTIANA* DC. (*C. mimosoides* var. *Wallichiana* Bak.). Annual, stems often woody at base, deep purple-red up to 3 ft. high; leaf-rachis 1- $2\frac{1}{2}$  in. long, with a gland  $\frac{1}{4}$  in. below the lowest pair of leaflets; leaflets about 18 pairs,  $\frac{1}{2}$  in. long, dark blue-green; petals yellow with red spots at the base of the 2 upper ones; stamens 10; pod flattened, up to 2 in. long, 8-16-seeded. Waste places, common. (Fig. 143.)

4. *MYROXYLON* Linn. f. (not Forst.) Trees; leaves unequally pinnate, inflorescence axillary or terminal, racemose or paniculate; calyx irregularly toothed petals 4; ovary with 2 ovules near the apex; pod winged, 1-seeded.

*M. BALSAMUM* Hartw. (*Toluwifera Pereirae* Klotzsch). Bark smooth; leaflets 5-7, ovate, pointed  $1\frac{1}{4}$ -2 in. long, glossy; calyx covered with grey hair; petals white; pod 3-4 in. long. Common in the Kandy jungle. Flowers February, April. (Fig. 144.)

### (3) PAPILIGNACEAE (Pea Sub-family).

Herbs or woody plants; leaves simple or compound, alternate; flowers bilaterally symmetrical (zygomorphic), hermaphrodite; sepals united; petals 5, the posterior (standard) outside in bud, the 2 lateral (wings) intermediate, and the two anterior often united to form the keel; stamens 10, united or free; fruit a pod (legume).

*Gliricidia maculata* H. B. K.; *Phaseolus lunatus* Linn.—*Lima bean*, E., *Potubonchi*, S.; *P. vulgaris* Linn.—*Kidney bean*, E., *Bonchi*, S.; *Psophocarpus tetragonolobus* DC.—*Princess Bean*, E., *Dara-dambala*, *Diluk-dambala*, S., *Kallu-pungi*, T.; *Cajanus inodorus* Medic.—(*C. indicus* Spreng.) *Dhal* (Hindustani), *Pigeon Pea*, E., *Rata-tora*, S., *Paripu*, *Thavarai*, T.; *Canavalia gladiata* DC.—*Sword bean*, E., *Avara*, S.; *Vigna cylindrica* Skeels (*Catjang* Endl.)—*Nil-me*, S., *Kodippayaru* T.; and *V. Sinensis* Endl.—*Li-mekaral*, S., *Paithan-kai*, T. are cultivated.

- |     |  |     |                     |
|-----|--|-----|---------------------|
| 1   | Pods not joined :  |     |                     |
| 2   | Pods dehiscent :   |     |                     |
| 3   | Stem erect :   |     |                     |
| 4   | Unarmed herbs or shrubs :  |     |                     |
| 5   | Pod inflated :   |     |                     |
| 6   | Flowers large, with small bracts; leaves trifoliolate or rarely simple .. .. . | 1.  | <i>Crotalaria</i>   |
| 6*  | Flowers small, concealed by larger bracts; leaves simple .. .. .               | 2.  | <i>Flemingia</i>    |
| 5*  | Pod not inflated; leaves pinnate :   |     |                     |
| 7   | Pod flat .. .. .   | 3.  | <i>Tephrosia</i>    |
| 7*  | Pod rounded .. .. .  | 4.  | <i>Indigofera</i>   |
| 4*  | Spiny trees .. .. .  | 5.  | <i>Erythrina</i>    |
| 3*  | Stems twining; herbs with trifoliolate leaves :                                |     |                     |
| 8   | Flowers upside down .. .. .  | 6.  | <i>Centrosema</i>   |
| 8*  | Flowers normal :   |     |                     |
| 9   | Leaflets not gland-dotted :  |     |                     |
| 10  | Flowers minute, purple; style not bearded .. .. .                              | 7.  | <i>Teramnus</i>     |
| 10* | Flowers moderate-sized; style bearded .. .. .                                  | 8.  | <i>Dolichos</i>     |
| 9*  | Leaflets gland-dotted; Flowers yellow :  |     |                     |
| 11  | Patana plant; leaflets obtuse .. .. .  | 9.  | <i>Alysicarpus</i>  |
| 11* | Jungle plant; leaflets acute .. .. .   | 10. | <i>Dunbaria</i>     |
| 2*  | Pods indehiscent; leaves pinnate :   |     |                     |
| 12  | Leaves opposite; trees .. .. .   | 11. | <i>Pongamia</i>     |
| 12* | Leaves alternate; climbing shrubs .. .. .                                      | 12. | <i>Dalbergia</i>    |
| 1*  | Pods breaking up into 1-seeded joints; plants not twining :                    |     |                     |
| 13  | Flowers purple or red :  |     |                     |
| 14  | Plant viscid, suberect; flowers red .. .. .                                    | 13. | <i>Pseudarthria</i> |
| 14* | Plants not viscid, prostrate; flowers purple or red :                          |     |                     |
| 15  | Leaves simple .. .. .  | 14. | <i>Alysicarpus</i>  |
| 15* | Leaves usually trifoliolate .. .. .  | 15. | <i>Desmodium</i>    |
| 13* | Flowers yellow .. .. .   | 16. | <i>Smithia</i>      |

1. **CROTALARIA** Linn. *Yak-beriya*, S. Flowers in terminal, or in leaf-opposed racemes; keel of corolla distinctly beaked; stamens all joined; pod turgid, usually many-seeded.

Pod sessile:

Pods hairy; flowers yellow .. .. . 1. *C. incana*

Pods hairless; flowers usually with purple veins:

Flowers not densely crowded; leaves obtuse .. .. . 2. *C. striata*

Flowers densely crowded; leaves acute .. .. . 3. *C. Brownei*

Pod stalked .. .. . 4. *C. laburnifolia*

1. **C. INCANA** Linn. Erect herb, about 1½ ft. high; leaflets about 2 in. long elliptic or oblong-elliptic, usually obtuse, hairy beneath; racemes rather lax; flowers pure yellow; pod 1¼ in. long, densely hairy. Rather common in waste places. Flowers September, October. (Fig. 145.)

2. **C. STRIATA** DC. Herb 2-3 ft.; leaves 3-foliolate; leaflets 2-2½ in. long, elliptic, obtuse, minutely hairy beneath; racemes lax; flowers yellow with purple veins, sometimes pure yellow; pod 1½ in. long, almost hairless. Very common in waste places; probably a native of Tropical America. Flowers December-February. (Fig. 146.)

3. **C. BROWNEI** Bertero. (*C. striata* var. *acutifolia* Linn.) Herbs, 3-6 ft. high; leaves 3-foliolate; leaflets about 3 in. long, elliptic-lanceolate, acute; stipules minute, soon falling; racemes dense; similar places to *C. striata*, but less common. Flowers December. Native of Tropical America. (Fig. 147.)

4. **C. laburnifolia** Linn. A shrub, 2-5 ft. high; leaves 3-foliolate; leaflets 1½-2½ in. long, obovate-elliptic; flowers yellow, keel tinged with purple; pod 1½-2 in. long on a stalk about 1 in. long. In scrub jungle, not very common. Flowers February-May. (Fig. 148.)

2. **FLEMINGIA** Roxb. Shrubs; leaves simple or 3-foliolate; corolla scarcely longer than the calyx; 9 stamens united and one free; pod small, turgid, 2-seeded.

**F. strobilifera** R. Br. *Hop-bean*, E., *Hampinna*, S. A shrub 4-6 ft. high; leaves apparently simple (really 1-foliolate), 4 in. long; flowers 2-4 together in the axils of large bracts, greenish-white with purple veins; pod ½ in. long, downy. Not uncommon in the jungle. Flowers January, July-August. (Fig. 149.)

3. **TEPHROSIA** Pers. Leaves odd-pinnate, with opposite leaflets; calyx teeth sub-equal; 9 stamens united and one free; pod flattened, many-seeded.

*T. candida* DC. better known under the Assamese name, *Boga Medelloa*, is commonly cultivated on estates as a green manure plant.

Flowers vermilion .. .. . 1. *T. tinctoria*

Flowers reddish-purple .. .. . 2. *T. purpurea*

1. **T. tinctoria** Pers. *Alu-pila*, S. A perennial herb about 1½ ft. high; leaflets 7-9, 1-2 in. long, oblong, densely silvery-pubescent beneath; inflorescence racemose; flowers vermilion; pod about 2½ in. long. Common on the patanas. Flowers December. (Fig. 150.)

2. **T. purpurea** Pers. *Pila*, S., *Kolinchi*, *Kavilay*, *Kolluk-kuyvelai*, T. A perennial herb, 1-2 ft. high; leaflets 11-13, ¾-1 in. long, finely adpressed hairy beneath; inflorescence racemose; flowers reddish-purple; pod 1¾ inches long. Rather common in waste places. Flowers November, February. (Fig. 151.)

4. **INDIGOFERA** Linn. Herbs or shrubs; inflorescence racemose, axillary; calyx 5-toothed; 9 stamens united and one free; pod usually round in cross-section.

**I. SUFFRUTICOSA** Mill. (*I. Anil* Linn.) *Guatemala Indigo*, E. Shrub 4-6 ft. high; leaves pinnate, with 5-6 pairs of leaflets; leaflets long, slightly hairy on both surfaces; standard greenish; wings pale reddish; pod curved, 3-6-seeded. Rather common in waste places. Flowers July. (Fig. 152.)

5. **ERYTHRINA** Linn. Trees with prickly branches; leaves trifoliolate; inflorescence racemose; standard longer than the wings; stamens joined (one partially free); pod round in cross-section.

*E. lithosperma* Miq. is the *Dadap*; it is planted on estates for shade.

**E. fusca** Lour. (*E. ovalifolia* Roxb.) *Yak-erabadu*, S. A medium-sized tree with a thorny trunk; leaflets  $3\frac{1}{2}$ - $4\frac{1}{2}$  in. long, broadly elliptic, pale beneath; standard of flowers dark crimson, wings and keel purple; pod 6-10 in. long, downy. Rocky places in the banks of the Mahaweli at Hakkinda. Flowers January. (Fig. 153.)

5. **CENTROSEMA** DC. Herbs with twining stems; leaves usually 3-foliolate; inflorescence axillary; flowers inverted; calyx bell-shaped or funnel-shaped, standard spurred; pod thick but flattened, ribbed near the margins.

**C. PUBESCENS** Benth. (*Periandra Berteriana* Trim. not Benth.) Leaves 3-foliolate; leaflets ovate-elliptic, hairy on both surfaces when young, 2- $3\frac{1}{2}$  in. long; inflorescence about 5 flowered; flowers  $1\frac{1}{2}$  in. across, white with violet markings on the standard; standard hairy on the back. Locally common in the jungle and in waste places. Flowers January. (Fig. 154.)

*Clitoria ternatea* Linn. *Nil-kalarodu-vel*, S., *Karuttuppu*, T., is cultivated in gardens.

6. **TERAMNUS** Sw. Twining herbs; leaves trifoliolate; flowers in axillary racemes; calyx teeth sub-equal; corolla scarcely longer than the calyx; stamens joined; pod narrow, many-seeded, style persistent.

**T. mollis** Benth. A prostrate or twining herb; stems covered with spreading hairs; leaf-rachis 1- $2\frac{1}{2}$  in. long, hairy; leaflets 1-4 in. long, lanceolate or elliptic-lanceolate; racemes 1- $2\frac{1}{2}$  in. long, densely hairy; standard of flowers pale purple, wings deep purple; pod about  $1\frac{1}{2}$  in. long. (Fig. 155.)

Common among grass in the shade of large trees.

7. **DOLICHOS** Linn. Twining herbs; leaves trifoliolate; flowers solitary or racemose, axillary; corolla much longer than the calyx; 9 stamens joined and one free; pods flat, many-seeded.

*D. Lablab* Linn. *Dambala*, S., *Mochcha-kodi*, T., is cultivated as a vegetable. *D. Hosei* Craib (*Vigna oligosperma* Backer) is grown as a cover plant under old rubber.

Fls. greenish-yellow	::	::	::	1. <i>D. biflorus</i>
Fls. reddish-purple	::	::	::	2. <i>D. falcatus</i>

1. **D. biflorus** Linn. (*D. uniflorus* var. *glaber* Thw.) A perennial herb; leaflets  $\frac{3}{4}$ -1 in. long, ovate-elliptic or ovate lanceolate, hairless, except on the margins, grey-green beneath; flowers pale greenish-yellow; pod  $1\frac{1}{2}$ - $2\frac{1}{4}$  in. long, hairless. In dry places near rocks, as at Hakkinda. Flowers October, December-March. (Fig. 156.)

2. **D. falcatus** Klein. *Val-dambala*, S. A perennial herb; leaflets  $\frac{3}{4}$ - $2\frac{1}{2}$  in. long, ovate-elliptic, 3-lobed when growing in exposed situations, usually with a white blaze down the centre, hairless; flowers pinkish-purple or mauve; pod 2- $2\frac{1}{2}$  in. long, hairless; seeds white, thickly sprinkled with brownish-purple spots. Common in the jungle. Flowers November, January-February. (Fig. 157.)

8. **ATYLOSIA** W. & A. Twining herbs; leaves 3-foliolate; inflorescence axillary racemose; petals persistent or not; 9 stamens united and 1 free; pod flattened.

**A. albicans** Benth. Leaflets  $\frac{3}{4}$ - $1\frac{1}{2}$  in. long, obovate, silvery-white with minute hairs beneath, veins not prominent; flowers yellow; pod 1- $1\frac{1}{2}$  in. long. Common on the patanas. Flowers January. (Fig. 158.)

9. **DUNBARIA** W. & A. Climbing plants; leaves trifoliolate; flowers in axillary racemes, or solitary; 9 stamens united and one free; pod narrow, many-seeded.

**D. Heynei** W. & A. A twining plant, woody when old ; stems sparsely covered with spreading hairs ; leaflets  $1\frac{1}{2}$ -3 in. long, usually with pale markings along the veins ; flowers yellow with brownish-purple markings on the base of the standard ; pod about 2 in. long, covered with sticky hairs. Common in the jungle. Flowers December-January. (Fig. 159.)

11. **PONGAMIA** Vent. A tree ; leaves odd-pinnate ; inflorescence racemose ; calyx very shortly toothed ; corolla much longer than the calyx ; stamens all joined ; pod woody, flattened, few-seeded, indehiscent.

**P. pinnata** Merr. (*P. glabra* Vent.) *Magul-karanda*, S., *Punku*, T. A tree, bark grey, smooth ; leaflets 5-9, 2-3 in. long, elliptic, hairless ; calyx purple ; petals greenish-white ; pod 2 in. long, oblong-elliptic. On the banks of streams, common. Flowers April. (Fig. 160.)

12. **DALBERGIA** Linn. f. Woody plants ; leaves odd-pinnate ; leaflets alternate ; inflorescence paniculate ; calyx 5-toothed ; corolla longer than the calyx ; stamens 9-10, all united ; pod usually flat, 1-4-seeded, indehiscent.

**D. pseudo-sissoo** Miq. (*D. Championii* Thw.) *Bambara-vel*, S. A climbing shrub, with dark brown bark ; leaflets 1-4, oblong-elliptic, pointed, hairless ; flowers white ; pod flat, 1-seeded. Not uncommon in the jungle. Flowers April-May. (Fig. 161.)

13. **PSEUDARTHRIA** W. & A. Suberect diffuse herbs ; calyx-teeth as long as the tube, the two upper joined ; corolla 2-3 times as the calyx ; 9 stamens joined, one free ; pod compressed, indehiscent, breaking up into sections.

**P. viscida** W. & A. *Gas-gonika*, S. A straggling, perennial herb, 2-4 ft. high ; leaves 3-foliolate ; leaflets  $1-1\frac{1}{2}$  in. long, ovate-elliptic, hairy ; inflorescence paniculate ; flowers bright pink ; pod narrowly oblong,  $\frac{3}{4}$  in. long, 4-6-seeded, covered with sticky hairs. Common in scrub jungle. Flowers January-February. (Fig. 162.)

14. **ALYSICARPUS** Neck. Herbs ; inflorescence axillary, racemose ; calyx with long teeth ; corolla scarcely longer than the calyx ; 9 stamens joined and one free ; pod round in section, breaking up into 1-seeded joints.

**A. vaginalis** DC. *Asvanna*, S. Stem prostrate 1-4 ft. long ; leaves  $\frac{1}{2}$ -1 in. long, obovate-oblong, hairy beneath ; flowers reddish-purple ; pod  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, 4-7 jointed, Rather common among short grass. Flowers December-January. (Fig. 163.)

15. **DESMODIUM** Desv. Leaves usually trifoliolate, rarely simple ; inflorescence racemose or fasciculate ; corolla longer than the calyx ; 9 stamens joined and one more or less free ; pod usually flattened, breaking up into 1-seeded joints.

Joints of the pod more than twice as long as broad ; leaflets 2-5 in. long, acute ; flowers pinkish-white

1. *D. ormocarpoides*

Joints of the pod less than twice as long as broad ; leaflets obtuse :

Leaflets over  $\frac{1}{2}$  in., not emarginate :

Pods of 5-8 joints, indented on the ventral margin

2. *D. heterocarpum*

Pod of 3-4 joints, not indented on the ventral margin

3. *D. heterophyllum*

Leaflets under  $\frac{1}{2}$  in., emarginate ; flowers in axillary fascicles

4. *D. triflorum*

1. **D. ormocarpoides** DC. A straggling, perennial herb ; stem  $1\frac{1}{2}$ -3 ft. long, purplish ; leaves 3-foliolate ; leaflets 2-5 in. long, ovate-elliptic, pointed, hairless, pale green beneath, inflorescence racemose or paniculate ; flowers pale pink ; pod  $\frac{1}{2}$ - $1\frac{1}{2}$  in. long, 1-3 jointed. In the jungle, not common. Flowers April, September-October. (Fig. 164.)

2. **D. heterocarpum** DC. *Et-undu-piyali*, S. A suberect, perennial herb ; leaves 3-foliolate ; leaflets 1- $2\frac{1}{2}$  in. long, obovate-oblong, hairy and grey-green beneath ; inflorescence terminal, racemose ; flowers purple or rarely white ; pods 1 in. long, 5-7 jointed. Rather common in shady places. Flowers May-September, November. (Fig. 165.)

3. **D. heterophyllum** DC. *Maha-undupiyali*, S. A perennial herb ; stems prostrate ; leaves 3-foliolate, or rarely simple ; leaflets  $\frac{1}{2}$ -1 in. long, obovate-oblong sparingly hairy beneath ; flowers purple ; pod  $\frac{3}{4}$ -1 inch long, 3-6 jointed. Very common among short grass. Flowers February. (Fig. 166.)

4. **D. triflorum** DC. *Hin-undupiyali*, S. A perennial herb ; stems prostrate ; leaves 3-foliolate ; leaflets obovate, under  $\frac{1}{2}$  in. long, slightly hairy beneath ; flowers 1-5 together in the leaf axils ; pod  $\frac{1}{3}$ - $\frac{1}{2}$  in. long, 2-4 jointed. Similar places to *D. heterophyllum*, but even commoner. Flowers December, June-October. (Fig. 167.)

16. **SMITHIA** Ait. Herbs or undershrubs ; leaves pinnate, often sensitive ; leaf-rachis ending in a bristle ; inflorescence axillary, racemose ; calyx 2-lipped ; corolla longer than the calyx ; stamens united in 2 bundles of 5 each.

**S. conferta** Sm. A herb with reddish stem ; stipules large, reddish-brown ; leaflets 6-16,  $\frac{1}{4}$ - $\frac{1}{2}$  in. with 2 red spots at the base of the standard ; pod very small, 3-4-jointed. Wet places, rather rare. Flowers January, July, September. (Fig. 168.)

#### 46. ULMACEAE (Elm Family).

Woody plants ; leaves alternate, simple, stipulate ; inflorescence fasciculate ; flowers regular (actinomorphic) ; perianth segments 4-8 ; stamens 4-8, opposite the perianth segments ; ovary superior, 1-2-celled, with one pendulous ovule in each cell ; styles 2, fruit indehiscent.

Stipules free ; leaves 3-7-nerved from the base :

Sepals of male flowers overlapping in bud ; leaves 3-nerved from the base, coriaceous .. .. .	1. <i>Celtis</i>
Sepals of male flowers not overlapping ; leaves 3-7 nerved from the base, membranaceous .. .. .	2. <i>Trema</i>
Stipules joined ; leaves penninerved .. .. .	3. <i>Gironniera</i>

1. **CELTIS** Linn. Trees or shrubs ; leaves alternate, simple, usually 3-nerved from the base ; inflorescence cymose ; male, female, and hermaphrodite flowers on the same tree ; perianth segments 4-5 ; stamens 4-5 ; fruit a drupe. The scientific name is an old Greek one for the fruit *C. australis* Linn, supposed to have been the food of the lotus-eaters). The name lotus has also been applied to species of *Nelumbium*, *Nymphaea*, *Byrsonima*, *Nitrovia*, *Lotus*, *Diospyros*, and *Zizyphus*.

Leaves dark green, ovate, 3-4 in. long .. .. .	1. <i>C. cinnamomea</i>
Leaves yellow green, oblong-lanceolate, 4-7 in. long .. .. .	2. <i>C. Wightii</i>

1. **C. cinnamomea** Lindl. *Gurenda*, S. A large tree ; wood with a pungent odour ; leaves elliptic-lanceolate, acuminate, 3-nerved from the base, reddish when young ; flowers pale green ; stamens 5. In the jungle, not very common. Flowers February-March. (Fig. 169.)

2. **C. Wightii** Planch. *Meditella*, S. A tree or shrub ; leaves broadly lanceolate, usually remotely toothed, 3-nerved from the base, light green, pink when young ; flowers green ; drupe scarlet. Common in the jungle. Flowers February. (Fig. 170.)

2. **TREMA** Lour. Woody plants ; leaves alternate, 3-7-nerved from the base ; flowers male, female, and, or, hermaphrodite ; perianth segments 4-5 ; stamens 4-5 ; fruit a drupe.

**T. orientalis** Blume. *Charcoal-tree*, E., *Gedumba*, S. A medium-sized tree, with smooth bark ; leaves 2-4 in. long, ovate-lanceolate, regularly toothed, covered with silvery hairs beneath ; flowers greenish ; drupe  $\frac{1}{6}$  in. black. Waste and open places, common. Flowers February. This species is said to have bacterial nodules on the roots. (Fig. 171.)

3. **GIRONNIERA** Gaud. Trees ; leaves alternate, penninerved ; flowers unisexual, male and female on different plants ; sepals 5 ; stamens 5 ; fruit a drupe.

**G. cuspidata** Kurz. (*G. reticulata* Thw.) *Val-munamal*, S. A medium-sized tree ; leaves 3-5 inches long, ovate-lanceolate, acuminate, hairless ; male flowers in cymes, green ; female flowers solitary, axillary ; ovary hairless ; drupe  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, ovoid, green. In the jungle, rather rare. Flowers February-March. (Fig. 172.)

#### 47. MORACEAE (Mulberry Family).

Woody plants or rarely herbs, usually with latex ; leaves alternate or rarely opposite, simple, stipulate ; flowers unisexual, regular ; perianth-segments 4 (except *Ficus*) ; stamens 1-4, opposite the perianth-segments ; ovary 1-celled, with one pendulous ovule ; styles 1-2 ; fruit indehiscent.

*Castilloa elastica* Cerv., *Panama Rubber*, was formerly cultivated and single trees are often seen.

Male and female flowers in closed receptacles .. ..	1. <i>Ficus</i>
Male flowers in heads, spikes or racemes :	
Plants spinous :	
Climbing shrubs .. ..	2. <i>Plecospermum</i>
Plants without spines ; trees :	
Male flowers with four stamens :	
Leaves scaberulous ; style bifid .. ..	3. <i>Streblus</i>
Leaves hairy ; style simple .. ..	4. <i>Allacanthus</i>
Male flowers with one stamen .. ..	5. <i>Artocarpus</i>

1. **FICUS** Linn. Woody plants with milky sap ; flowers unisexual, borne on the inner walls of a fleshy receptacle, the mouth of which is surrounded by bracts ; male flowers :—perianth lobes 2-6 ; stamens 1-6 ; female flowers :—perianth 0-6.

Besides male and female, there are also galled flowers and occasionally neuter flowers. The male, female and galled flowers may occupy the same receptacle, the males nearest the mouth ; or the males and galls one set of receptacles, and the females and neuters, if present, in another set. The neuter flowers are not found in any of the Ceylon species. The galls are similar to the female flowers but the ovary is occupied by the pupa of a Hymenopterous insect. This is the origin of the popular superstition that "eye-flies" breed in figs.

Leaves scabrous or hispid :

Figs on special arrested branches ; leaves opposite .. ..	1. <i>F. hispida</i>
Figs borne in the axills of fallen leaves :	
Figs stalked :	
Leaves densely hispid .. ..	2. <i>F. asperima</i>
Leaves subglabrous :	
Shrubs .. ..	3. <i>F. parasitica</i>
Trees :	
Leaves bright green ; 2-3 $\frac{1}{2}$ in. long ; lateral veins 5-7 pairs .. ..	4. <i>F. nervosa</i>
Leaves blue-green ; 4 $\frac{1}{2}$ -6 $\frac{1}{2}$ in. long ; lateral veins 9-15 pairs .. ..	5. <i>F. Mooniana</i>
Figs sessile or nearly so :	
Leaves densely tomentose beneath .. ..	6. <i>F. cotoneaeifolia</i>
Leaves subglabrous :	
• Leaves cordate .. ..	7. <i>F. religiosa</i>
Leaves oblong :	
Veins of leaf distant :	
Leaves thick, shining .. ..	8. <i>F. Tsjakela</i>
Leaves thick, not shining ; veins yellow .. ..	9. <i>F. lucescens</i>
Veins of leaf numerous and close-set .. ..	10. <i>F. retusa</i>

1. **F. hispida** Linn. *Kota-dimbula*, S. *Pe-atte*, T. A large shrub; leaves opposite, up to 1 ft. long, obovate, acuminate, covered with stiff hairs; figs on specialised branches from the old wood, stalked, pale yellow when ripe, hairy; bracts at base of fig, 3; perianth-segments of male flowers 3, of female 0; stamen 1. Common in scrub and high jungle. Flowers December, July. (Fig. 173.)

2. **F. asperima** Roxb. *Furniture Leaf*, E., *Sevana-mediya*, S. A small tree; leaves 3-4 in. long, alternate, usually elliptic but lobed in seedlings, toothed, scabrid and hairy; receptacles axillary, solitary, stalked, orange-yellow, without bracts at base; perianth segments of male flowers 4-5, of female 6-7; stamen 1. Common in similar places to the *F. hispida*. (Fig. 174.)

3. **F. parasitica** Koen. *Gas-netul*, *Vel-ehetu*, S. A small tree, elliptic when young; leaves oblong, lanceolate, unequal-sided, 3-4½ in. long, often scaberulous; receptacles axillary, usually solitary, stalked, brownish-yellow, without bracts at base; A common epiphyte on trees in the jungle. Flowers April. (Fig. 175.)

4. **F. nervosa** Heyne. *Kalumaduva*, S. A tree; leaves 2-3½ in. long, oblong-lanceolate, acuminate; receptacles in pairs axillary, red, on long stalks; basal bracts 3; sepals of male flowers 2; stamen 1; sepals of female flowers 3. Rather rare in the jungle. Flowers August, December. (Fig. 176.)

5. **F. Mooniana** King. A large tree; leaves 4½-6½ in. long; oblong-lanceolate acuminate, blue-green; receptacles axillary, solitary or 2 together, shortly stalked, reddish; basal bracts 3; sepals of male flowers 3; stamen 1; sepals of female and galled flowers 4. Rather common in the jungle. Flowers January-May. (Confined to Ceylon.) (Fig. 177.)

6. **F. cotoneaeifolia** Vahl. (*F. mysorensis* Heyne) *Bu-nuga*, S. A large tree; bark smooth, light grey; leaves 4-8 in. long, ovate-oblong, woolly beneath; receptacles axillary, in pairs, stalkless, reddish; basal bracts 3; sepals 4; stamen 1. Rather rare in the jungle. Flowers June. (Fig. 178.)

7. **F. RELIGIOSA** Linn. *Bo*, S., *Arachu*, T. A large tree with smooth, yellowish-grey bark; leaves 4½-6 in. long, ovate, long acuminate, hairless; receptacles axillary, solitary, stalkless, pink, bracteate at base. Commonly planted near Buddhist Temples and seedlings often found half-wild. It is a native of North India (Fig. 179.)

8. **F. Tsjakela** Burm. *Kiri-pella*, S., *Toir*, T. A deciduous tree; leaves 3-5 inches long, oblong-lanceolate, acuminate, shining above; receptacles fascicled in the axils of leaf-scars, purplish-green, up to ¼ in. diameter; basal bracts 3; sepals 3-4; stamen solitary. Hakkinda. Flowers January, March-April, July. (Fig. 180.)

9. **F. lucescens** Blume. (*F. infectoria* Roxb.) *Kalaba*, S. A moderate sized deciduous tree; leaves 1½-4 in. long, ovate-oblong, shortly acuminate; midrib white; receptacles axillary solitary or in pairs, pale pinkish-yellow, shortly stalked; basal bracts 3; sepals 4-5; stamen 1 in male flowers. Common in the jungle. Flowers February-September. (Fig. 181.)

10. **F. retusa** Linn. *Panu-nuga*, S., *Itti*, T. A tree; leaves 2-5 in. long elliptic; lateral veins numerous, close together; receptacles axillary, in pairs stalkless, pale yellow; sepals 3; stamen 1, in male flower. Rather rare in the jungle. Flowers January, April, August, September. (Fig. 182.)

2. **PLECOSPERMUM** Tréc. Woody plants; leaves alternate; male and female flowers connate into a fleshy head; achenes 1-2, sunk in the globose, fleshy receptacle.

**P. spinosum** Tréc. *Katu-timbol*, S. A large climber with light brown, fissured bark; leaves 2-3 in. long, obovate-elliptic; leaf-stalk up to ½ in. long; male heads ⅓ in. in diameter, pale green; female heads bluish-green, ½ in. in diameter when in fruit. Common in the jungle. Flowers February, April. (Fig. 183.)

3. **STREBLUS** Lour. Woody plants with milky juice ; leaves alternate, penninerved ; male and female flowers usually on different plants ; sepals 4 ; stamens 4 ; fruit an achene.

**S. asper** Lour. *Geta-netul*, S., *Pirayam*, *Palpirai*, *Pirasu*, T. A shrub or stunted tree ; leaves obovate, up to 3 in. long, very rough ; male flowers in heads, almost sessile ; female flowers solitary or 2-3 together, green ; styles 2, slender ; fruit pale yellow. Common in the jungle. Flowers March-April. (Fig. 184.)

4. **ALLAEANTHUS** Thw. Deciduous trees with milky sap ; leaves alternate, stipulate ; flowers unisexual, male and female on different trees (dioecious) ; male flowers in spikes, female in heads ; perianth 4-lobed ; stamens 4 in male flowers ; ovary with one ovule ; fruit an achene.

**A. zeylanicus** Thw. *Alandu*, S. A tree ; leaves 3-4 in. long, distichous, oblong-lanceolate, acuminate, toothed sparsely hairy ; male flowers cream-coloured ; female flowers green. Rather common in the jungle. Flowers February, August. (Confined to Ceylon.) (Fig. 185.)

5. **ARTOCARPUS** Forst. Trees, leaves alternate, penninerved, male and female flowers on the same plant, but in different inflorescences, male flowers :—perianth 2-4 lobed, stamen 1, female flowers :—perianth tubular ; fruit a fleshy receptacle, clothed with the persistent fleshy perianths, the achenes sunk in the fleshy receptacle.

**A. incisa** Linn. (*A. communis* Forst.) *Bread-fruit*, F., *Rata-del*, S., *Erapilakai*, T. is commonly cultivated.

Fruit borne on short branches from the main stem .. 1. *A. integra*  
Fruit borne on the lateral branches .. 2. *A. nobilis*

1. **A. INTEGRATA** Merr. (*A. integrifolia* Linn.) *Jak-tree*, E., *Kos*, S., *Pila*, T. A large tree ; bark grey, flaking off in thick pieces ; leaves 4-6 in. long, obovate, pinnatifid in seedlings, hairless, petiole 1 in. long, stipules 1½ in. long, sheathing in bud, male inflorescence 1½-2 in. long, club shaped, fruit 2½ ft. long, green, borne directly on the main stem (cauliflorous), anthocarps 0·2 in. across the top. Common in the jungle ; a supposed native of S. India. Three main varieties are known (1) *Varaka*, a hard fleshed variety, (2) *Peri-varaka*, a sweet variety, and (3) *Vela*, a soft variety. *Vela* is the commonest of the three. A variety or allied species, known as "Kuru-kos" is also occasionally cultivated. It has a much smaller fruit up to 6 inches long, and anthocarps 0·5 in. across the top. (Fig. 186.)

2. **A. nobilis** Thw. *Wild Breadfruit*, E., *Del*, *Bedi-del*, S., *Iral-pila*, T. A large tree with rather thick bark ; leaves 6-14 in. long, ovate, pinnatifid in young plants, rough on both surfaces, stipules 3-5 in. long, protecting the buds ; deciduous ; male inflorescence cylindric, 3-6 in. long ; fruit 6-8 inches long, oblong, green ; seeds almost round, about ½ in. in diameter. Common in the jungle. Flowers June. (Fig. 187.)

#### 48. URTICACEAE (Nettle Family).

Usually herbs, leaves simple, usually stipulate ; inflorescence usually cymose, flowers unisexual, regular ; perianth segments 4-5 ; stamens 4-5, opposite the perianth segments ; ovary 1-celled, with 1 erect ovule ; style simple ; fruit indehiscent.

Perianth segments of female flowers 3-5 .. 1. *Pilea*  
Perianth segments of female flowers wanting .. 2. *Pouzolzia*

1. **PILEA** Lindl. Herbs ; leaves opposite ; flowers unisexual, with the sexes on the same or on different plants ; inflorescence cymose ; perianth segments 2-4 ; fruit an achene.

**P. MICROPHYLLA** Liebm. (*P. mucosa* Lindl.) *Gunpowder plant*, E. Minute herb ; leaves in often unequal pairs (anisophyllous), one-nerved, rather succulent ;

male and female flowers in the same or different clusters ; male flowers stalked ; female flowers subsessile, greenish tinged with white or red. A common weed on walls, &c. ; native of tropical America. (Fig. 188.)

2. **POUZOLZIA** Gaud. Herbs ; leaves opposite or alternate, often 3-nerved from the base ; flowers unisexual with both sexes in axillary clusters on the same plant ; male flowers :—sepals 3-5, not overlapping in bud ; stamens 3-5 ; female flowers :—perianth tubular ; fruit often winged.

1. **P. zeylanica** Benn. (*P. indica* Gaud.) A perennial herb, erect or prostrate ; stem up to 2 ft. long ; leaves  $\frac{1}{2}$ -3 in. long, opposite or alternate, ovate or lanceolate, entire ; flowers reddish ; sepals 4 ; stamens 4 ; perianth ribbed or winged in fruit. In the jungle, not common. Flowers all the year. (Fig. 189.)

2. **P. Walkeriana** Wight. An erect perennial herb, 2-3 ft. high ; leaves opposite, 3-7 inches long, lanceolate, entire ; flowers brownish-green ; sepals 5, stamens 5 ; perianth winged in fruit. Rocky places, as at Hakkinda. Flowers December-February. (Confined to Ceylon, if the Indian *P. pentandra* Benn. is distinct.) (Fig. 190.)

#### 49. HIPPOCRATEACEAE.

Woody plants ; leaves simple ; inflorescence cymose ; calyx 4-5-lobed ; petals 4-5 ; stamens 2-3 ; ovary superior, 2-3-celled, with 2 or more ovules in each cell ; style 1 ; stigmas 1-3.

**SALACIA** Linn. Woody plants ; leaves opposite ; stipules wanting ; flowers usually in axillary clusters ; calyx segments 5 ; overlapping in bud ; stamens 2-4 ; ovary 3-celled, with 2 or more ovules in each cell ; fruit a berry.

**S. reticulata** Wight. *Kottala-himbutu-vel*, S. A woody climber with pale yellow bark ; leaves  $2\frac{1}{2}$ -4 in. long, elliptic, hairless ; flowers  $\frac{1}{4}$  in. in diameter, pale green ; fruit bright pinkish-orange. In the jungle, rather common. Flowers March-April. The flowers are protandrous, the stamens at first stand straight up concealing the stigma, later they diverge outwards and expose the stigma. (Fig. 191.)

#### 49A. ICACINACEAE.

Woody plants ; leaves simple, alternate, exstipulate ; inflorescence paniculate ; flowers regular, usually hermaphrodite ; calyx 4-5 united ; petals 4-5, usually free ; stamens 4-5, alternate with the petals ; ovary superior, one to many-celled, with 2 ovules in each cell ; fruit 1-seeded, usually a drupe.

**MAPPJA** Jacq. Trees ; calyx 5-toothed ; petals 5 ; stamens 5 ; ovary 1-celled ; style short ; fruit drupaceous.

**M. ovata** Miers. *Gandapana*, S. A small tree ; bark pale grey ; leaves 4-8 in. long, oblong-ovate, acuminate, entire ; inflorescence a corymbose cyme ; flowers greenish-yellow ; drupe  $\frac{1}{2}$ - $\frac{3}{8}$  in. long, oblong-ovoid, purple. In the jungle ; rather rare. Flowers April. (Fig. 192.)

#### 50. OPILIACEAE.

Woody plants ; leaves alternate ; inflorescence spicate or racemose ; calyx 4-5-lobed ; petals 4-5 ; stamens 4-5, opposite the petals ; ovary superior, 1-celled, with 1 pendulous ovule ; fruit a drupe.

**CANSJERA** Juss. Climbing shrubs ; inflorescence spicate ; flowers hermaphrodite ; stigma 4-lobed.

**C. Rheedii** Gmel. *Eta-mura*, S. Leaves  $1\frac{1}{2}$ -4 in. long, ovate-lanceolate, hairless, dark green ; flowers pale yellow, drupe red. In the jungle, rare. Flowers November, January-February. A root-parasite according to C. A. Barber (Mem. Dept. Agr. Ind. II., part 5). (Fig. 193.)

## 51. LORANTHACEAE (Mistletoe Family).

Parasitic shrubs, usually with coriaceous, exstipulate leaves; calyx usually truncate; petals 4-8, free or united, not overlapping in bud; ovary inferior; fruit a 1-seeded berry or drupe.

**LORANTHUS** Linn. *Vilala*, S., *Kuruwichchai*, T. Leaves opposite or alternate; flowers hermaphrodite; flowers with a bract but no bractlets at base; petals 4-5, united to form a tube, which is often split down one side; stamens 4-5, opposite the petals; fruit a berry. Those species in which the corolla is slit longitudinally are pollinated by birds (ornithophilous).

Leaves densely tomentose below; calyx toothed. . . . . 1. *L. tomentosus*

Leaves glabrous; calyx toothed:

Corolla tube under 1 inch:

Leaves alternate; corolla-tube over  $\frac{1}{2}$  in. . . . . 2. *L. cuneatus*

Leaves opposite; corolla-tube under  $\frac{1}{2}$  in. . . . . 3. *L. neelgherrensis*

Corolla-tube over 1 inch . . . . . 4. *L. falcatus*

1. **L. tomentosus** Heyne. Leaves  $1\frac{1}{2}$ -2 in. long, alternate, densely woolly beneath, elliptic-obovate; flowers pale green with red stamens. On *Croton lacciferus*, &c., in scrub jungle; rather rare. Flowers February, July, November. (Fig. 194.)

2. **L. cuneatus** Heyne. Leaves 1- $1\frac{1}{2}$  in. long, alternate, hairless, obovate,  $\frac{1}{2}$  inch long, oblong-ovoid, crimson. Common on trees. Flowers all the year. (Fig. 195.)

3. **L. neelgherrensis** W. & A. Leaves 3-6 in long, opposite, usually ovate-elliptic, hairless, thick; flowers pinkish-orange, with green lobes; corolla tube not split; fruit  $\frac{1}{2}$  in long obovoid, orange. A very common parasite on trees. Flowers nearly all the year. (Fig. 196.)

4. **L. falcatus** Linn. (*L. longiflorus* Desr.) Leaves 4-7 in. long, alternate or opposite, hairless, oblong-lanceolate or elliptic, often rounded at base; midrib red in young leaves; flowers pale pink, with green reflexed lobes and orange stamens; fruit over  $\frac{1}{2}$  in. long, oblong, crimson. Not quite so common as *L. neelgherrensis*. Flowers March, September, December. (Fig. 197.)

## 52. RHAMNACEAE (Buckthorn Family).

Woody plants; leaves simple, usually alternate; stipules present or represented by spines; flowers hermaphrodite, or male, female, and hermaphrodite flowers on the same plant; calyx 4-5 lobed, not overlapping in bud; petals usually 4-5, rarely wanting; stamens 4-5, opposite the petals.

Erect or climbing shrubs; leaves 3-nerved from the base; fruit a drupe . . . . . 1. *Zizyphus*

Climbing unarmed shrubs; leaves penninerved; fruit dry, 1-winged . . . . . 2. *Ventilago*

1. **ZIZYPHUS** Mill. Trees or shrubs; leaves alternate; inflorescence fasciculate or cymose; sepals 5; petals 5 or 0; fruit a drupe, with a 1-4 seeded stone.

Petals 5; leaves 1- $1\frac{3}{4}$  in. long . . . . . 1. *Z. Oenoplia*.

Petals wanting; leaves 2-3 in. long . . . . . 2. *Z. rugosa*

1. **Z. Oenoplia** Mill. *Hin-eraminiya*, S., *Perilantai*, *Churai*, T. An erect or scrambling shrub; leaves with stipular thorns, 1- $1\frac{3}{4}$  inches long, elliptic to lanceolate, unequal-sided, hairy beneath; petals 5; drupe  $\frac{1}{4}$  in. long, obovoid, black and shining. Common in scrub jungle. Flowers March-April. (Fig. 198.)

2. **Z. rugosa** Lamk. *Maha-eraminiya*, S., *Churai*, T. An erect, when young, or climbing shrub; leaves with stipular thorns, 2-3 in. long, broadly elliptic, unequal-sided, with or without hair beneath; flowers light green; petals wanting; drupe  $\frac{1}{4}$  inch long, pear-shaped. Common in the jungle. Flowers December, (Fig. 199.)

2. **VENTILAGO** Gaertn. Climbing shrubs; leaves alternate; inflorescence paniculate, axillary or terminal; flowers hermaphrodite; sepals, petals and stamens 5; ovary 2-celled; fruit a samara.

**V. maderaspatana** Gaertn. *Yakkada-vel, Kobovaka, S., Vempadan, T.* Leaves  $1\frac{1}{2}$ -3 in. long, elliptic-lanceolate, entire or shallowly toothed in the upper part; flowers pale green; fruit  $1\frac{1}{4}$  in. long. Common in the jungle. Flowers September-October. (Fig. 200.)

### 53. ELAEAGNACEAE (Oleaster Family).

Woody plants; leaves simple, exstipulate; flowers regular, in axillary cymes or fascicles; fruit 1-seeded, indehiscent, surrounded by the persistent perianth.

**ELAEAGNUS** Linn. Trees or shrubs, often scandent; leaves alternate; inflorescence fasciculate; flowers hermaphrodite; perianth segments 4, united with a tube; stamens 4; ovary superior.

**E. latifolia** Linn. *Vel-embilla, Katu-embilla, S.* A shrub; leaves  $1\frac{1}{2}$ -3 in. long, lanceolate, densely covered with silvery scales beneath; flowers white; corolla 4-lobed; fruit scaly, reddish. Rather common in scrub jungle on the patanas. Flowers January. (Fig. 201.)

### 54. VITACEAE (Vine Family).

Woody plants; leaves alternate, stipulate; flowers regular; calyx segments united; petals 4-5, not overlapping in bud; stamens opposite the petals; fruit a berry.

Leaves simple, often lobed, or wanting .. .. . 1. *Cissus*

Leaves compound :

Climbing shrubs :

Stigma simple; leaves membranaceous, hairy .. .. . 2. *Columella*

Stigma divided into 4 parts; leaves coriaceous, glabrous .. .. . 3. *Tetrastigma*

Erect shrubs .. .. . 4. *Leea*

1. **CISSUS** Linn. Climbing shrubs with tendrils opposite the leaves; leaves usually simple or lobed; inflorescence cymose, opposite the leaves; flowers hermaphrodite; calyx cup-shaped; petals 4; style not lobed. The tendrils are morphologically barren inflorescences.

Stem 4 winged; leaves often wanting .. .. . 1. *C. quadrangularis*

Stem round; leaves lobed .. .. . 2. *C. Heyneana*

1. **C. quadrangularis** Linn. (*Vitis quadrangularis* Wall.) *Hiressa, S., Pirandai, T.* Stem fleshy, 4-angled, jointed, green; leaves broadly ovate, soon falling; tendrils unbranched; berry round, pointed, red. A dry zone plant occasionally found about Kandy. (Fig. 202.)

2. **C. Heyneana** Steud. (*Vitis Heyneana* Wall.) Stem stout; shoots pale green; lower leaves 6 in. long, palmately 5-lobed, upper 3-5 in. long, broadly ovate, distantly toothed; flowers pink; berry  $\frac{3}{4}$  in. round or slightly pear-shaped, purplish-black. Common in the jungle about Kandy. Flowers July. (Fig. 203.)

2. **COLUMELLA** Lour. Climbing shrubs, with tendrils opposite the leaves; leaves compound; inflorescence axillary, cymose; flowers hermaphrodite; calyx cup-shaped; petals 4; stamens 4; style not lobed.

**C. pedata** Lour. (*Vitis pedata* Vahl.) *Mediya-vel, S.* Leaves 3-foliolate, the lateral leaflets usually compound; leaflets obovate-elliptic, stalked, toothed, acuminate, hairy; flowers greenish-white; berry round, somewhat depressed, cream-coloured. In the jungle; rather rare. Flowers July. (Fig. 204.)

3. **TETRASTIGMA** Planch. Climbing shrubs; tendrils simple; leaves usually trifoliolate; inflorescence axillary, cymose; male, female and hermaphrodite flowers on different plants; calyx cup-shaped; petals 4; stamens or staminodes 4; style 4-lobed.

**T. muricatum** Gamble. (*Vitis lanceolaria* Wall.) Twigs with numerous lenticels; leaves 1-3-foliolate, the lateral leaflets often compressed; leaflets elliptic, stalked, toothed, slightly acuminate, hairless; flowers pale green; berry round, cream-coloured. Common in the jungle. Flowers February-April. (Fig. 205.)

4. **LEEA** Linn. Erect shrubs; leaves bipinnate; flowers hermaphrodite, calyx 5-lobed; petals 5; stamens 5, united below; ovary 6-celled, with one erect ovule in each cell; style not lobed.

**L. indica** Merr. (*L. sambucina* Willd.) *Burulla, Gurulla, S., Ottai nali, Nayaki, T.* Shrub 4-6 ft. high; leaves  $1\frac{1}{2}$ -3 ft. long, hairless; leaflets oblong-lanceolate, toothed; inflorescence cymose; flowers  $\frac{3}{8}$  in. across, green; berry  $\frac{1}{2}$  in. round, purplish; black. Very common in the jungle. Flowers November. (Fig. 206.)

## 55. RUTACEAE (Rue Family).

Woody plants, rarely herbs; leaves gland-dotted, exstipulate; flowers usually in cymes or panicles; sepals and petals 4-5; ovary superior; seeds usually as many as the carpels.

*Murraya Koenigii* Spreng (*Karapincha, S., Karivempu, T. Curry-leaf, E.*) is cultivated.

Erect shrubs or trees:

Leaves compound:

Leaflets 7-15:

Flowers borne when the plant is leafless .. .. .	1. <i>Clausena</i>
Flowers and leaves borne together .. .. .	2. <i>Micromelum</i>
Leaflets 3-5 .. .. .	3. <i>Glycosmis</i>
Leaves simple .. .. .	4. <i>Acronychia</i>

Climbing shrubs:

Leaves simple .. .. .	5. <i>Paramignya</i>
Leaves trifoliolate .. .. .	6. <i>Toddalia</i>

1. **CLAUSENA** Burm. Trees or shrubs, unarmed; leaves imparipinnate; flowers hermaphrodite; sepals and petals 4-5, the latter over-lapping in bud; stamens 8-10; fruit a berry.

*C. lamsium*. Skeels (*C. Wampi* Oliv.) \* *Rata-karapincha, S.* is occasionally cultivated for its fruit. Supposed to be a native of China.

**C. dentata** M. Roem. (*C. Willdenovii* W. & A.) *Veda-pana, S.* A small tree; leaves deciduous; leaflets  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, 7-15, elliptic-lanceolate, obtusely toothed, hairless; flowers borne with the young leaves, in simple, axillary racemes, pale green; sepals and petals 4; stamens 8; ovary 4-celled, with 2 ovules in each cell; fruit a berry, 1-2-seeded. Rather common in the jungle. Flowers April, June-September. (Fig. 207.)

2. **MICROMELUM** Blume. Trees or shrubs; leaves odd-pinnate; leaflets alternate or sub-opposite, unequal-sided at base; inflorescence terminal, paniculate; calyx cup-shaped; petals 5, not overlapping in bud; stamens 10; fruit a 1-2-seeded berry.

**M. minutum** W. & A. (*M. pubescens* Blume). *Val-karapincha, S., Kakkaayp-palai, T.* A shrub or small tree; leaflets  $1\frac{1}{2}$ -3 in long, 9-15, hairy beneath; flowers white; ovary hairy, 5-celled, with 2 ovules in each cell; berry  $\frac{1}{8}$  in long-ovoid, yellow. Common in the jungle. Flowers October-February. (Fig. 208.)

3. **GLYCOSMIS** Corr. Trees or shrubs; inflorescence paniculate, usually axillary; sepals and petals 4-5, overlapping in bud; stamens 8-10; fruit a 1-3-seeded berry.

**G. pentaphylla** Corr. *Dodan-pana, S., Kulappannai, T.* A shrub about 4 ft. high; leaves pinnate; leaflets usually 5, lanceolate; flowers white; ovary 5-celled, with one ovule in each cell; berry pinkish or greenish-white. Not uncommon in the jungle. Flowers December-April. (Fig. 209.)

4. **ACRONYCHIA** Forst. Trees; leaves usually simple; male, female and hermaphrodite flowers on the same tree; calyx 4-lobed, lobes overlapping in bud; petals 4, not overlapping in bud; stamens 8; ovary 4-celled, with 2 ovules in each cell.

**A. pedunculata** Miq. (*A. laurifolia* Blume). *Ankenda, S., Mutta, Nari, T.* A small tree, with smooth pale bark; leaves opposite or alternate, 3-5 in. long,

dark green, lanceolate; leaf-stalks about 1 in. long, swollen at the upper end; inflorescence a corymbose cyme; flowers pale yellowish-green; fruit green, almost round. Very common in jungle and scrub. Flowers February-April. (Fig. 210.)

5. **PARAMIGNYA** Wight. Climbing or erect shrubs; leaves simple; flowers in axillary fascicles; calyx cup-shaped, 4-5-lobed; petals 4-5; stamens 8-10; fruit a 1-5-seeded berry.

**P. monophylla** Wight. A climbing, spinose shrub; leaves 2-4 in. long; flowers greenish-white,  $\frac{3}{4}$  inch across; petals 5; ovary 5-celled; fruit about 1 in. across, round, green. Rather common in the jungle. Flowers February-March, August. (Fig. 211.)

6 **TODDALIA** Juss. Climbing shrubs, usually with recurved thorns; leaves usually trifoliate; flowers unisexual, both sexes on the same plant.

**T. asiatica** Lamk. (*T. aculeata* Pers.) *Kudu-miris*, S., *Kandai*, *Milakaranai*, T. Leaflets  $1\frac{1}{2}$ -2 in long, obovate-elliptic, shortly acuminate; flowers cream-coloured; fruit round, pointed, orange-coloured. Very common in scrub jungle. Flowers January-April. (Fig. 212.)

## 56. SIMARUBACEAE.

Woody plants; leaves alternate, usually pinnate; inflorescence axillary; flowers regular; calyx 3-5-lobed; petals 3-5; ovary superior.

**BRUCEA** Mill. Shrubs or trees, leaves irregularly pinnate; flowers in cymes, collected into axillary panicles; calyx 4-lobed, lobes overlapping in bud; petals 4; stamens 4; ovary 4-lobed; fruit of 4 drupes.

**B. AMARISSIMA** Desv. (*B. sumatrana* Roxb.). *Macassar kernels*, E., *Valpapul*, S. A shrub, with smooth grey bark; leaves 3-11-foliolate, hairy beneath; rachis 11 in. long, green; leaflets about 4 in. long, ovate-lanceolate, blunt toothed; flowers green; fruit black. Rather common in scrub jungle; a native of Eastern Asia from China to the Malay Islands. Flowers March. (Fig. 213.)

## 57. MELIACEAE (Mahogany Family).

Woody plants; leaves usually alternate, exstipulate; usually pinnate; inflorescence usually an axillary panicle; flowers hermaphrodite, or male, female, and hermaphrodite on different plants; calyx segments 3-5; petals 3-6, usually free; stamens 4-12, usually united into a tube; ovary superior.

Seeds winged:

Fruit a drupe; shrub	..	..	..	1. <i>Cipadessa</i>
Fruit a berry; tree	..	..	..	2. <i>Aglaiia</i>

Seeds not winged; fruit a capsule; tree	..	..	..	3. <i>Chukrasia</i>
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*Swietenia macrophylla* King has been planted in the jungles about Kandy and *S. Mahogani* Jacq., the true *Mahogany*, around Kandy lake.

1. **CIPADESSA** Bl. Leaves opposite or subopposite, odd-pinnate; inflorescence axillary, paniculate; calyx cup-shaped, 5-lobed; petals 5; stamens 10, united into a tube; ovary 5-celled, with 2-ovules in each cell; fruit a drupe; seeds not winged.

**C. baccifera** Miq. (*C. fruticosa* Bl.) *Hal-bembiya*, S., *Pulippanchedi*, T. A shrub; leaflets 5-9, coarsely toothed, ovate-elliptic, hairy on the veins; flowers white; berry  $\frac{1}{4}$  in. round, red. Very common in scrub jungle. Flowers January, February, October. (Fig. 214.)

2. **AGLAIIA** Lour. Leaves compound; inflorescence paniculate; male, female, and hermaphrodite flowers on different plants; calyx 5-lobed; petals 5; stamens 5, united to form a tube; ovary 1-3-celled, with 1-2 ovaries in each cell; fruit a berry

**A. Roxburghiana** Miq. *Kannakkompu*, *Chokkala*, T. A small tree with smooth dull greyish-orange bark; leaflets usually 5,  $2\frac{1}{2}$ -4 in. long, lanceolate, hairless but covered with small rusty scales when young; inflorescence axillary, paniculate or racemose; flowers yellow; berry up to  $\frac{3}{4}$  in long, obovoid, pale orange-coloured. Not uncommon in the jungle. Flowers July. (Fig. 215.)

3. **CHUKRASIA** A. Juss. Large trees; leaves odd-pinnate; leaflets opposite or alternate; inflorescence paniculate, axillary or terminal; calyx lobes 4-5; petals 4-5 free; stamens 8-10; ovary with several ovules in each cell; capsule 3-celled, septically dehiscent; seeds winged.

**C. tabularis** A. Juss. *Chittagong wood*, E., *Hulan-hik*, S., *Kaloti*, T. A large tree with brown, longitudinally-cracked bark; leaflets  $2\frac{1}{2}$ - $3\frac{1}{2}$  in long, ovate-elliptic, hairless; inflorescence terminal; flowers pale green; petals 4-5; stamens 8-10. In the jungle; rather rare. Flowers May. (Fig. 216.)

## 58. SAPINDACEAE.

Leaves alternate, exstipulate, compound or rarely simple; flowers usually polygamodiceous, *i.e.*, male, female, and hermaphrodite flowers on different plants; calyx-segments 5; petals, if present, free; stamens 5-10; ovary superior.

Herbs, climbing by tendrils; fruit an inflated capsule	..	1.	<i>Cardiospermum</i>
Erect trees or shrubs:			
Fruit winged; leaves simple; petals wanting	..	2.	<i>Dodonaea</i>
Fruit not winged; leaves compound:			
Fruit of 1-3 indehiscent drupes:			
Petals with a scale	..	3.	<i>Thraulococcus</i>
Petals without a scale:			
Stamens 8; sepals overlapping in bud	..	4.	<i>Sapindus</i>
Stamens 10	..	5.	<i>Nephelium</i>
Stamens 5; sepals not overlapping in bud:			
Fruit crimson, rachis not winged	..	6.	<i>Pometia</i>
Fruit black, rachis winged	..	7.	<i>Filicium</i>
Fruit syncarpous:			
Petals present:			
Leaves pinnate	..	8.	<i>Lepisanthes</i>
Leaves trifoliolate	..	9.	<i>Allophylus</i>
Petals wanting	..	10.	<i>Schleichera</i>

1. **CARDIOSPERMUM** Linn. Annual herbs; leaves compound; flowers irregular, male, female, and hermaphrodite on different plants; sepals and petals 4; stamens 8, united at base; ovary 3-celled, with 1 ovule in each cell; fruit an inflated, loculicidal capsule.

**C. microcarpum** H. B. K. (*C. Halicacabum* Trim. not Linn.) *Penela-vel*, S. Climbing herb; leaves bi-ternate; leaflets ovate, lobed, hairless; inflorescence cymose; flowers  $\frac{1}{8}$  in.; capsule  $\frac{3}{4}$  in. in diameter. Rather common in waste places. Flowers all the year. (Fig. 217.)

2. **DODONAEA** Linn. Woody plants; leaves simple; male, female, and hermaphrodite, or male and female flowers on different plants; sepals 2-5; petals wanting; capsule winged, septically dehiscent.

**D. viscosa** Linn. *Eta-verella*, S., *Virali*, *Pandari*, *Lakmi*, T. A shrub or small tree; leaves 2- $3\frac{1}{2}$  in. long, narrowly elliptic-lanceolate, more or less viscid; inflorescence axillary, paniculate; flowers greenish-yellow; capsule over  $\frac{1}{2}$  in. long, 3-winged. Common in scrub jungle; doubtfully native. Flowers January, March, April. (Fig. 218.)

3. **THRAULOCOCCUS** Radlk. Shrubs; leaves simple or pinnate; inflorescence paniculate; flowers male, female, and hermaphrodite; sepals 5, overlapping in bud; petals 5, with a scale within; fruit of 1-3 indehiscent drupes.

**T. erectus** Radlk. (*Sapindus erectus* Hiern.) A shrub 3-10 ft. high; rarely branched; leaflets 8-14, usually opposite, 4-10 in. long, oblong-lanceolate; flowers greenish-white; fruit ovoid, finely hairy. Rather common in the jungle. Flowers April-June. (Fig. 219.)

4. **SAPINDUS** Linn. Trees; leaves pinnate; inflorescence paniculate; flowers male, female, and hermaphrodite; sepals 5, overlapping in bud; petals 5, without a scale within; fruit of 1-3 indehiscent drupes.

**S. trifoliatum** Linn. (*S. laurifolium* Vahl.) *Kaha-penela*, S., *Ponnamkoddai*, T. A small tree; leaflets 4-6, 3-7 in. long, lanceolate or elliptic-lanceolate, softly hairy beneath, pointed at apex; flowers white; fruit over  $\frac{1}{2}$  in. in diameter, 3-angled, hairless, green. Rather common in the jungle. Flowers July, November. (Fig. 220.)

5. **NEPHELIUM** Linn. Woody plants; leaves usually pinnate; flowers regular, male, female, and hermaphrodite on the same tree; calyx 4-8-lobed; petals, if present, without scales; stamens 5-10; ovary 2-3-celled, with one ovule in each cell; fruit indehiscent.

**N. Longana** Camb. *Longan*, E., *Rasa-mora*, *Mora*, S., *Nurai*, *Puvatti*, T. A large tree; bark yellowish-grey, smooth; leaves pinnate; leaflets 7-11, 3-3 $\frac{1}{2}$  in. long, oblong-lanceolate, minutely hairy and grey-green beneath; inflorescence terminal, paniculate; flowers pale yellow; petals 5; fruit of 1 carpel, globular,  $\frac{1}{2}$ - $\frac{5}{8}$  inch in diameter, greenish-yellow. Rather common in the jungle. Flowers April-July. (Fig. 221.)

6. **POMETIA** Forst. Large trees; leaves pinnate; lower pair of leaflets stipuliform; flowers regular male; female, and hermaphrodite on same tree; calyx 4-5-lobed, lobes not overlapping in bud; petals 4-5, usually without scales; stamens 4-8; ovary 2-3-celled, with one ovule in each cell; fruit indehiscent.

**P. eximia** Hk. *Gal-mora*, *Bulu-mora*, *Na-imbul*, S. A very large tree; bark yellowish, flaking off in small pieces; leaflets 12-20, 2-5 in. long, oblong-lanceolate, distantly toothed, hairy on the veins beneath; inflorescence consisting of small cymes arranged on a racemose panicle with pendulous branches; flowers brownish-yellow; petals 5, greenish; fruit of 1 carpel, crimson, 1-1 $\frac{1}{4}$  in. long. Rather common in the jungle. Flowers May-June. (Fig. 222.)

7. **FILICIUM** Thw. Large trees; leaves pinnate with a winged rachis; male, female, and hermaphrodite flowers on the same tree; calyx 5-lobed; petals 5; stamens 5; ovary 2-celled, with one ovule in each cell; fruit a drupe.

**F. decipiens** Thw. *Pehimbiya*, S., *Chittirai-vempu*, *Kaddup-puvarasu*, T. A moderate-sized tree; bark reddish-grey, rough; leaves 8-10 in. long, with 6-8 pairs of leaflets; leaflets hairless, dark green, shining; inflorescence axillary, paniculate; flowers pinkish-white; drupe ovoid, purplish-black. Very common in the jungle. Flowers January. (Fig. 223.)

8. **LEPISANTHES** Blume. Leaves pinnate; flowers unisexual and hermaphrodite; sepals 4-5, overlapping in bud; petals 4-5, with a scale; ovary 3-celled with one ovule in each cell; fruit indehiscent.

**L. trichocarpa** Alst. (*Hemigyrosa canescens* var. *trichocarpa* Thw.) A small tree; leaflets 4-5 pair, elliptic-lanceolate, acuminate, hairless; inflorescence paniculate; flowers irregular; petals 4, white; fruit rounded, somewhat 3-cornered, green. Common in the jungle. Flowers December. (Confined to Ceylon.) (Fig. 224.)

9. **ALLOPHYLUS** Linn. Leaves simple or trifoliolate; flowers in simple or branched axillary racemes, male, female, and hermaphrodite on different trees; sepals 4, overlapping in bud; petals 4, usually with a scale within; stamens 8; fruit usually 2-celled, with one ovule in each cell; fruit indehiscent.

**A. Cobbe** Bl. *Kobbe*, *Bu-kobbe*, S., *Amarai*, T. A shrub or small tree; leaves 3-foliolate; leaflets 4-6 in. long, elliptic, acute, hairy; flowers greenish-white; ripe carpels usually solitary, round, red. Common in the jungle. Flowers October. (Fig. 225.)

10. **SCHLEICHERA** Willd. Trees; leaves pinnate; flowers regular, male, female, and hermaphrodite on different trees; calyx cupshaped, 4-6-lobed, lobes not overlapping in bud; petals wanting; stamens 5-8, ovary 3-4-celled, with one ovule in each cell; fruit indehiscent.

**S. oleosa** Merr. (*S. trijuga* Willd.) *Ceylon Oak*, E., *Kon*, S., *Puvu*, *Kula*, T. A medium-sized tree; bark grey, smooth; leaflets 6-8 nearly opposite, obovate-oblong, obtuse, hairless, reddish-purple when young; flowers in racemose panicles, green; stamens usually 7; fruit ovoid, under 1 in. Common on the patanas and in the jungle. Flowers March. (Fig. 226.)

## 59. SABIACEAE.

Woody plants; leaves simple or compound, alternate, exstipulate; inflorescence usually paniculate; flowers hermaphrodite, or male, female, and hermaphrodite; calyx-segments 4-5, overlapping in bud; petals 4-5, overlapping in bud; stamens 4-5, opposite the petals; anther cells bursting transversely or by a deciduous cap; ovary superior, 2-3 celled, with 1-2 ovules in each cell; fruit indehiscent.

**MELIOSMA** Blume. Leaves simple or odd-pinnate; leaflets subopposite; bracteoles and sepals 5-9; petals 5, in 2 whorls; stamens 2; staminodes 3; fruit a drupe.

**M. simplicifolia** Walp. *Elbedda*, S. A moderate-sized tree, bark light grey; leaves simple, 5-12 in. long, oblong-lanceolate; petals swollen at base; flowers yellowish-white; drupe  $\frac{1}{4}$  in. in diameter, round, purple. Very common in the jungle. Flowers January. (Fig. 227.)

## 60. STAPHYLEACEAE.

Trees or shrubs; leaves compound, opposite, stipulate; inflorescence paniculate; flowers regular, hermaphrodite; sepals and petals 5; stamens 5, opposite the sepals; ovary of 3 carpels, with 2 or more ovules in each.

**TURPINIA** Vent. Leaves odd-pinnate; leaflets opposite, stipellate; flowers hermaphrodite; calyx 5-lobed, overlapping in bud; petals 5; stamens 5; ovary 3-celled; fruit indehiscent.

**T. malabarica** Gamble. (*T. pomifera* Trim. not DC.) *Eta-hirilla*, *Kankumbala*, *Kukulman*, S. A tree; leaflets 2-4 $\frac{1}{2}$  in. long, 3-9, opposite, ovate-elliptic, finely toothed, hairless; inflorescence paniculate; flowers white; fruit round, green, dull purple on the surface exposed to the sun. Common in the jungle. Flowers March, April, October. (Fig. 228.)

## 61. ANACARDIACEAE (Cashew-nut Family).

Trees or shrubs; juice often milky or resinous; leaves exstipulate; calyx usually 3-5-lobed; petals free; ovary superior, 1-6-celled, with one ovule in each cell; fruit usually drupaceous.

*A. occidentale* Linn. *Cashew-nut*, E., *Caju*, S., *Kaddu-montiri*, T. is often cultivated and appears apparently wild in the patanas. Leaves simple.

Leaves simple :

Inflorescence paniculate :

1 stamen fertile; drupe without a cup-shaped receptacle .. 1. *Mangifera*  
5 stamens fertile; drupe with a cup-shaped receptacle .. 2. *Semecarpus*

Inflorescence racemose .. .. . 3. *Nothopegia*

Leaves compound .. .. . 4. *Spondias*

1. **MANGIFERA** Linn. Trees; leaves alternate, simple; inflorescence paniculate, terminal; flowers male, female, and hermaphrodite; sepals and petals 4-5; stamens 1; staminodes 4-7; ovary one-celled with one ovule; fruit a drupe.

*M. indica* Linn. *Mango*, E., *Amba*, S., *Ma*, T. is cultivated.

**M. zeylanica** Hk. f. *Et-amba*, *Val-amba*, S., *Kaddu-ma*, T. A larger tree than *M. indica*; bark rough, brownish-grey; leaves 2-6 in. long, oblong-lanceolate, obtuse and usually notched at apex, hairless; flowers pale yellow; petals reflexed; fruit 1 $\frac{1}{2}$  in. long, oblong, green. Common in the jungle. Flowers February-March. (Confined to Ceylon.) (Fig. 229.)

2. **SEMECARPUS**. Linn. Trees; leaves alternate, simple; inflorescence paniculate; male, female, and hermaphrodite flowers on different trees; sepals, petals, and stamens 5-6; ovary one-celled, with one ovule; styles 3; fruit a drupe seated on a receptacle formed from the disk and base of the calyx.

**S. obscura**. Thw. *Badulla*, S. A small tree; leaves 4-8 in. long, obovate-oblong; inflorescence terminal; flowers pale green; drupe  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, ovoid, compressed, green. Common in the jungle. Flowers February-March. (Confined to Ceylon.) (Fig. 230.)

3. **NOTHOPEGIA** Blume. Trees; leaves simple, inflorescence racemose or paniculate, axillary; flowers male, female, and hermaphrodite; sepals, petals and stamens 4-5; ovary one-celled, with one ovule; fruit a drupe.

**N. Beddomei** Gamble. (*N. Colebrookeana* Trim. not Blume.) *Bala*, S. A small tree; bark smooth brown; leaves  $2\frac{1}{2}$ - $4\frac{1}{2}$  in. long, narrowly oblong-lanceolate, acuminate, hairless, grey-green beneath; flowers greenish-white; petals 4; ovary glabrous; drupe  $\frac{5}{8}$  in. in diameter, purple. Very common in the jungle. Flowers March. (Fig. 231.)

4. **SPONDIAS** Linn. Trees; leaves odd-pinnate; inflorescence paniculate; calyx-lobes 4-5, deciduous; petals 4-5; stamens 8-10; ovary 4-5 celled, with one ovule in each cell; fruit a drupe.

**S. pinnata** Kurz. (*S. mangifera* Willd.) *Embarella*, S., *Ampallai*, *Marimen Chedi*, T. A moderate-sized tree; bark pale, smooth; leaflets 7-11,  $3-4\frac{1}{2}$  in. long, glabrous, pink when young; flowers pale pinkish-green; sepals 5; petals 5, reflexed; drupe ovoid up to 2 inches long, yellow. Common in the jungle. Flowers January. (Fig. 232.)

## 62. ALANGIACEAE.

Woody plants; leaves alternate; stipules wanting; inflorescence axillary; flowers hermaphrodite; petals 4-10, not overlapping in bud; ovary inferior, 1-2 celled, with 1 ovule in each cell; fruit a berry.

**ALANGIUM** Lamk. Leaves simple; inflorescence fasciculate; calyx segments 5; stamens 15 or more; ovary 1-celled; ovule pendulous.

**A. hexapetalum** Lamk. (*A. glandulosum* Thw.) *Alinchi*, T. A climbing shrub; bark brown; leaves  $2\frac{1}{2}$ -5 inches long, oblong-lanceolate, acuminate, dark green, minutely glandular-hairy beneath; calyx glandular-hairy, red; petals usually 6, white; stamens 15-20; fruit  $\frac{3}{8}$  inch in diameter, round, purplish-red. Not uncommon in the jungle. Flowers March. (Fig. 233.)

## 63. ARALIACEAE (Ivy Family).

Woody plants; leaves alternate; flowers regular; calyx truncate or shortly toothed; petals 5-7; stamens 5-7, alternating with the petals; ovary inferior; fruit a drupe.

*Nothopanax fruticosum* Miq. (*Panax fruticosum* Linn.) is a common hedge plant, *N. scutellarium* Merr. (*Panax cochleatum* DC.) is also cultivated.

**SCHEFFLERA** Forst. Leaves usually compound; flowers in umbels arranged on panicles or racemes, hermaphrodite; ovary 5-9-celled.

**S. stellata** Baill. (*Heptapleurum stellatum* Gaertn.) *Itta-vel*, S. Scandent epiphytic shrub; leaves palmate; leaflets 4-7, obovate-elliptic,  $2\frac{1}{2}$ - $3\frac{1}{2}$  in. long, hairless; flowers greenish-yellow, in stalked umbels arranged in racemose terminal panicles; petals usually 8; fruit obovoid, yellow. Common in the jungle. Flowers June. (Fig. 234.)

## 64. UMBELLIFERAE (Parsley Family).

Herbs (rarely shrubby); leaves alternate, exstipulate; flowers in simple or compound umbels; calyx 5-lobed or truncate; petals 5; stamens 5; ovary inferior, 2-celled, with one ovule in each cell; fruit of 2 indehiscent mericarps.

Plants spineless :			
Stipules cauline ..	..	..	1. <i>Hydrocotyle</i>
Stipules petiolar ..	..	..	2. <i>Centella</i>
Plants spiny ..	..	..	3. <i>Eryngium</i>

1. **HYDROCOTYLE** Linn. Prostrate herbs; leaves lobed; involucral bracts small or wanting; calyx-teeth small or wanting; petals acute, not overlapping in bud; fruits 3-ridged.

1. **H. sithorpicides** Lamk. (*H. rotundifolia* Roxb.) *Kallu-vallari*, T. Leaves up to  $\frac{3}{4}$  in., deeply cordate, 5-7-lobed, hairless above; heads solitary; flowers 4-8 in a head, pale pink. On paths in moist places, rather rare. Flowers all the year. (Fig. 235.)

2. **H. javanica** Thunb. *Maha-gotu-kola*, S., *Min-vallarai*, T. Leaves 3-4 in. long, deeply cordate, 5-7 lobed, slightly hairy; heads solitary or several on a common peduncle; flowers 20 in a head, pale green. Common in moist places under trees. Flowers May-October. (Fig. 236.)

2. **CENTELLA** Linn. Prostrate herbs; leaves very shortly lobed; flowers in simple, axillary umbels; involucrel bracts 2; calyx truncate; petals acute, overlapping in bud; fruits 7-9-ridged.

**C. asiatica** Urb. (*Hydrocotyle asiatica* Linn.) *Hin-gotu-kola*, *Makulu-venna*, S., *Vallarai*, T. Leaves  $1\frac{1}{2}$ -2 in. broad, kidney-shaped, bluntly toothed, hairless; heads in axillary fascicles, usually 3-flowered; sepals caducous; petals dark pink. A very common weed on estates and among short grass. Flowers May-October. (Fig. 237.)

3. **ERYNGIUM** Linn. Herbs; leaves usually with spiny teeth; flowers in heads or spikes; each flower in the axil of a bract; fruit slightly compressed, without prominent ribs.

**E. FOETIDUM** Linn. *Andu*, S. Herb 1-2 ft.; radical leaves 2-4 in. long, lanceolate, obtuse, coarsely toothed, upper leaves smaller; heads cylindrical; bracts lanceolate, acute; flowers greenish; fruit scaly. Rather common in grassy places at Peradeniya. Flowers April, June, December. A native of Tropical America. (Fig. 238.)

#### 65. EBENACEAE (Ebony Family).

Woody plants; leaves small, usually alternate, exstipulate; flowers unisexual or hermaphrodite; male, and female flowers often on different trees (dioecious); calyx 3-6-lobed; corolla 3-7-lobed; stamens numerous; ovary superior, 3 or more-celled, with 1-2 pendulous ovules in each cell; fruit a berry.

**DIOSPYROS** Linn. Trees; leaves entire; inflorescence cymose or fasciculate; corolla-lobes twisted to the right in bud; stamens 4-16, often represented by staminodes in the female flowers.

1. **D. Ebenum** Koen. *Ebony*, E., *Kalu-vara*, S., *Karun-kali*, T. A tree with dark grey, longitudinally-cracked bark; leaves 2-4 in. long, oblong-lanceolate, usually acuminate, rather thick, bright green; male flowers 3-6 together in a common peduncle, pale greenish-yellow; petals 4; stamens about 16; female flowers solitary, pale green; petals 4; staminodes 8; stigmas 4; ovary 8-celled; fruit under  $\frac{3}{4}$  in. in diameter, hairless, green. Rare in the jungle. Flowers March. (Fig. 239.)

2. **D. Walkeri** Guerke. (*D. Gardneri* Thw.) *Bastard Ebony*, E., *Kadum-beriya*, *Kallu*, S. A tree with blackish bark; leaves 4-8 in. long, lanceolate, acuminate, usually thin, dark green; male flowers 2-12 together, stalkless, creamy-white, petals 4, stamens 16; female flowers solitary, petals 4; ovary 8-celled; fruit 1-1 $\frac{1}{2}$  inches in diameter, hairy when young. Rare in the jungle. Flowers January, April, May. (Confined to Ceylon.) (Fig. 240.)

#### 66. SAPOTACEAE (Sapodilla Family).

Woody plants, usually with latex; leaves simple, alternate, with or without stipules; flowers regular (actinomorphic), hermaphrodite; calyx 4-8-lobed; corolla 4-12-lobed; stamens epipetalous; ovary superior; several-celled, with one axillary ovule in each cell; fruit a berry.

**MADHUCA** Gmel. Trees; stipules deciduous; flowers in axillary fascicles; calyx-segments 4; corolla 6-12-lobed; stamens 12-40; ovary 4-12-celled.

**M. neriifolia** H. Lam. (*Bassia neriifolia* Moon.) *Gan-mi*, S. A small tree; leaves 4-7 in. long, linear-lanceolate, obtuse, hairless, dark green and shining above; flowers greenish; petals hairy outside; fruit 1-1 $\frac{1}{2}$  in. long, narrowly oblong-ovoid. Rather common on the banks of streams. Flowers February-March. (Confined to Ceylon.) (Fig. 241.)

## 67. MYRSINACEAE.

Woody plants ; leaves simple, usually alternate, exstipulate, usually gland-dotted ; inflorescence racemose or paniculate ; flowers hermaphrodite ; sepals 4-5, free ; petals 4-5, usually united at base ; stamens 5, opposite the corolla lobes, usually epipetalous ; ovary usually superior, one-celled with numerous ovules on a free basal placenta ; fruit a berry or drupe.

**MAESA** Forsk. Trees or shrubs ; inflorescence racemose or paniculate ; flowers hermaphrodite or unisexual ; corolla bell-shaped ; stamens 5 ; ovary half-inferior ; fruit a berry ; seeds numerous.

**M. Perrottetiana** A. DC. (*M. indica* A. DC.) *Matabimbiya*, S. A large shrub ; leaves  $3\frac{1}{2}$ -6 in. long, ovate or elliptic, toothed, hairless ; flowers white ; berry  $\frac{1}{2}$  in. in diameter, pale orange-yellow. Common in the jungle. Flowers February-March. (Fig. 242.)

## 68. SYMPLOCACEAE.

Woody plants ; leaves alternate, simple, exstipulate ; flowers regular (actinomorphic), usually hermaphrodite ; sepals 5 ; petals 3-11, united at base ; stamens 4 or more, epipetalous ; ovary more or less inferior, 2-5-celled, with 2-4, pendulous ovules in each cell ; fruit a berry or drupe.

**SYMPLOCOS** Linn. Trees or shrubs ; leaves alternate, exstipulate ; inflorescence axillary, spicate racemose or paniculate ; flowers regular, hermaphrodite ; calyx-segments 5, overlapping in bud ; stamens numerous, united at base ; ovary inferior, 2-3 celled, with 2 ovules in each cell ; fruit a drupe.

**S. spicata** Roxb. *Val-bombu*, S., *Elumpurukki*, T. A small tree with smooth bark ; leaves 3-6 in. long, lanceolate, shortly and regularly toothed ; inflorescence often compound ; flowers white, scented ; stamens 30-40 ; drupe round, purple. Common in the jungle. Flowers February-May. (Fig. 243.)

## 69. LOGANIACEAE.

Leaves opposite or verticillate, simple ; inflorescence usually cymose ; flowers regular, hermaphrodite ; calyx 4-5-lobed ; corolla 4-5-lobed ; stamens 4-5, alternating with the corolla-segments ; ovary superior, 2-celled.

**FAGRAEA** Thunb. Woody plants ; leaves opposite, exstipulate ; inflorescence cymose ; calyx-lobes 5, overlapping in bud ; corolla lobes 5 ; stamens 5 ; ovary 2-celled, with numerous ovules in each cell ; fruit a berry.

**F. zeylanica** Thunb. *Etamburu*, S. A small tree, with rough, greyish brown bark ; leaves 5-10 in. long, obovate-oblong, hairless, rather thick ; corolla cream-coloured ; fruit  $1\frac{1}{2}$ -2 in. long, oblong-ovoid, pale greyish-green. Rather common in the jungle. Flowers May-June. (Fig. 244.)

## 70. OLEACEAE (Olive Family).

Woody plants ; leaves usually opposite, exstipulate ; calyx 4-9-lobed ; corolla united into a tube with 4-9-lobes ; stamens usually 2 ; ovary superior, 2-celled, with 1-4 ovules in each cell.

*Nyctanthes arbor-tristis* Linn. *Sepala*, *Sepalika*, S. is cultivated.

**JASMINUM** Linn. Inflorescence usually cymose ; petals overlapping in bud ; stamens 2 ; ovary 2-celled, with 2 ovules in each cell ; fruit a berry, usually one-seeded.

*J. Sambac* Ait. *Arabian Jasmine*, E. *Geta-pichcha*, S., and *J. pubescens* Willd. are commonly cultivated.

**J. angustifolium** Vahl. *Val-pichcha*, S. Stem climbing, green, hairless ; leaves simple  $1\frac{1}{2}$ -2 in. long ; ovate-lanceolate, acuminate, hairless ; flowers usually in 3-flowered cymes terminating in short lateral branches, white ; petals 7-8 ; fruit of 1 or 2 ovoid carpels. Rather common on the borders of jungles. Flowers April, July, September. (Fig. 245.)

## 71. APOCYNACEAE (Dogbane Family).

Woody or rarely herbaceous plants ; leaves usually opposite ; simple, exstipulate inflorescence cymose ; flowers regular, hermaphrodite ; calyx-lobes 5, overlapping in bud ; corolla-lobes 5, usually twisted in bud ; stamens 5 ; ovary superior, with 2 carpels.

*Plumeria acuminata* Ait. (*P. acutifolia* Poir.) *Alariya*, S., is the much cultivated Temple tree.

*Cerbera manghas* Linn. (*C. Odollam* Gaertn.) *Gon-kaduru*, S. is planted in hedge<sup>s</sup> between rice fields.

Erect plants :

Leaves whorled :

- |   |   |                     |
|---|---|---------------------|
| Herb with indehiscent fruit ; seeds not hairy                     | ∴ | 1. <i>Rauwolfia</i> |
| Trees with dehiscent fruits ; seeds hairy                         | ∴ | 2. <i>Alstonia</i>  |
| Leaves opposite ; small tree ; fruits dehiscent ; seeds not hairy | ∴ | 3. <i>Rejoua</i>    |

Climbing plants :

- |                                   |   |                       |
|-----------------------------------|---|-----------------------|
| Flowers large ; leaves hairy      | ∴ | 4. <i>Chonemorpha</i> |
| Flowers small :                   |   |                       |
| Leaves glabrous ; foliicles stout | ∴ | 5. <i>Anodendron</i>  |
| Leaves hairy ; foliicles slender  | ∴ | 6. <i>Ichnocarpus</i> |

1. **RAUVOLFIA** Linn. Herbs or shrubs ; leaves whorled ; cymes axillary ; corolla-segments overlapping to the left ; carpels free or joined at base ; fruit drupaceous ; seeds hairless.

*R. serpentina* Hk f. *Rat-ekaveriya*, S. A perennial herb, 1-2 ft. high ; leaves 3-5 in. long, lanceolate, hairless ; calyx hairless, red ; corolla pinkish-white ; ripe carpels united at base, purplish-black. Not uncommon in grassy places in the shade of large trees. Flowers February-May. (Fig. 246.)

2. **ALSTONIA** R. Br. Woody plants ; leaves whorled ; cymes terminal ; stamens included in the corolla tube ; carpels free ; ovules numerous ; fruit follicular.

- |  |   |                          |
|--|---|--------------------------|
| Corolla-lobes overlapping to the left ; leaves 3½-4 inches long  | ∴ | 1. <i>A. scholaris</i>   |
| Corolla-lobes overlapping to the right ; leaves 6-12 inches long | ∴ | 2. <i>A. macrophylla</i> |

1. **A. scholaris** R. Br. *Ruk-attana*, S., *Elilaip-palai*, T. A large tree ; bark grey, rough ; leaves 3½-4 in. long, usually 7 in a whorl, dark green ; flowers greenish-white ; foliicles 12-18 in. long, pendulous. Rather common in scrub and permanent jungle ; there is a large tree near the grand-stand on the race-course at Peradeniya. Flowers April. (Fig. 247.)

2. **A. MACROPHYLLA** Wall. *Havari-nuga*, S. A large tree ; bark light grey, smooth ; leaves 6-12 in. long, hairless ; flowers greenish-white ; foliicles 12-18 in. long, ¼ in. broad, pendulous. Dominant in the jungle near Iriyagama ; a native of Malasia. Flowers February. (Fig. 248.)

3. **REJOUA** Gaud. Woody plants ; leaves opposite ; inflorescence cymose ; corolla-tube swollen at base ; corolla-lobes overlapping to the left ; stamens 5, included in the corolla-tube ; carpels free ; seeds hairless.

*R. dichotoma* Gamble. (*Tabernaemontana dichotoma* Roxb.) *Divikaduru*, S., *Kadara-laik-kadu*, T. A small tree with smooth, pale grey bark ; leaves 4-7 in. long, oblong-lanceolate, dark green, hairless ; lateral veins at right angles to the midrib ; flowers white with yellow centres, sweet-scented ; ripe carpels about 2 in. long, orange-yellow ; seeds surrounded by a coat of crimson pulp. Common in the jungle. Flowers April-May. (Fig. 249.)

4. **CHONEMORPHA** G. Don. Woody climbers ; leaves opposite ; inflorescence usually terminal ; corolla-lobes overlapping to the right ; stamens included in the corolla-tube ; carpels 2, free ; ovules numerous ; fruit follicular ; seeds hairy.

*C. fragrans* Alst. (*C. macrophylla* G. Don.) *Bu-val-anguna*, S. Leaves 5-12 in. long, oblong-obovate, hairy ; flowers yellowish-white ; foliicles about 1 ft. long, dark crimson. Rather rare in the jungle. Flowers April-May. (Fig. 250.)

5 **ANODENDRON** A. DC. Climbing shrubs; leaves opposite; corolla-lobes overlapping to the right; carpels free; ovules numerous; fruit follicular; seeds hairy.

**A. paniculatum** A. DC. *Gerandi-dul, As-vel*, S. Bark smooth, greyish brown; leaves 4-6 in. long, oblong-lanceolate, acuminate, hairless; flowers pale orange-yellow; follicles 4-6 in. long, black, woody. Common in the jungle. Flowers March-April. (Fig. 251.)

6. **ICHCARPUS** R. Br. Climbing shrubs; leaves opposite; cymes terminal and axillary; corolla-lobes overlapping to the right; stamens included in the corolla-tube; carpels free; fruit follicular; seeds hairy.

**I. frutescens** Ait. *Kiri-vel*, S. Leaves  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, elliptic, hairy beneath; flowers cream-coloured; ovary hairy; follicles 4-6 in. long, slender. In scrub jungle and among grass under trees. Flowers December. (Fig. 252.)

## 72. ASCLEPIADACEAE (Milkweed Family).

Herbs or shrubs; leaves usually opposite, exstipulate; inflorescence usually cymose, and axillary; flowers regular, hermaphrodite; calyx-segments overlapping in bud; corolla-segments usually overlapping to the right, often with a ring of hairs or scales in the throat; ovary superior, carpels 2, free below but united at the top to form a common style; fruit follicular; seeds usually hairy.

*Gomphocarpus fruticosus* R. Br. is commonly cultivated.

Erect shrub .. .. .	1. <i>Calotropis</i>
Climbing herbs :	
Stamen filaments nearly distinct; leaves usually variegated ..	2. <i>Hemidesmus</i>
Stamens united; leaves not variegated ..	3. <i>Tylophora</i>

1. **CALOTROPIS** R. Br. Erect shrubs; leaves opposite, inflorescence cymose; corolla-lobes not overlapping in bud; stamens dorsally appendaged, united into a column, the pollen of each anther cell united into waxy masses (pollinia), which are attached to a glandular swelling of the angular stigma (corpusculum), these glandular swellings alternate with the stamens so that the two pollinia attached to each belong to the halves of 2 adjacent stamens. Visiting insects catch their legs in the slit between the anthers, thus removing a pair of pollinia, which are deposited on the stigmatic under-surface of the dilated style of another flower.

**C. gigantea** R. Br. *Vara*, S., *Manalkkovi, Erukkalai, Urkkovi, Erukku*, T. A shrub, up to 10 ft. high; leaves 4-8 in. long, obovate-oblong, grey-green; flowers pale mauve; follicles  $3\frac{1}{2}$ -4 in. long, wrinkled, green. Common on the patanas and in dry waste places. Flowers all the year. (Fig. 253.)

2. **HEMIDESMUS** R. Br. A twining perennial, somewhat shrubby at base; leaves opposite; cymes axillary; corolla-lobes not overlapping in bud; corolla with 6 scales in the throat; scales alternating with the corolla-lobes; stamen filaments free, but anthers united at the top and connective prolonged; pollen in granular masses, 2 in each cell of the anther; stigma capitate, 5-angled, with spoon-shaped appendages (corpuscles) into which the pollen masses from the halves of 2 adjacent anthers are shed. The corpuscles become attached to the heads of visiting insects.

**H. indica** R. Br. *Ceylon Sarsaparilla*, E., *Iramusu*, S., *Nannari*, T. Leaves oblong-lanceolate, green, or linear and very dark green with a white band, about  $2\frac{1}{2}$  in. long, hairy on the veins beneath; flowers dark purple; follicles 4-5 in. long. Common in grassy places. Flowers February. (Fig. 254.)

3. **TYLOPHORA** R. Br. Twining herbs, rarely shrubby; inflorescence axillary; corolla-lobes slightly overlapping to the right; structure of stamens and method of pollination similar to *Calotropis*.

**T. indica** Merr. (*T. asthmatica* W. & A.) *Ceylon Ipecacuanha* E., *Bin-nuga*, S., *Peyppalai, Nancharappanchan*, T. Leaves 1- $2\frac{1}{2}$  in. long, oblong-elliptic, rounded at base, shortly at apex, hairy; flowers in pedunculate umbels, dark purple; follicles  $2\frac{1}{2}$ -3 in. long. Climbing over shrubs in scrub jungle; not very common. Flowers September-February. (Fig. 255.)

## 73. RUBIACEAE (Madder Family).

Herbs or woody plants ; leaves simple, opposite or whorled ; stipules interpetiolar ; petals 4-5, united ; stamens 4-5, ovary inferior, 2-10 celled.

## Shrubs :

- |  |    |     |                    |
|--|----|-----|--------------------|
| One calyx-segment enlarged, white ; corolla orange     | .. | 1.  | <i>Mussaenda</i>   |
| Calyx-segments equal :                                 |    |     |                    |
| Flowers white or greenish-white :                      |    |     |                    |
| Leaves with scattered bacterial nodules                | .. | 2.  | <i>Pavetta</i>     |
| Leaves without scattered nodules :                     |    |     |                    |
| Fruit dehiscent  | .. | 3.  | <i>Wendlandia</i>  |
| Fruit indehiscent :                                    |    |     |                    |
| Erect shrubs ; fruit black :                           |    |     |                    |
| Inflorescence axillary                                 | .. | 4.  | <i>Canthium</i>    |
| Inflorescence terminal                                 | .. | 5.  | <i>Psychotria</i>  |
| Climbing shrub ; fruit red                             | .. | 6.  | <i>Morinda</i>     |
| Flowers red  | .. | 7.  | <i>Ixora</i>       |
| Herbs :  |    |     |                    |
| Ovules solitary in each cell ; flowers pale purple     | .. | 8.  | <i>Spermacoce</i>  |
| Ovules numerous in each cell ; flowers usually white : |    |     |                    |
| Stem round :   |    |     |                    |
| Calyx segments 5                                       | .. | 9.  | <i>Ophiorrhiza</i> |
| Calyx segments 6                                       | .. | 10. | <i>Richardia</i>   |
| Calyx segments 4                                       | .. | 11. | <i>Hedyotis</i>    |
| Stem square ; flowers 0.05 in. across ; petals 4       | .. | 12. | <i>Mitracarpum</i> |

1. **MUSSAENDA** Linn. Woody plants ; inflorescence terminal, cymose ; calyx-lobes 5, 1 often enlarged ; stamens 5 ; ovary 2-celled, with numerous ovules in each cell ; fruit a berry.

**M. frondosa** Linn. *Musseenda*, *Vel-but-sarana*, S., *Vel-ilai*, T. A climbing shrub ; leaves 3-5 in. long, ovate-elliptic, hairy ; flowers orange, enlarged calyx-segments white ; fruit round. Very common in scrub jungle. Flowers April-August. (Fig. 256.)

2. **PAVETTA** Linn. Woody plants ; inflorescence terminal, cymose ; sepals, petals, and stamens 4 ; ovary 2-celled, with one ovule in each cell ; style twice as long as the corolla tube ; fruit a berry.

**P. indica** Linn. *Pavatta*, S., *Pavaddai*, T. A shrub ; bark pale yellowish ; leaves 3-6 in long, hairless, with bacterial nodules scattered over the surface ; flowers white ; fruit round, black. Very common in the jungle. Flowers December-May. The floral mechanism is similar to that of *Ixora*. (Fig. 257.)

3. **WENDLANDIA** Bartl. Woody plants ; leaves opposite or whorled ; stipules membranous ; inflorescence terminal, paniculate, calyx-lobes 4-5 ; corolla-lobes overlapping in bud ; anthers 4-5, almost stalkless ; ovary 2-3-celled, with many ovules in each cell ; fruit a capsule.

**W. thyrsoides** Steud. (*W. Notoniana* Wall.) *Ravanidala*, S. A shrub or small tree ; leaves lanceolate, 4-5 in. long, hairy, flowers almost sessile, white ; capsule loculicidally dehiscent. Very common in scrub jungle. Flowers February-March. (Fig. 258.)

4. **CANTHIUM** Lam. Woody plants ; calyx cup-shaped ; shortly 4-5-toothed ; corolla-lobes 4-5, not overlapping in bud ; ovary 2-celled, with one pendulous ovul in each cell ; fruit a drupe.

**C. dicoccum** Merr. • (*C. didymum* Gaertn. f.) *Pana-karavu*, *Galkaranda*, *Panduru*, S., *Vachchikkuran*, *Yerkkoli*, T. A shrub or small tree ; with smooth bark ; twigs spineless ; leaves  $3\frac{1}{2}$ - $4\frac{1}{2}$  in. long, lanceolate, shining, bright green ; inflorescence cymose ; flowers greenish-white ; drupe dark purple. Rather common in the jungle. Flowers April. (Fig. 259.)

5. **PSYCHOTRIA** Linn. Woody plants ; calyx-tube short ; corolla-lobes 6, not overlapping in bud ; ovary 2-celled, with one erect, basal ovule in each cell.

**P. nigra** Alst. (*P. Thwaitesii* Hk. f.) A shrub ; leaves 4-9 inches long, lanceolate or obovate-lanceolate with minute nodules (? bacterial) in the axils of the veins ; inflorescence paniculate ; terminal ; flowers white, nearly stalkless ; fruit black. A common undershrub in the jungle. Flowers January-March, May-June. (Fig. 260.)

6. **MORINDA** Linn. Woody plants ; flowers in heads, often arranged in umbels or panicles ; corolla-lobes 4-7, not overlapping in bud ; stamens 4-7 ; ovary 2-4 celled, with one ovule in each cell ; fruit of many drupes coalescing into a head.

**M. umbellata** Linn. *Maha-kiri-vel*, S., *Nuna*, T. A climbing shrub ; leaves 2-4 in. long lanceolate, hairless ; veins red beneath ; flowers greenish-white ; corolla lobes 4 ; fruit scarlet. Not uncommon in the jungle. Flowers February. (Fig. 261.)

7. **IXORA** Linn. Woody plants ; inflorescence cymose ; calyx 4-toothed ; twisted in bud ; ovary 2-celled, with one ovule in each cell ; fruit fleshy.

**I. coccinea** Linn. *Rat-mal*, *Ratambala*, S., *Vedchi*, T. A shrub ; twigs green ; leaves 2-3 in. obovate-oblong, acuminate ; leaf-stalk very short ; flowers bright scarlet ; fruit  $\frac{1}{2}$  in. in diameter, round, blackish-purple. Rather rare in scrub jungle ; common in the dry country. Flowers all the year. (Fig. 262.)

The anthers dehisce in the bud stage, and the pollen falls on to the closed lobes of the style, by which it is presented to visiting insects. The lobes of the style diverge later, exhibiting the stigmatic surfaces.

8. **SPERMACOCE** Linn. Herbs ; stipules with marginal bristles ; sepals 2-5 ; corolla-lobes 4, not overlapping in bud ; stamens 4 ; ovary 2-celled, with 1 ovule in each cell ; fruit a capsule.

**S. hispida** Linn. *Hin-geta-kola*, S. *Yar*, *Nattaichchvri*, T. Annual herb ; stem prostrate, 4-angled, purple ; leaves  $\frac{1}{2}$ -1 in. long, stalkless, oblong-elliptic ; flowers in axillary fascicles, pale mauve ; capsule  $\frac{1}{8}$  in. long. Very common amongst short grass. Flowers March-August. (Fig. 263.)

9. **OPHIORRHIZA** Linn. Herbs or shrubs ; inflorescence a dichotomous cyme ; calyx-lobes 5 ; corolla-lobes 5, not overlapping in bud ; ovary 2-celled with many ovules in each cell ; fruit a capsule, loculicidally dehiscent at the top.

Plant erect .. .. . 1. *O. Mungos*  
Plant creeping .. .. . 2. *O. radicans*

1. **O. Mungos** Linn. *Dat-ketiya*, *Val-ekaveriya*, S. An erect herb,  $1\frac{1}{2}$ -3 ft. high ; leaves 4-8 in. long, elliptic-lanceolate, hairless except in the veins beneath ; flowers white ; capsule  $\frac{3}{8}$  in broad, 3 times as broad as long. Common in the jungle. Flowers all the year. (Fig. 264.)

2. **O. radicans** Gardn. A prostrate herb ; leaves  $\frac{1}{4}$ -1 in. long, ovate, hairy on the veins beneath ; flowers white ; capsule 3 times as broad as long. Rather common in the jungle. Flowers June. (Confined to Ceylon.) (Fig. 265.)

10. **RICHARDIA** Houst. Herbs with round stems ; stipules bristly ; flowers in dense, terminal heads, usually hermaphrodite ; calyx 4-8-lobed ; corolla 3-6-lobed, throat hairless ; stamen 3-6 ; ovary 3-4-locular, with one ovule in each cell ; fruit a capsule.

**R. SCABRA** Linn. (*Richardsonia scabra* St. Hil) *Buta-suri*, T. A prostrate herb with hispid stems ; leaves elliptic,  $1-1\frac{1}{2}$  in. long ; flowers white, 0.2 in. across ; petals 6. A common weed of cultivation. Flowers May. (Fig. 266.)

11. **HEDYOTIS** Linn. Herbs or shrubs ; leaves opposite or whorled ; flowers in cymes or rarely solitary ; calyx-lobes 4-5 ; corolla-lobes not overlapping in bud ; ovary 2-4-celled, ovules few or numerous in each cell ; fruit septicial, loculicidal or indehiscent.

Flowers in axillary cymes or fascicles ; leaves elliptic :

Leaves glabrous .. .. . 1. *H. nitida*  
Leaves hairy beneath .. .. . 2. *H. Auricularia*  
Flowers solitary or in pairs ; leaves linear-lanceolate .. .. . 3. *H. corymbosa*

1. **H. nitida** W. & A. *Pita-sudu-pala*, S. Annual herb ; stems prostrate ; leaves  $1-1\frac{3}{4}$  in. long, rather thick, shining above and greenish-white beneath ; stipules hairy ; flowers axillary, white ; stamens longer than the corolla tube ; capsule dehiscent on the top only. Rather common in open and shady places. Flowers March, July. (Fig. 267.)

The style is always bent to one side ; the flowers are not heterostylous as in *H. Auricularia*.

2. **H. Auricularia** Linn. *Geta-kola*, S. Annual herb; stems prostrate, round; leaves 1-2 in. long, elliptic-lanceolate, membranous, hairy; stipules with 3-5 bristly teeth; flowers white, 0.1 in. across; petals 4; fruit indehiscent. Common among short grass. Flowers June-September. (Fig. 268.)

The flowers of this species are heterostylous, with styles and stamens of two different lengths.

3. **H. corymbosa** Lamk. (*Oldenlandia corymbosa* Linn.) *Val-patpadagam*, S. Annual herb; stem erect or prostrate; leaves  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, linear; flowers axillary stalked, usually in pairs, purplish-white; capsule loculicidally, dehiscent at the top. A common weed in gardens. Flowers January, February, July-September. (Fig. 269.)

12. **MITRACARPUM** Zucc. Herbs with square stems; stipules bristly; flowers in axillary heads, usually hermaphrodite; calyx 4-5-lobed; corolla 4-lobed; stamens 4; ovary usually 2-celled, with one ovule in each cell; fruit a capsule.

M. **VILLOSUM** Ch. & Schl. An erect herb with minutely-hairy stems; leaves ovate-elliptic, 1-2 in. long; flowers white, 0.05 in. across; petals 4. A common weed in waste places and cultivated ground. Flowers February, June, August, October, December. (Fig. 270.)

#### 74. COMPOSITAE (Composite Family).

Herbs or shrubs; flowers regular or irregular, sessile in heads surrounded by bracts; calyx often represented by hairs or scales (pappus); stamens 5; anthers united; ovary 1-celled with a solitary, erect ovule; fruit an achene.

Some flowers regular • • • — • • 1. Tubiflorae  
All flowers ligulate • • • — • • 2. Cichoriaceae

#### 74 (1). TUBIFLORAE, or COMPOSITAE proper (Daisy sub-family).

Herbs or shrubs; leaves usually alternate, without stipules; some or all florets regular and tubular, outer florets often irregular.

- 1 Flowers purple or white (with yellow centres in *Cosmos* and *Bidens*):
  - 2 Ray florets wanting; leaves simple or lobed:
    - 3 Heads crowded into dense compound heads, with 3 large bracts at the base • • • • • 1. *Elephantopus*
    - 3\* Heads distinct:
      - 4 Plants erect:
        - 5 Pappus of many hairs:
          - 6 Flowers purple:
            - 7 Involucral bracts in many rows • • • • • 2. *Vernonia*
            - 7\* Involucral bracts in one row:
              - 8 Florets all tubular • • • • • 3. *Emilia*
              - 8\* Outer florets filiform • • • • • 4. *Erechtites*
            - 6\* Flowers white • • • • • 5. *Erigeron*
          - 5\* Pappus of 5 scales • • • • • 6. *Ageratum*
        - 4\* Plant climbing; flowers white; pappus of many hairs • • • • • 7. *Mikania*
      - 2\* Ray florets present; white, (see also *Erechtites*); leaves compound:
        - 9 Pappus of 2 bristles • • • • • 8. *Bidens*
        - 9\* Pappus wanting • • • • • 9. *Eclipta*
  - 1\* Flowers yellow (brick-red in *Gynura*):
    - 10 Ray florets wanting:
      - 11 Pappus wanting • • • • • 10. *Centipeda*
      - 11<sup>1</sup> Pappus of 2 bristles • • • • • 8. *Bidens*
      - 11<sup>2</sup> Pappus of numerous hairs; flowers brick-red • • • • • 11. *Gynura*
    - 10\* Ray florets present, yellow:
      - 12 Heads on short stalks:
        - 13 Heads small; leaves simple:
          - 14 Leaves not 3-nerved at base • • • • • 12. *Microglossa*
          - 14\* Leaves 3-nerved at base • • • • • 13. *Synedrella*
        - 13\* Heads large; leaves 3-lobed • • • • • 14. *Tithonia*
      - 12\* Heads on long stalks • • • • • 15. *Tridax*

1. **ELEPHANTOPUS** Linn. Herbs; leaves radical or alternate; involueral bracts about 8; receptacle naked; florets all hermaphrodite, equally 4-lobed and cleft on one side; pappus of bristles or scales; anther-bases obtuse; style arms long and narrow; achene 10-ribbed.

**E. scaber** Linn. *Et-adi*, S., *Anichchovadi*, T. Leaves 4-5 in. long, narrowly oblong-lanceolate, with numerous, coarse hairs on both surfaces; flowering stem 6-18 in. high; heads compound, surrounded by 3 leafy bracts; each head surrounded by 8 involueral bracts; flowers bluish-purple, rarely white. Very common among short grass; doubtfully native. Flowers February-April. (Fig. 271.)

2. **VERNONIA** Schreb. Herbs or woody plants; leaves alternate; involueral bracts in many rows, the inner longer than the outer; florets all hermaphrodite, tubular; anther-bases obtuse; style arms long and narrow; pappus of many hairs.

Leaves tapering at the base

Leaves crenate-serrate; plant  $\frac{1}{2}$ -2 ft. .. .. . 1. *V. cinerea*

Leaves sharply serrate; plant 2-4 ft. .. .. . 2. *V. Hookeriana*

Leaves auriculate at base, crenate .. .. . 3. *V. zeylanica*

1. **V. cinerea** Less. *Monara-kudumbiya*, S., *Chiteviyarchenkalunir*, T. An annual herb; stem  $\frac{1}{2}$ -2 ft. high, erect, rarely branched; leaves up to 2 in. long; ovate-elliptic, coarsely toothed, hairy; inflorescence terminal, corymbose; flowers purple; pappus white. Very common in the jungle and in grassy and waste places. Flowers all the year. (Fig. 272.)

2. **V. Hookeriana** Arn. An erect herb, 2-4 ft. high; leaves  $1\frac{1}{2}$ - $3\frac{1}{2}$  in. long, ovate-elliptic, acuminate, regularly toothed, hairy; heads in terminal paniculate cymes, bright purple; pappus yellowish-white; achenes 4-angled. Very common in scrub jungle and in the borders of jungles. Flowers January-March. (Fig. 273.)

3. **V. zeylanica** Less. *Pupula*, *Hin-botiya*, S., *Kuppilay*, T. A straggling shrubby perennial; leaves  $1\frac{1}{2}$ -3 in. long, ovate-lanceolate, hastate at base, woolly beneath, toothed; inflorescence an axillary or terminal, corymbose cyme; flowers pale mauve; pappus yellowish-white. Common in scrub jungle. Flowers January-March. (Fig. 274.)

3. **EMILIA** Cass. Herbs; leaves alternate or radical; heads on corymbose cymes; involueral bracts in one series; receptacle flat, naked; pappus of many hairs; achenes not compressed.

**E. javanica** C. Rob. (*E. sonchifolia* Trim.) *Kudupara*, S. Stems straggling; leaves lyrate, pinnatifid, acute, hairy, grey-green beneath; florets longer than the involucre; pale mauve. A very common weed in cultivated ground. Flowers all the year. (Fig. 275.)

4. **ERECHTITES** Raf. Herbs; leaves alternate; involueral bracts in one row; outer florets female in 2 or more rows, shortly rayed; inner florets fertile, tubular, 5-toothed; anther-bases obtuse, entire; styles truncate at apex; achenes 5-10-ribbed; pappus of many hairs.

**E. VALFRIANAEFOLIA** DC. Erect herb, up to 3 ft. high; leaves deeply lobed, about 5 in. long, hairless; flowers mauve. Rather common in estates and in waste places. Flowers December, March. (Fig. 276.)

5. **ERIGERON** Linn. Herbs or shrubs; leaves alternate; involueral bracts in several rows; ray-florets in several rows, hermaphrodite, often with very short rays; disk florets hermaphrodite, tubular; anther-bases obtuse; style arms flattened; pappus of many hairs.

**E. SUMATRENSIS** Retz. *Alavangup-pillu*, T. Annual herb, 2-3 ft., densely hairy; leaves lanceolate; heads under  $\frac{1}{4}$  in.; rays pale blue narrow, scarcely

exceeding the bracts; disk pale yellow; pappus dirty-white. Common on estates and in waste places. Flowers September, November, April. (Fig. 277.)

6. **AGERATUM** Linn. Annuals; leaves opposite, simple; heads small, involucrel bracts 2-3-seriate; flowers all tubular and hermaphrodite; anthers appendaged; style arms long, obtuse; pappus of 5 broad scales.

A. **CONYZOIDES** Linn. *White weed, Goat-weed, E., Hulan-tala, S., Pumpillu, T.* Herb, 6-24 in. high, hairy; leaves ovate, toothed, up to  $2\frac{1}{2}$  in. long, stalked; heads  $\frac{1}{4}$  in. across, pale blue or white; achenes black. Very common on estates and in waste places. Flowers all the year round. A native of Tropical America. (Fig. 278.)

7. **MIKANIA** Willd. Herbs or shrubs, often climbing; leaves opposite, simple; heads usually 4-flowered; involucrel bracts 4; receptacle naked; flowers all tubular, hermaphrodite; pappus of many hairs; corolla 5-toothed; anthers obtuse at base; style arms long, acute; achenes 5-angled.

M. **SCANDENS** Willd. *Pulun-taliya, Loka-palu, Gam-palu, S.* A climbing herb; leaves 2-4 in. long, triangular in outline, toothed; heads in compound, axillary umbels; all florets white. Very common in scrub jungle and waste places. Flowers January. (Fig. 279.)

8. **BIDENS** Linn. Herbs; leaves opposite, often pinnate; involucrel bracts usually in 2 series; receptacle scaly; ray-flowers, if present, female or neuter; disk-flowers tubular, hermaphrodite; pappus of 2-4 rigid bristles.

B. **CHINENSIS** Willd. (*B. pilosa* Trim. not Linn.) *Spanish needle, E., Val-té-kola, S.; Ottu-pillu, T.* Erect herb, up to 2 ft. high; leaflets usually 3, ovate, toothed, hairless, ray flowers, if present, cream-coloured; disk florets orange-yellow. Common in waste places. Flowers November, February. (Fig. 280.)

9. **ECLIPTA** Linn. Annual herbs; leaves opposite; involucrel bracts in 2 series; receptacle paleaceous; heads rayed, tubular, 4-5-lobed, fertile; anther-bases obtuse; style-arms flattened; pappus wanting; achenes 4-angled.

E. **alba** Hassk. *Kikirindiha, S., Karippan, Karichalankanni, Kaikechi, Kaiwichillai, T.* Leaves  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, stalkless, narrowly lanceolate, hairy; heads white, solitary or 2 together; involucrel bracts about 8. Very common in wet places. Flowers April, November. (Fig. 281.)

10. **CENTIPEDA** Lour. Herbs; leaves alternate; involucrel bracts 2-seriate; receptacle naked; outer florets in several rows, female not rayed; inner florets hermaphrodite, tubular, 4-toothed; anther-bases entire, obtuse; style-arms short, truncate; achenes 4-angled; pappus wanting.

C. **minima** A. Br. & Asch. (*C. orbicularis* Lour.) *Visaduli, S.* A prostrate, annual herb; leaves under  $\frac{1}{2}$  in. long, spatulate, toothed; heads yellow, stalkless; receptacle cone-shaped. A weed in damp places. Flowers February, May, August-September. (Fig. 282.)

11. **GYNURA** Cass. Herbs; leaves alternate; involucrel bracts 1-seriate; flowers all hermaphrodite, tubular, 5-toothed; style-arms slender; achenes ribbed; pappus copious.

G. **CREPIDIODES** Benth. *Tanduk-kiraip-pillu, T.* An erect herb; leaves spatulate, almost-hairless, toothed and often lobed; heads brick-red; involucrel bracts about 15, green. A common weed on estates and in waste places. A native of Tropical Africa. (Fig. 283.)

12. **MICROGLOSSA** DC. Shrubs; leaves alternate; involucrel bracts in many rows, the inner longer; outer florets rayed, female, fertile; inner florets hermaphrodite, tubular, fertile; pappus of many hairs; anther bases obtuse; style arms elongate, flattened; achenes 4-5-angled.

M. **zeylanica** Clarke. *Pupula, S.* A shrub 2-4 ft. high; leaves about 4 in. long, narrowly lanceolate, acute, finely hairy; heads in corymbose cymes, pale yellow; achene hairy. Common in scrub jungle. Flowers September-December. (Fig. 284.)

13. *SYNEDRELLA* Gaertn. Annual herbs; leaves opposite; involucre bracts few; receptacle paleaceous; ray-flowers in 1-2 rows, female; disk-flowers hermaphrodite, tubular, 4-toothed; achenes compressed, 2-winged and 2-spined.

S. *NODIFLORA* Gaertn. An erect herb, about 1 ft. high; leaves elliptic,  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, 3-nerved from the base; heads usually stalkless; florets all yellow. Common in waste places. Flowers February-March. (Fig. 285.)

14. *TITHONIA* Desf. Herbs, often woody at the base; leaves alternate; heads solitary, on long peduncles; involucre bracts in 2 rows; receptacle paleaceous; paleae clasping the disk florets; outer florets neuter, rayed; disk florets hermaphrodite, tubular, 5-toothed; anther-bases entire; styles with narrow arms; achenes 4-cornered; pappus of 2 bristles.

T. *DIVERSIFOLIA* A. Gray. *Wild sunflower*, E., *Val-suriya-kanti*, *Nata-suriya*, S. A perennial herb, about 4 ft. high; leaves 4-12 in. long, ovate or triangular in outline, usually 5-lobed, hairy; heads solitary, terminal, 5 inches across; top of peduncle swollen; all florets yellow; achenes hairy. Common in waste places, especially on banks. Flowers October. (Fig. 286.)

15. *TRIDAX* Linn. Perennial herbs; leaves alternate or lower opposite; involucre bracts 2-3-seriate; receptacle paleaceous; ray-flowers, if present, female; disk-flowers hermaphrodite, tubular, 5-toothed; anther-bases obtuse; achenes compressed; pappus of 2-bristles.

T. *PROCUMBENS* Linn. *Mexican Daisy*, E. A procumbent herb; leaves ovate or triangular, 2 inches long, deeply toothed, hairy; heads on peduncles about 10 in. long,  $\frac{3}{8}$  inches across; ray-florets cream-coloured; disk-florets yellow. Very common among short grass and in waste places. Flowers September. (Fig. 287.)

#### 74 (2) CICHORIACEAE (Dandelion sub-family).

Herbs, usually with milky juice; leaves alternate or radical; florets all hermaphrodite, rayed; ray 5-toothed at apex; anther bases sagittate; style-arms slender.

Fruit round in cross-section; heads  $\frac{1}{4}$  in. across .. .. 1. *Crepis*  
 Fruit compressed; heads  $\frac{3}{8}$  in. across .. .. 2. *Sonchus*

1. **CREPIS** Linn. Annuals or perennials, hairs never stellate; leaves entire, toothed or pinnatifid; heads solitary, fascicled or in corymbose cymes; involucre bracts either multiseriate or the outer series much shorter than the inner; receptacle flat, naked or shortly hairy; flowers yellow or red; achenes cylindric, 10-20 ribbed; pappus hairs simple.

C. *japonica* Benth. Annual herb; stem 8-18 in. high; leaves 3-6 in. long, nearly all radical, pinnatifid, hairless; heads  $\frac{1}{4}$  in. across, in corymbose cymes; involucre bracts in two series, the outer much shorter than the inner; flowers yellow; achenes not beaked, dark brown; pappus white. A very common weed in shady places. Flowers all the year. (Fig. 288.)

2. **SONCHUS** Linn. Annuals or perennials; leaves entire toothed or pinnatifid, often with weak spines; involucre bracts multiseriate; receptacle flat, naked; flowers yellow; pappus of many simple hairs; achenes compressed, ribbed, not beaked.

Leaves simple .. .. 1. *S. arvensis*  
 Leaves pinnatifid .. .. 2. *S. oleraceus*

1. S. *ARVENSIS* Linn. *Corn Southistle*, E., *Val-dun-kola*, S., *Poilaip-pillu*, T. Leaves spatulate, toothed on the margin, about 9 in. long; flower-heads  $\frac{3}{4}$  in. across. Common on walls and by roadsides. Flowers January. Doubtfully the same as the European plant. (Fig. 289.)

2. s. **OLERACEUS** Linn. *Southistle*, E. Leaves lanceolate or spatulate in outline, deeply pinnatifid, toothed, up to 8 in. long; flower-heads  $\frac{3}{4}$  in. across. Rather common in waste places. Flowers February-March, October. (Fig. 290.)

### 75. LOBELIACEAE.

Herbs or shrubs, often with milky juice; leaves simple, alternate; stipules wanting; flowers hermaphrodite, bilaterally symmetrical (zygomorphic); calyx 5-lobed; anthers coherent to form a tube around the style; ovary 2-celled, with many ovules in each cell.

Corolla-tube split down the back; flowers small .. .. 1. *Lobelia*  
Corolla-tube not split; flowers large, white .. .. 2. *Isotoma*

1. **LOBELIA** Linn. Flowers solitary or in racemes; corolla 2-lipped, upper lip 2-lobed, lower 3-lobed; ovary inferior; fruit a loculicidally-dehiscent capsule; seeds numerous.

Plants creeping; flowers blue or white; leaves hairless .. .. 1. *L. trigona*  
Plants erect; flowers mauve .. .. 2. *L. radicans*

1. **L. trigona** Roxb. Stems prostrate; leaves  $\frac{1}{2}$ – $\frac{3}{4}$  inch long ovate, toothed, hairless; flowers pale purplish-blue; seed 3-angled. Common in wet places. Flowers February, April, October.

*L. affinis* Wall. resembles this species but has hairy leaves and is doubtfully distinct. (Fig. 291.)

2. **L. RADICANS** Thunb. Stems prostrate; leaves  $\frac{1}{2}$ –1 inch long, minutely toothed, hairless; flowers pale pinkish-purple with greenish markings; seeds egg-shaped. Flowers April. A native of Japan. (Fig. 292.)

2. **ISOTOMA** Lindl. Herbs; flowers solitary or in racemes; corolla tubular; stamens inserted above the middle of the corolla-tube; ovary inferior; fruit a capsule.

1. **LONGIFLORA** Presl. An erect herb; stem about 1 ft. high, usually unbranched; leaves 6-in. long, narrowly lanceolate, distinctly and regularly toothed; flowers white; corolla-tube  $3\frac{1}{2}$  in. long; capsule nearly 1 in. long, deflexed. Common in waste shady places. Flowers November. (Fig. 293.)

### 76. GENTIANACEAE (Gentian Family).

Herbs; leaves usually opposite; flowers hermaphrodite, usually regular; calyx 4–5-lobed, lobes overlapping in bud; petals united; corolla-lobes usually twisted to the right in bud; stamens 4–5, epipetalous, alternating with the lobes of the corolla; ovary superior, 1-celled or partially 2-celled, with numerous ovules; fruit usually a capsule.

**EXACUM** Linn. Leaves usually 3–5-nerved from the base; inflorescence cymose; ovary almost completely 2-celled; fruit a septicidally-dehiscent capsule.

**E. trinervium** Druce. (*E. zeylanicum* Roxb.) *Bindara*, *Gini-hiriya*, S. Stem 1–2 $\frac{1}{2}$  ft. high, more or less 4-angled; leaves 2 $\frac{1}{2}$ –3 $\frac{1}{2}$  in. long, elliptic or lanceolate, hairless, 3-nerved from the base; flowers bright blue. Damp shady places; rather rare. Flowers August-October, December-February. (Confined to Ceylon.) (Fig. 294.)

### 77. HYDROPHYLLACEAE.

Herbs with alternate, exstipulate leaves; flowers regular; sepals 5; petals 5, united, overlapping in bud; stamens 5, epipetalous; ovary superior; fruit a capsule.

**HYDROBEA** Linn. Marsh herbs; ovary 2-celled; placentation parietal; styles 2; fruit many-seeded.

**H. zeylanica** Vahl. *Diya-kirilla*, S. An annual herb, 6–18 in. high, hairless; leaves 1–2 $\frac{1}{2}$  in. long, linear-lanceolate; flowers bright blue, in axillary racemes; capsule oblong-ovoid. Common in the rice fields. Flowers March-April, September. (Fig. 295.)

## 78. BORAGINACEÆ (Borage Family).

Herbs or woody plants; leaves usually alternate, simple, exstipulate; inflorescence usually a dichotomous scorpioid cyme (the morphology of this is not fully understood, see Die Natürlichen Pflanzenfamilien); calyx 5-8-lobed; petals 4-6, united; stamens alternate with the corolla-lobes; ovary superior 2-4-celled; style terminal, arising from between the ovary-lobes (gynobasic).

*Cordia domestica* Roth. (*C. Myxa* Trim. non Linn.) *Lolu*, S., *Naru-vili*, T., is cultivated.

Fruit a drupe; shrubs; flowers white .. .. .	1. <i>Ehretia</i>
Fruit of 4 nutlets; flowers mauve .. .. .	2. <i>Heliotropium</i>

1. **EHRETIA** Linn. Woody plants; sepals 5; corolla-lobes 5, overlapping in bud; ovary 2-celled, with 2 ovules in each cell; fruit a drupe.

**E. microphylla** Lamk. (*E. buxifolia* Roxb.) *Hin-tambala*, S., *Pakku-vetti*, T. A shrub, 3-4 ft. high; leaves  $\frac{1}{4}$ -1 in. long, in fascicles, representing suppressed branches, obovate, shining, slightly hairy; flowers white, solitary or 2 together; styles 2, simple; drupe  $\frac{1}{4}$  in. in diameter, yellow. Rather common on the borders of jungles. Flowers February, June-August. (Fig. 296.)

2. **HELIOTROPIUM** Linn. Herbs or shrubs; inflorescence a terminal, dichotomous cyme; calyx 5-lobed; corolla 5-lobed; stamens 5, epipetalous, included in the corolla-tube; ovary 4-celled; with 1 ovule in each cell; fruit of 4 nutlets, 2 or 4 lobed.

**H. indicum** Linn. *Et-setiya*, *Et-honda*, S., *Dimbiya*, *Telkodukku*, *Telmunai*, T. Annual herb, 1-2 ft. high; leaves  $1\frac{1}{2}$ -3 in. long, alternate or nearly opposite, ovate, hairy; flowers pale mauve; fruit 2-lobed, 4-seeded. Not uncommon in waste places and by roadsides; doubtfully native. Flowers April-July. (Fig. 297.)

## 79. SOLANACEÆ (Nightshade Family).

Herbs; leaves alternate, exstipulate; flowers regular, usually hermaphrodite; calyx-lobes 3-10; corolla-lobes 5 (rarely 10); stamens 5, epipetalous; ovary 2-5-celled; ovules numerous.

*Lycopersicum esculentum* Mill.—*Tomato*, E., *Rata-batu*, S., *Takkali*, T.; *Cyphomandra betacea* Sendtn.—*Tree Tomato*, E., *Maram-takkali*, T.; *Physalis peruviana* Linn.—*Cape gooseberry*, E.; *Capsicum annuum* Linn.—*Chilli*, E., *Miris*, S., *Kochchi-kai*, T.; and *C. minimum* Roxb.—*Bird chilli*, E., *Naya-miris*, S., *Kanu-kochchikai*, T.; *Nicotiana Tabacum* Linn.—*Tobacco*, E., *Dun-kolo*, S., *Poilai*, T.; and *Brunfelsia uniflora* D. Don.—*Franciscea*, E., belong to this family. It is doubtful if any of the species enumerated here are really native.

Fruit a berry .. .. .	1. <i>Solanum</i>
Fruit a prickly capsule .. .. .	2. <i>Datura</i>

1. **SOLANUM** Linn. Inflorescence cymose; sepals usually 5; corolla usually rotate with a short tube; stamens usually 5, epipetalous, with short filaments and large anthers connivent into a cone; ovary 2-celled; fruit a berry; seeds numerous, rounded and flattened.

*S. macranthum* Dun. (*Potato tree*, E.) and *S. trilobatum* Linn. (*Val-tib-batu*, S. *Tutuvalai*, T.) and *S. Melongena* Linn. (*Brinjal*, E., *Vambatu*, S., *Kattari*, T.) are cultivated.

Stems without prickles :	
Annual 1-3 ft.; leaves subglabrous; flowers white; fruit black .. .. .	1. <i>S. nigrum</i>
Perennial 5-10 ft.; leaves densely tomentose; flowers purple; fruit yellow .. .. .	2. <i>S. auriculatum</i>

Stems with prickles :	
Flowers white; inflorescence many-flowered :	
Leaves without prickles; fruit yellow .. .. .	3. <i>S. torvum</i>
Leaves prickly; fruit red .. .. .	4. <i>S. aculeatissimum</i>
Flowers purple; fruits orange or yellow; leaves prickly :	
Inflorescence many-flowered .. .. .	5. <i>S. indicum</i>
Inflorescence 1-flowered .. .. .	6. <i>S. surattense</i>

1. **S. nigrum** Linn. *Kalu-kan-veriya*, S., *Manal-takkali*, T. Annual herb, 1-3 ft. high, erect; leaves  $1\frac{1}{2}$ - $3\frac{1}{2}$  in. long, ovate-elliptic, almost hairless; flowers white; berries 3-7 together, under  $\frac{1}{4}$  in. in diameter, purplish-black. A common weed in gardens and waste places. Flowers all the year. (Fig. 298.)

2. **S. AURICULATUM** Ait. *Hekarilla*, S. A shrub, 6-10 ft. high; leaves 5-9 in. long, lanceolate, woolly beneath; flowers bright purple; berries numerous,  $\frac{1}{3}$  inch in diameter, yellow, covered with scattered hairs. Waste places, not uncommon. Flowers April, June-July. (Fig. 299.)

3. **S. torvum** SW. *Gona-batu* S., *Chundakkay*, T. A shrubby perennial; stem 3-6 ft. high, prickly; leaves 4-5 in. long, broadly ovate, shallowly lobed, without prickles; flowers white, in many-flowered cymes; berry  $\frac{2}{3}$  in. in diameter, yellow. Waste places; very common; very doubtfully native. Flowers all the year. (Fig. 300.)

4. **S. ACULEATISSIMUM** Jacq. (*S. ciliatum* Lamk.). An erect herb about 3 ft. high; leaves 4-5 in. long, ovate, spiny, 5-7 lobed; flowers white; fruits 1 in. in diameter, round, solitary, at first green with lighter markings, finally scarlet. Waste places, common; a native of Brazil. Flowers June. (Fig. 301.)

5. **S. indicum** Linn. *Tib-batu*, S., *Pappara-mulli*, T. A shrubby perennial; stem 1-4 ft. high; leaves 4-6 in. long, ovate, lobed, hairy, prickly on the veins beneath; flowers purple, numerous; berry  $\frac{2}{3}$  in. in diameter, orange-yellow. Waste places, not uncommon. Flowers April-May, November. (Fig. 302.)

6. **S. surattense** Burm. f. (*S. xanthocarpum* Schrad. & Wendl.) *Ela-batu*, S., *Vaddu*, T. A perennial herb; 1-4 ft. high; leaves  $2\frac{1}{2}$ -4 in. long, prickly, shallowly lobed, with star-shaped hairs on both surfaces; flowers solitary, purple; berry 1 inch in diameter, at first green with white markings, finally yellow. Waste places, rather rare. Flowers all the year. This may be the wild form of *S. Melongena*, from which it may be distinguished by the smaller, yellow fruit. (Fig. 303.)

2. **DATURA** Linn. *Thorn-apple*, E. Herbs or shrubs; leaves simple; flowers solitary; calyx with a long 5-toothed tube; corolla funnel-shaped, 5 or 10 toothed; capsule many-seeded.

*D. suaveolens* H. & B. *Angel's Trumpet*, E., *Rata-attana*, S. is often cultivated.

**D. fastuosa** Linn. *Attana*, S., *Umattai*, T. Annual herb, 1-2 ft. high; leaves 3-6 in. long, ovate, shortly lobed, minutely hairy; flowers white or purplish; capsule covered with short prickles. Rather common in waste places; doubtfully native. Flowers January-March. There are several varieties in cultivation; *Kalu-attana*, S., *Taru-umattai* or *Ven-umattai* with a black stem, *Tumbo-attana* with double flowers, and *Sudu-attana* with a green stem. (Fig. 304.)

## 80. CONVULVULACEAE (Bind-weed Family).

Herbs or shrubs, usually twining; leaves, if present, alternate, exstipulate; inflorescence cymose; flowers regular, hermaphrodite; calyx 5-lobed; corolla usually funnel-shaped, more or less 5-lobed; stamens 5; ovary superior, 2-4-celled, with 2 ovules in each cell.

Leaves present:

Fruit indehiscent, 4-celled; flowers mauve .. .. .	1. <i>Argyreia</i>
Fruit dehiscent; flowers white, often with purple centres; style 1. . . . .	2. <i>Ipomaea</i>
Leaves wanting; parasites .. .. .	<i>Cuscuta</i>

1. **ARGYREIA** Lour. Scandent, leafy herbs or shrubs; corolla funnel-shaped, very shortly lobed; stamens included in the corolla-tube; ovary 4-celled, with 1 ovule in each cell; style with 2 stigmas; fruit indehiscent.

**A. populifolia** Chois. *Giri-tilla*, S. Leaves 3-5 in. long, broadly ovate, slightly hairy; flowers pale pinkish-mauve with darker centres, about  $1\frac{1}{2}$  in. across; fruit yellow. Common in scrub jungle. Flowers September. (Confined to Ceylon.) (Fig. 305.)

2. **IPOMAEA** Linn. Scandent or creeping leafy herbs ; cymes axillary ; corolla funnel-shaped, very shortly lobed ; stamens included in the corolla-tube ; ovary usually 2-celled, with 2 ovules in each cell ; fruit a capsule.

Leaves ovate ; plants twining :

- Flowers without purple centres ; cymes many-flowered .. 1. *I. cymosa*  
 Flowers with purple centres ; cymes few-flowered .. 2. *I. obscura*

Leaves narrowly lanceolate ; plants creeping ; cymes few-flowered .. 3. *I. angustifolia*

*I. Learii* Paxt.—*Morning Glory* (dark blue) ; *I. cairica* Sweet (*I. palmata* Forsk.), (mauve) ; *I. tricolor* Cav. (sky-blue) ; *I. Horsfalliae* Hk. (*I. Briggsii* Hort.), (crimson) ; *I. Quamoclit* Linn. (red), *Ratan-pamba*, S. ; *I. kentrocaulos* Clarke. (*I. tuberosa* Ait.) (yellow) ; *I. Batatas* Lamk.—*Sweet potato*, E., *Batala*, S., *Vatalai-kilangu*, T. are cultivated.

1. **I. cymosa** R. & S. *Kiri-madu*, S. Perennial ; leaves 2-2½ in. long, ovate-oblong, acuminate, red-veined, hairless ; flowers pure white ; capsule ½ inch across, round ; seeds hairy. Common in the jungle. Flowers March. (Fig. 306.)

2. **I. obscura** Ker. *Tel-kola*, S., *Chiru-tali*, T. Leaves 2-3 inches long, heart-shaped, acuminate, hairless ; flowers white, with purple centres ; capsule ⅜ in. long, ovoid ; seeds hairy. Common in the jungle and among grass. Flowers July-August. (Fig. 307.)

3. **I. angustifolia** Jacq. *Hin-madu*, *Apasu-madu*, S., *Tald-neli*, T. Leaves 2-2½ in. long, linear, hastate, hairless ; flowers <sup>fly often in axillary cymes few flowered</sup> usually solitary, white, with reddish-purple centres ; capsule ¼ in., almost round ; seeds hairless. Common among short grass. Flowers May-June. (Fig. 308.)

3. **CUSCUTA** Linn. Leafless, twining parasites without chlorophyll ; inflorescence fasciculate ; corolla bell-shaped, 4-5-lobed, with 4-5 scales (? staminodes) in the throat ; stamens alternating with the scales ; ovary 2-celled, with 2 ovules in each cell ; fruit a capsule.

**C. chinensis** Lamk. *Aga-mula-neti-vel*, S. Stem dull orange-coloured ; flowers greenish-white, stalkless ; corolla 5-lobed ; styles 2. Common, especially on *Mikania scandens*, in scrub-jungle and waste places. Flowers November-January. (Fig. 309.)

## 81. SCROPHULARIACEAE (Figwort Family).

Herbs or rarely woody plants ; leaves usually opposite, exstipulate ; flowers usually irregular ; calyx segments 4-5 ; corolla 4-5-lobed ; stamens 2-4, or rarely 5 ; ovary 2-celled ; fruit usually capsular.

Upper lobes of corolla outside in bud ; flowers blue, purple or white.

Sepals free or united at base :

- Leaves radical .. .. 1. *Dopatrium*  
 Leaves opposite or whorled :

Leaves all opposite :

- Anther cells confluent ; plant 2-3 ft. .. .. 2. *Artanema*  
 Anther cells distinct ; plants under 1 ft. .. .. 3. *Lindernia*

Upper leaves whorled :

- Leaves hairy ; flowers small .. .. 4. *Stemodia*  
 Leaves glabrous ; flowers rather large .. .. 5. *Limnophila*

Sepals united to form a tube :

- Flowers blue ; leaves ovate .. .. 6. *Torenia*  
 Flowers greenish-white ; leaves linear .. .. 7. *Microowpaca*

Upper lobes of corolla inside in bud :

- Stamens exserted ; flowers white .. .. 8. *Scoparia*  
 Stamens included ; flowers yellow :

- Calyx campanulate .. .. 9. *Striga*  
 Calyx spathaceous .. .. 10. *Razumovia*

1. **DOPATRIUM** Ham. Annual herbs ; leaves opposite, crowded near the roots, upper pairs represented by minute scales ; flowers irregular, solitary, axillary ; calyx 5-toothed ; corolla 2-lipped, upper lip 2-lobed, lower lip 3-lobed ; stamens 4, the 2 upper perfect, the 2 lower represented by staminodes ; fruit a capsule.

**D. junceum** Ham. *Bin-savan*, S. Stem 6-15 in. high, soft, green, leaves up to 1 inch long, oblong, stalkless, fleshy, hairless; flowers pale pinkish-purple, very small; capsule round. Very common in rice fields, among growing rice. Flowers June-July. (Fig. 310.)

2. **ARTANEMA** Don. Perennial herbs; leaves opposite; inflorescence terminal, racemose; sepals 5, overlapping in bud; corolla funnel-shaped, 2-lipped, upper lip 2-lobed, lower lip 3-lobed; stamens 4, coherent in pairs, 2 long and 2 short; capsule globose.

**A. longifolia** Vatke. (*A. sesamoides* Benth.) *Gas-kotala*, S. An erect herb, 2-3 ft. high; stem square; leaves  $2\frac{1}{2}$ -5 in. long, narrowly ovate-lanceolate, toothed; flowers purple. In wet places, rather rare. Flowers July-August. (Fig. 311.)

3. **LINDERNIA** All. Annual herbs; stem quadrangular; leaves opposite; flowers solitary or in racemes; sepals 5; corolla 2-lipped, upper lip shortly 2-lobed, lower lip 3-lobed; stamens 4, 2 long and 2 short, the lower pair often represented by staminodes; capsule ovate or linear, septicidally dehiscent.

Capsule globose, not longer than the sepals:

Flowers pale pink; stamens 4 .. .. .	1. <i>L. pusilla</i>
Flowers pale blue with white spots; stamens 2; staminodes 2 .. .. .	2. <i>L. rotundifolia</i>

Capsule linear, longer than the sepals:

Flowers solitary:

Stamens 4; leaves not 3-nerved from the base .. .. .	3. <i>L. cordifolia</i>
Stamens 2; staminodes 2; leaves 3-nerved from the base .. .. .	4. <i>L. hyssopioides</i>

Flowers in racemes; stamens 2; staminodes 2 .. .. .	5. <i>L. antipoda</i>
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1. **L. pusilla** Merr. (*Vandellia scabra* Benth.) Stems prostrate; leaves up to  $\frac{1}{2}$  inch long, broadly ovate, shortly toothed, hairy; flowers 1-4 together, axillary, white, with a yellow spot on the lower lip; capsule round, shorter than the sepals. Wet places; very common. Flowers July, October-February. (Fig. 312.)

2. **L. rotundifolia** Alst. (*Ilysanthes rotundifolia* Benth.) Stems prostrate or erect; leaves under  $\frac{1}{2}$  in. long broadly ovate-elliptic, 3-nerved from the base, toothed or not, hairless; flowers solitary, axillary, upper petals pale blue, lateral white with 2 dark blue spots, lower white; capsule round, about as long as the sepals. Wet places; rather common. Flowers February-March. (Fig. 313.)

3. **L. cordifolia** Alst. (*Vandellia pedunculata* Benth.) Stems prostrate; leaves  $\frac{1}{2}$  in. long, ovate, toothed, hairless; flowers solitary, axillary; pale pinkish-purple with a yellow spot on the lower lobe; capsule linear, twice as long as the sepals. Wet places; very common. Flowers July. (Fig. 314.)

4. **L. hyssopioides** Haines (*Ilysanthes hyssopioides* Benth.) Stems erect, 4-angled; leaves up to  $\frac{3}{4}$  in. long, lanceolate, shallowly toothed, hairless; flowers axillary or in terminal racemes, pale blue with darker spots; capsule ovoid, longer than the sepals. Wet places; common. Flowers all the year. (Fig. 315.)

5. **L. antipoda** Alst. (*Bonnaya veronicaefolia* Spreng.) *Vila*, S. Stems prostrate or erect; leaves up to  $\frac{3}{4}$  in. long, oblong-lanceolate toothed, hairless; flowers in terminal racemes, pale mauve; capsule linear, twice as long as the sepals. Wet places; very common. Flowers December-March, July. (Fig. 316.)

4. **STYMODIA** Linn. Annual herbs; leaves opposite or whorled; sepals 5, corolla 2-lipped, the upper lip entire or notched, the lower 3-lobed; stamens 4, 2 long and 2 short (didynamous), shorter than the corolla-tube (included); capsule loculicidal and septicidal.

**S. VERTICILLATA** Sprague. (*S. parvifolia* Ait.) A herb, 3-6 in. high; stem hairy; upper leaves whorled, lower opposite, broadly ovate, long stalked, toothed; flowers solitary, axillary, stalked, blue; capsule round. A common weed in the Peradeniya Gardens. Flowers September, November-December. (Fig. 317.)

5. **LIMNOPHILA** R. Br. Leaves opposite or whorled, gland-dotted; corolla 2-lipped, the upper entire or bifid, outside in bud, the lower 3-lobed, stamens 4, 2 long and 2 short (didynamous), shorter than the corolla-tube (included) capsule loculicidal or septicidal.

Flowers stalkless; stem prostrate .. .. . 1. *L. conferta*  
Flowers stalkless; stem erect .. .. . 2. *L. aromatica*

1. **L. conferta** Benth. *Amba-vila*, S. A prostrate herb; leaves opposite,  $\frac{3}{4}$  in. long, obovate-lanceolate, obtuse, toothed; flowers stalkless, axillary, usually solitary, pinkish-purple. Wet places; rather rare. Flowers January-March, June. (Fig. 318.)

2. **L. aromatica** Merr. (*L. gratissima* Blume.) Stem erect 12-15 in. high; leaves in whorls of 3,  $1\frac{1}{4}$ - $1\frac{3}{4}$  in. long, lanceolate, acute, toothed, hairless; flowers stalked, axillary, solitary or racemose, pinkish-purple. Wet places; rather common. Flowers April-September. (Fig. 319.)

6. **TORENIA** Linn. Herbs; leaves opposite; calyx tubular, winged or keeled; corolla funnel-shaped, 2-lipped, upper lip 2-lobed, lower lip 3-lobed; stamens 4, 2 long and 2 short; capsule septicidal.

Flowers over  $\frac{1}{2}$  in. long .. .. . 1. *T. cyanea*  
Flowers over  $\frac{1}{4}$  in. long .. .. . 2. *T. crustacea*

1. **T. cyanea** Alst. Stems prostrate; leaves  $\frac{3}{4}$ -2 in. long, ovate-triangular; flowers solitary, axillary; corolla 1 in. long, violet; capsule winged. Rather common in boggy places (Confined to Ceylon). Flowers September. (Fig. 320.)

2. **T. crustacea** Cham. & Schl. (*Vandellia crustacea* Benth.) Stems prostrate; leaves under  $\frac{1}{2}$  in. long, ovate, toothed; flowers solitary, axillary,  $\frac{1}{2}$  in. long, pale mauve, with white markings; capsule oblong-ovoid. A common garden and estate weed. Flowers November-December. (Fig. 321.)

7. **MICROCARPAEA** R. Br. Creeping herb; leaves opposite, stalkless; flowers solitary, axillary; calyx tubular, 5-toothed; corolla lobes 5, the upper slightly united; stamens 2; capsule loculicidal.

**M. minima** Merr. (*M. muscosa* R. Br.) Annual with reddish stems, rooting at the joints; leaves under  $\frac{1}{2}$  in. long, oblong-linear, hairless; flowers pink, stalkless. Common in wet and muddy places. Flowers March, May, September. (Fig. 322.)

8. **SCOPARIA** Linn. Herbs or under-shrubs; leaves opposite or whorled; flowers axillary, solitary or fascicled; sepals 4-5 overlapping in bud; corolla 4-lobed; stamens 4, nearly equal; capsule septicidal.

**S. DULCIS** Linn. A herb about 1 ft. high; leaves 1- $1\frac{3}{4}$  in. long, elliptic-lanceolate, toothed; flowers white; sepals 4; capsule  $1/10$  in. long, round. Common in waste places. Flowers February. A native of Tropical America. (Fig. 323.)

9. **STRIGA** Lour. Herbs, usually root-parasites; lower leaves opposite, upper alternate; calyx tubular, 5-toothed; corolla 2-lipped, tube narrow; upper lip 2-lobed; lower lip 3-lobed; stamens 4, 2 long and 2 short; capsule loculicidal; seeds numerous.

**S. lutea** Lour. Stem 3-9 in. high; erect, usually unbranched, stiffly hairy; flowers in very short stalks in lax racemes, yellow; calyx 10-ribbed. Common in open places, among grass, on which it is parasitic. Flowers June, November. (Fig. 324.)

10. **RAZUMOVIA** Spreng. Annuals; leaves opposite or upper alternate; calyx split down one side (spathaceous); corolla-lobes 5, the 2 upper inside in bud; stamens 4, 2 long and 2 short (didynamous); capsule loculicidal.

**R. indica** Alst. (*Centranthera procumbens* Benth.) *Dutu-satutu*, S. Roots bright orange; stems 3-10 in. high, much branched; leaves  $\frac{1}{2}$ -1 in. long, linear-oblong, stiffly hairy; flowers white with a reddish-purple stain on the upper side of the throat, solitary, axillary. In wet places, rather rare. Flowers all the year. (Fig. 325.)

## 82. LENTIBULARIACEAE (Bladderwort Family).

Herbs ; flowers hermaphrodite ; calyx 2-5-lobed ; corolla 2-lipped ; stamens 2 ; ovary superior, 1-celled ; placentation basal.

**UTRICULARIA** Linn. Rootless annual herbs ; leaves alternate or whorled, usually bearing minute bladders at the base. (for morphology, see Goebel Pflanzenbiologische Schilderungen) ; inflorescence racemose ; calyx 2-lipped ; corolla 2-lipped, spurred ; fruit a capsule.

The species are carnivorous (for details see—Darwin's Insectivorous Plants).

Flowers blue, purple or white	..	..	..	1.	<i>U. coerulea</i>
Flowers yellow	..	..	..	2.	<i>U. bifida</i>

1. **U. coerulea** Linn. *Nil-monaressa*, S. Stems hairlike, creeping ; leaves about 1 in. long, narrowly wedge-shaped, rounded at the apex, bearing bladders on offshoots from the surface ; racemes 2-6 in. long, flowers 2-10, purplish blue, dark blue or rarely white, spur slightly curved. Common in boggy places. Flowers January-April, August. The correct name of this species is doubtful. (Fig. 326.)

2. **U. bifida** Linn. Stem hairlike, creeping ; leaves 1-2 in. long, linear, bearing bladders at the base ; racemes 3-10 in. high ; flowers 2-10, yellow ; spur slightly curved, pointed. Common in wet places. Flowers February-March. (Fig. 327.)

## 83. GESNERACEAE.

Herbs or shrubs ; leaves opposite or alternate, exstipulate ; flowers hermaphrodite, usually irregular ; calyx-segments 5 ; corolla gamopetalous, with 5 segments ; stamens 2-5, epipetalous ; ovary superior or inferior, usually 1-celled ; seeds numerous.

**EPITHEMA** Blume. Herbs ; lower leaves alternate, upper opposite ; inflorescence an axillary, scorpioid cyme ; calyx bell-shaped, segments not overlapping in bud ; corolla 2-lipped ; stamens 2 ; capsule circumscissile.

**E. carnosum** Benth. Stem 3-12 in. high ; leaves 2-6 in. long, upper stalkless, lower stalked, ovate-elliptic, covered with stiff hairs ; flowers pale blue ; capsule oblong. On rocks in the jungle. Flowers February, August-October. (Fig. 328.)

## 84. BIGNONIACEAE.

Woody plants ; leaves opposite or whorled, usually pinnate ; inflorescence terminal paniculate or racemose ; flowers hermaphrodite, irregular ; calyx gamosepalous, segments not overlapping in bud ; corolla funnel-shaped, 2-lipped, 5-lobed ; stamens 4-5 epipetalous ; ovary superior, 2-celled ; fruit a capsule ; seeds winged.

*Millingtonia hortensis* Linn. f. The Indian cork tree is cultivated and sometimes self-sown. *Spathodea campanulata* Beauv, *Bignonia unguis-cati* Linn., and *Pyrostegia ignea* Presl, (*Bignonia venusta* Ker-Gawl) *Tanga-pu*, T., are also commonly cultivated.

**STEREOSPERMUM** Ch. Trees ; leaves once or twice-pinnate ; inflorescence paniculate ; calyx irregularly lobed or entire ; corolla tube bulging abruptly (ventricose), 5-lobed ; capsule loculicidally dehiscent.

**S. tetragonum** DC. (*S. chelonoides* Trim. not DC.) *Lunumadala*, *Dunu-madala*, S., *Padri*, T. Bark yellowish ; leaflets 5-7, 4-6 in. long, on short black stalks, narrowly ovate-lanceolate, hairless, purplish when young ; flowers cream-coloured, with reddish-purple veins ; capsule 1-2 ft. long. River banks, rare. Flowers May-June. (Fig. 329.)

## 85. ACANTHACEAE.

Herbs or shrubs ; leaves opposite or rarely alternate, exstipulate, usually simple ; flowers hermaphrodite ; calyx 5 or more-lobed ; corolla usually 2-lipped ; stamens 2 or 4 ; ovary superior, 2-celled ; fruit a loculicidal capsule.

Flowers white without blue or purple spots :

- |   |                       |
|---|-----------------------|
| Leaves alternate, radical ; stamens 2 ; seeds numerous ..                           | 1. <i>Elytraria</i>   |
| Leaves opposite : inflorescence a one-sided spike ; capsule 4-seeded ; stamens 4 .. | 2. <i>Phayloopsis</i> |

Flowers blue or white with blue or purple spots :

- |   |                          |
|---|--------------------------|
| Flowers blue or white with blue spots :                   |                          |
| Corolla funnel-shaped, pale blue ..                       | 3. <i>Ruellia</i>        |
| Corolla tube narrow :                                     |                          |
| Erect plants ; flowers greenish-blue with darker veins .. | 4. <i>Daedalacanthus</i> |
| Creeping plants ; flowers white with blue spots ..        | 5. <i>Rungia</i>         |
| Flowers white with purple spots ..                        | 6. <i>Justicia</i>       |
| Calyx-teeth 12-20 ..                                      | 7. <i>Thunbergia</i>     |

1. **ELYTRARIA** Vahl. Herbs ; leaves alternate, almost radical ; spikes terminal, with spirally-arranged bracts ; calyx 4-lobed, corolla 2-lipped, 5-lobed ; stamens 2 ; capsule ellipsoid, with several seeds.

**E. acaulis** Lindau. (*E. crenata* Vahl.) Stem very short ; leaves 2-5 in. long, obovate, often lobed in the lower half ; flowers stalkless, white ; bracts green. Among short grass under large trees at Peradeniya. Flowers February-March, September. (Fig. 330.)

2. **PHAYLOPSIS** Willd. Perennial herbs ; leaves opposite ; spikes terminal, one-sided ; bracts large, each enclosing 3 flowers ; calyx 5-lobed ; stamens 4, 2 long and 2 short ; capsule club-shaped, 4-seeded.

**P. imbricata** Sweet, (*P. parviflora* Willd.) Stems prostrate, hairy ; leaves ovate, in pairs of unequal size (anisophyllous), unequal-sided, up to 1½ in. long, hairy ; flowers white. (Fig. 331.)

3. **RUELLIA** Linn. Herbs or shrubs ; leaves opposite ; bracts wanting ; bracteoles large ; calyx 5-lobed ; corolla funnel-shaped, abruptly narrowed at base ; stamens 4, 2 long and 2 short ; capsule club-shaped, 6-20-seeded.

**R. ringens** Linn. *Nil-puruk*, S. Stem prostrate ; leaves ¾-1 in. long, ovate or ovate elliptic, hairy ; flowers solitary, axillary, pale mauve ; capsule nearly ¾ in. long. Common in the shade of large trees. Flowers all the year. (Fig. 332.)

5. **DAEDALACANTHUS** T. And. Perennial herbs or shrubs ; leaves opposite ; bracts usually large ; corolla-tube narrow ; stamens 2 ; capsule club-shaped, 4-seeded.

**D. fastigiatus** Alst. (*D. montanus* T. And.) Stem 2½-3 ft. high, erect ; leaves 3-5 in. long, lanceolate, sparsely hairy beneath ; inflorescence paniculate ; flowers pale greenish-blue with purple veins ; capsule ½ inch long. Common on the borders of jungles. Flowers, May, August. (Fig. 333.)

6. **RUNGIA** Nees. Herbs ; leaves opposite ; calyx 5-lobed ; corolla 2-lipped, upper lip shortly bilobed, lower lip 3-lobed ; stamens 2 ; capsule 4-seeded.

**R. pectinata** Nees. (*R. parviflora* Nees) *Tavachi-murunkai*, *Punakap-pundu*, T. Prostrate herb ; leaves ovate to linear, more or less hairy ; inflorescence spicate ; flattened, 1-sided ; bracts green with transparent margins ; flowers white with dark blue markings on the lip. Common among grass under the shade of large trees. Flowers March-April. (Fig. 334.)

The flowers are proterandrous, the stamens at first projecting forwards, but later diverging and exposing the stigma.

7. **JUSTICIA** Linn. Herbs or shrubs; leaves opposite; calyx 4-5-lobed; corolla 2-lipped, upper lip shortly 2-lobed, lower lip 3-lobed; stamens 2; capsule 4-seeded.

Plant erect, 2-4 ft. :

Flowers in the axils of large, white bracts .. ..	1. <i>J. Betonica</i>
Flowers in the axils of linear green bracts .. ..	2. <i>J. Hookeriana</i>
Plant creeping; bracts small .. ..	3. <i>J. procumbens</i>

1. **J. Betonica** Linn. *Sudu-puruk*, S. Perennial herb; stem 1-2 ft. high, erect; leaves  $2\frac{1}{2}$ -4 in. long, elliptic-lanceolate, hairless; inflorescence spicate, terminal or axillary; bracts large, white with green veins; flowers pale violet; capsule  $\frac{3}{4}$  in. long, club-shaped. Common in scrub jungle. Flowers July-October. (Fig. 335.)

2. **J. Hookeriana** T. And. Shrub, about  $1\frac{1}{2}$  ft. high; leaves  $1\frac{1}{2}$ -4 in. long, linear-lanceolate, hairless; inflorescence axillary, paniculate; flowers white with purple spots; capsule  $\frac{3}{8}$  in. long, club-shaped. On rocks by the river side at Hakkinda. Flowers March, September. (Confined to Ceylon). (Fig. 336.)

3. **J. procumbens** Linn. *Mayani*, S. Perennial herb; stem procumbent; leaves  $\frac{3}{4}$ - $1\frac{1}{2}$  in. long, elliptic or ovate-elliptic; inflorescence terminal, spicate; flowers white with purple spots; capsule  $\frac{1}{6}$  inch long, club-shaped. Common among grass under large trees. Flowers October-March. (Fig. 337.)

8. **THUNBERGIA** Linn. f. Climbing herbs or shrubs; calyx 10-16-toothed; corolla 5-lobed; stamens 4, 2 long and 2 short; capsule beaked, 4-seeded.

*T. laurifolia* Lindl. is a commonly cultivated species with blue or white flowers.

Flowers white .. ..	1. <i>T. fragrans</i>
Flowers yellow with purple centres .. ..	2. <i>T. alata</i>

1. **T. fragrans** Roxb. Leaves  $1\frac{1}{2}$ - $2\frac{1}{2}$  in. long, ovate, with 2 lobes at the base, slightly hairy; flowers white,  $2\frac{1}{2}$  in. across; capsule  $1\frac{1}{4}$  in. long. Not uncommon by roadsides, and climbing over hedges. Flowers all the year. (Fig. 338.)

2. **T. ALATA** Boj. Leaves about 2 inches long, ovate, sagittate at base, hairy; petiole winged; flowers orange or rarely white with purple centres,  $1\frac{1}{2}$ -2 in. across. Common by roadsides and in waste places. Flowers August. (Fig. 339.)

## 86. VERBENACEAE (Vervein Family).

Herbs or woody plants; leaves opposite or whorled, exstipulate; calyx gamosepalous, 4-8-toothed; petals united into a tube; stamens 4-6; ovary superior, 1-8-celled; fruit a drupe.

*Duranta Plumieri* Jacq., a shrub with blue flowers and yellow berries, is a common hedge-plant. *Tectonia grandis* Linn. f. is the Teak tree, *Teka* of the Sinhalese.

Leaves simple :

Flowers in heads, yellow or purple .. ..	1. <i>Lantana</i>
Flowers in spikes, blue .. ..	2. <i>Stachytarpheta</i>
Flowers in cymes or panicles :	
Corolla regular; leaves densely white, tomentose beneath .. ..	3. <i>Callicarpa</i>
Corolla 2-lipped :	
Flowers yellow .. ..	4. <i>Gmelina</i>
Flowers not yellow .. ..	5. <i>Clerodendron</i>
Leaves compound; flowers blue .. ..	6. <i>Vitex</i>

1. **LANTANA** Linn. Shrubs; branches 4-angled; leaves simple; flowers in heads or short spikes; bracts exceeding the calyx; stamens 4, 2 long and 2 short; ovary 2-celled, with 2 ovules.

Flowers orange; leaves opposite .. ..	1. <i>L. aculeata</i>
Flowers purple; leaves whorled .. ..	2. <i>L. trifolia</i>

1. *L. ACULEATA* Linn. *Rata-hinguru, Ganda-pana, S.*

A shrub about 5 ft. high; branches square, prickly; leaves 2-3 in. long, opposite, ovate, toothed, acute, hairy, flowers orange, or rarely pink; drupes black. Very common in scrub jungle; a native of Tropical America. Flowers October. (Fig. 340.)

2. *L. TRIFOLIA* Linn. A shrub, about 4 ft. high; branches not prickly; leaves 3-4 in. long, in whorls of 3, ovate-lanceolate, bluntly toothed, acuminate, hairy; flowers and fruit purple. Similar places to *L. aculeata* Linn. but much less common. (Fig. 341.)

2. *STACHYTARPHETA* Vahl. Herbs or shrubs; leaves simple; inflorescence terminal, spicate; calyx 4-5-lobed; stamens 2; fruit dry, 2-seeded, included in the calyx.

Flowers dark blue; leaves ovate, bullate . . . . . 1. *S. jamaicensis*  
Flowers pale blue, more distant; leaves oblong, flat . . . . . 2. *S. indica*

1. *S. JAMAICENSIS* Vahl. (*S. indica* Trim.) *Balu-nakuta, S., Nay-wranchi, T.* Annual herb, 1-3 ft. high; leaves 3-4 in. long, ovate, closely toothed, bullate, dark green; flowers crowded on the spikes; style longer than the stamens. Waste places, very common; a native of Tropical America. Flowers all the year. (Fig. 342.)

2. *S. INDICA* Vahl. (*S. indica* var. *jamaicensis* Trim.) Annual herb, 1-3 ft. high; leaves 3-4½ in. long, oblong-elliptic, more distantly and less sharply toothed than in *S. jamaicensis*, flat, greyish-green; flowers more distant; style equalling the stamens. Similar places to the other species, but much less common; also a native of Tropical America. Flowers all the year. (Fig. 343.)

These two species occasionally hybridize with each other and also with the cultivated, pink-flowered *S. mutabilis* Vahl.

3. *CALLICARPA* Linn. Woody plants; leaves opposite or whorled; inflorescence cymose, axillary; calyx bell-shaped, shortly 4-lobed; corolla 4-lobed, almost regular; stamens 4, longer than the corolla tube; ovary 2-celled, with one ovule in each cell.

*C. tomentosa* Linn. (*C. lanata* Linn.) *Illa, S.* Small tree; leaves ovate, up to 9 in. long, hairless above, densely covered with stellate hairs beneath; petals pale pinkish-lilac; anthers cream-coloured; fruit a black, juicy drupe. Common in scrub jungle. Flowers March, May-June, September. (Fig. 344.)

4. *GMELENA* Linn. Woody plants; leaves opposite; calyx bell-shaped, shortly 5-lobed; corolla-tube funnel-shaped, abruptly contracted at the base; stamens 4, 2 long and 2 short; ovary 4-celled, with one ovule in each cell.

*G. arborea* Roxb. *Et-demata, S., Kainadi, T.* Medium-sized, deciduous tree with greyish-yellow bark; leaves 3-7 in. long, broadly ovate, acuminate, woolly beneath, with 2 nodules at base; inflorescence paniculate; flowers dull orange-pink, with the lower segment of the corolla yellow; drupe orange-yellow. Common in the jungle. Flowers March. (Fig. 345.)

5. *CLERODENDRON* Linn. Woody plants; leaves opposite or whorled; calyx, 5-lobed, or entire; petals 5, united into a slender tube; stamens 4; ovary 4-celled, with one ovule in each cell; drupe succulent, composed of 1-4, separate pyrenes.

*C. indicum* O. Ktze, (*C. Siphonanthus* R. Br.) (white), *C. paniculatum* Linn. Pagoda flower (red); *C. Thomsonae* Balf. f. (red and white); *C. fragrans* Willd (double white), and *C. nutans* Wall. (white) are cultivated and occasionally found as escapes.

*C. serratum* Moon. *Ken-henda, S., Chiru-tekku, Vatamadakki, T.* A shrub, 4-8 ft. high; branches 4-angled; leaves 4-8 in. long, obovate-elliptic, toothed; lateral lobes of corolla pale blue, anterior lobe dark blue; fruit 4-lobed, dark blue. Common in scrub jungle. Flowers June-September. (Fig. 346.)

6. *VITEX* Linn. Woody plants; leaves opposite, usually compound; calyx bell-shaped, entire or short 5-lobed; corolla with a slender tube, 2-lipped, the upper lip 2-lobed, and the lower 3-lobed; stamens 4, 2 long and 2 short; ovary 2-4-celled; ovules 4.

**V. pinnata** Linn. (*V. altissima* Linn. f.) *Milla*, *Miyan-milla*, *Sapu-milla*, S., *Kaddamanakku*, T. A large tree with yellowish-grey, vertically cracked bark; leaves 3 or in young plants 5-foliolate; leaf-stalk winged in young plants; leaflets 2½–6 in. long, lanceolate, acuminate; inflorescence paniculate; flowers pale mauve; drupe rounded, somewhat flattened, purplish-black. Rather common in the jungle. Flowers July-October. (Fig. 347.)

### 87. LABIATAE (Dead-nettle Family).

Herbs, or rarely shrubby; leaves opposite or whorled, exstipulate; flowers irregular; calyx 4–5-lobed or 2-lipped; petals united; stamens 4, usually 2 long and 2 short, the upper 2 stamens sometimes between the lobes (gynobasic); fruit of 4 nutlets.

Calyx 2-lipped; leaves aromatic .. .. . 1. *Ocimum*

Calyx not 2 lipped:

Corolla lobes flat; flowers pale pinkish-violet .. .. . 2. *Pogostemon*

Upper lobes of corolla divided; flowers white .. .. . 3. *Leucas*

1. **OCIMUM** Linn. Erect herbs; inflorescence of spicately arranged, dichasial cymes; calyx 2-lipped, the lower lip 4-lobed; corolla 2-lipped, the upper lip 4-lobed, the lower entire; stamens 4, longer than the corolla tube, directed downwards.

o. **GRATISSIMUM** Linn. *Gas-tala*, *O-tala*, *Kiri-tala*, S., *Elumichcham-tulachi*, T. A perennial herb, 2–4 ft. high; leaves 4–6 in. long, lanceolate, coarsely toothed; flowers pale greenish-yellow; lower lip of calyx shorter than the upper. Very common in waste places; native country not known. Flowers February. (Fig. 348.)

2. **POGOSTEMON** Desf. Herbs or undershrubs; leaves opposite or whorled; calyx with 4–5 subequal lobes; corolla 4-lobed; stamens 4, longer than the corolla tubes (exserted).

**P. heyneanus** Benth. *Gan-kollan-kola*, S. A shrubby herb, about 3 ft. high; leaves 2–5 in. long, broadly ovate-lanceolate, irregularly toothed; flowers pale bluish-white. In the jungle, rather rare. February, April-May. (Fig. 349.)

3. **LEUCAS** Linn. Herbaceous or sometimes shrubby; inflorescence a pair or pairs of opposite sessile cymes (verticillaster); calyx 6–10-toothed; corolla 2-lipped, lower lip 3-lobed; stamens directed upwards.

Prostrate plants; cymes few-flowered; mouth of the calyx straight .. 1. *L. biflora*

Erect plants; cymes many-flowered; mouth of the calyx oblique .. 2. *L. zeylanica*

1. **L. biflora** R. Br. *Tumba*, S., *Pey-tumpai*, T. A perennial herb; stem usually prostrate, 4-angled; leaves ½–2½ in. long, ovate, toothed, hairy; flowers white. Common among short grass under large trees. Flowers February, September. (Fig. 350.)

2. **L. zeylanica** R. Br. *Geta-tumba*, S., *Mudi-tumpai*, T. An annual herb, erect, 1–2 ft. high; leaves 2–3½ in. long, narrowly lanceolate, shallowly toothed; bracts linear; mouth of calyx oblique, 8-toothed. Common in waste places. Flowers November. (Fig. 351.)

### 88. PANDANACEAE (Screw-pine Family).

Woody plants; leaves linear-lanceolate, alternate, spinous; inflorescence a spike with a fleshy axis (spadix), surrounded by a leafy bract (spathe); flowers unisexual, male and female on different trees; perianth usually wanting; stamens numerous; carpels 1-numerous, confluent to form a fleshy fruit (syncarp).

**PANDANUS** Linn. f. Erect shrubs or trees, often with adventitious roots springing from the stem; leaves tufted at the ends of the stem and branches, and arranged in 3 spiral rows.

*P. latifolius* Hassk, *Rampoh* (Malay), is commonly cultivated.

**P. zeylanicus** Solms. *O-kejiya*, S. A shrub 3-8 ft. high, sparingly dichotomously branched leaves 3-4 ft. long, 1 inch broad, with incurved spines on the margin; male spadices 3-4 in. long, dirty yellow; female spadices solitary, sessile; fruit almost round, 3-6 in. in diameter, green. Common on the margins of streams. Flowers February and March. (Fig. 352.)

## 89. PALMACEAE (Palm Family).

Trees or shrubs; leaves alternate, usually crowded at the top of the stem; flowers unisexual or hermaphrodite; perianth segments 6; stamens 3-6; ovary 1-3-celled, or of separate carpels; stigmas 3.

*Oreodoxa regia* H. B. K., (*Royal Palm*); *O. oleracea* Mart. (the *Cabbage Palm*) *Chrysalidocarpus lutescens* H. Wendl. and *Livistona* spp. are commonly cultivated.

Leaves once pinnatisect:

Inflorescence in the axils of present leaves:			
Erect trees ..	..	..	1. <i>Cocos</i>
Climbing shrubs ..	..	..	2. <i>Calamus</i>
Inflorescence below the leafy zone ..	..	..	3. <i>Areca</i>
Leaves bi-pinnate ..	..	..	4. <i>Caryota</i>

1. **Cocos** Linn. Erect palms; leaves pinnatisect; flowers unisexual, male and female on the same tree (monoecious); inflorescence a simple panicle, each branch usually with a single female flower at the base and male flowers in upper part; perianth segments 6, in two whorls; stamens 6; ovary 3-celled, 2 cells abortive, rudimentary in male flowers; style sessile, stigmas 3; fruit a drupe (not a nut in the botanical sense).

C. NUCIFERA Linn. *Coconut*, E., *Pol*, S., *Tennai*, T. Trunk up to 80 ft. high, 1-2 ft. in diameter, thickened at the base, inclined, rough; leaves 12-18 ft. long; leaflets 2-3 ft. long; spathe 2-3 ft. long; panicle 4-6 ft. long, straw-coloured or orange, simply branched; male flowers small, straw-coloured, very numerous, sweet-scented, opening before the female flowers on the same panicle; female flowers few, situated at the base of the panicle, much larger than the male; fruit ovoid, somewhat 3-angled, 6-10 in. long. Universally cultivated, but never even naturalized. The hard shell is the endocarp, the edible part the testa in which the small embryo is imbedded opposite one of the eyes. (Fig. 353.)

2. **CALAMUS** Linn. Climbing or rarely erect, unbranched rattans; leaves pinnatisect; male, female, and hermaphrodite flowers, on different plants; perianth segments 6, in 2 whorls; stamens 6; ovary 3-celled; fruit one-seeded, covered with an epicarp of imbricate scales.

Leaves not terminated by flagellae:

Leaflets over 2 ft. long ..	..	..	1. <i>C. Thwaitesii</i>
Leaflets up to 1 ft. long ..	..	..	2. <i>C. pseudo-tenuis</i>
Leaves terminated by flagellae ..	..	..	3. <i>C. zeylanicus</i>

1. **C. Thwaitesii** Becc. *Maha-vevel*, S., *Periya-pirampu*, T. A large climber; stem up to 2½ inches in diameter; leaf-sheaths flagelliferous; leaves 4½ feet long, not flagelliferous; leaflets 2-2½ ft. long, 1½-2 in. broad, margin spinulose; fruit 1 in. long, obovoid; scales 5-6 in a vertical series. Common in the jungle. Flowers February-May. (Confined to Ceylon.) The canes made from this species are stiffer and whiter than those made from *C. zeylanicus*. (Fig. 354.)

2. **C. pseudo-tenuis** Decc. *Hin-vevel*, S. A large climber; stem under 1 in. in diameter; leaf-sheaths flagelliferous; leaves about 3½ ft. long, not flagelliferous; leaflets 8-12 in. long, ¾-1 in. broad, setulose on the upper surface; fruit almost round, up to ½ inch long; scales 9-12 in a vertical series. Rather common in the jungle. Flowers December-April. (Fig. 355.)

3. *C. zeylanicus* Becc, *Tudarana*, S. A large climber, stem up to 2 in. in diameter; leaf-sheaths not flagelliferous; leaves 4-5 ft. long; petiole set with 3-fid, recurved spines, produced to form a flagella; leaflets  $1\frac{1}{2}$ -2 ft. long, 1-1 $\frac{1}{2}$  in. broad, setulose above; lower spathe spinose, upper without spines; fruit rounded, beaked, scales 8 or 10 in a vertical series. In the jungle, rare. (Fig. 356.)

3. *ARECA* Linn. Erect palms; leaves pinnatisect; inflorescence springing from below the leaves; flowers unisexual, both sexes in the same inflorescence, the male numerous and the female few and confined to the base of the panicle; perianth segments 6, biseriate; stamens 3-6; ovary 1-celled, stigmas 3, sessile; fruit a one-seeded berry.

A. *CATECHU* Linn. *Puvak*, S., *Pakku-maram*, *Kamuku*, T. Trunk 40-80 ft high, 8 in. in diameter, straight, ringed; leaves 4-6 ft. long; leaflets 1-2 ft. long; male flowers opening before the female, sweet scented; berry  $1\frac{1}{2}$ -2 in. long, orange or scarlet. Commonly cultivated but never truly wild. (Fig. 357.)

4. *CARYOTA* Linn. Erect palms; leaves bipinnatisect; leaflets wedge-shaped; inflorescence paniculate, axillary; flowers unisexual, male and female in the same panicle; perianth segments 6, in 2 whorls; stamens numerous in male flowers, represented by 3-6 staminodes in the female flowers; ovary 3-celled, wanting in male flowers; stigmas 3-lobed; fruit a round, 1-3-seeded berry.

C. *URENS* Linn. *Toddy-palm* (in Ceylon), *Fish-tail palm*, E., *Kitul*, S., *Tippili-panai*, T. Trunk up to 40 ft. high, 1 ft. broad; branches of the panicle drooping; male flowers purplish outside, opening before the female, very faintly scented; fruit  $\frac{3}{8}$ - $\frac{3}{4}$  in. in diameter. Young plants are often found in the jungle, but it is a doubtful native. (Fig. 358.)

## 90. ARACEAE (Arum Family).

Herbs or shrubby climbers; leaves simple or compound, alternate or radical, often with reticulate venation; inflorescence a spike with a fleshy axis (spadix), surrounded by a large bract (spathe); flowers usually unisexual, both sexes usually in the same spadix, the female towards the base; perianth usually wanting; stamens 1-6; ovary superior, 1-3 celled; fruit a berry.

*Acorus Calamus* Linn.—*Sweet-flag*, E., *Voda-kaha*, S.; *Lasia spinosa* Thw. (*L. aculeata* Lour.)—*Kohila*, S.; *Xanthosoma sagittifolium* Schott. (*Alocasia indica* Trim. non Schott.) *Rata-ala*, *Desa-ala*, S.; and *Symgonium podophyllum* Schott. are cultivated and sometimes found semi-wild.

Climbing plants; flowers hermaphrodite .. .. .	1. <i>Pothos</i>
Erect plants; flowers unisexual:	
Spathe reflexed .. .. .	2. <i>Typhonium</i>
Spathe erect:	
Female flowers in one whorl; plants under 6 in. .. .. .	3. <i>Cryptocoryne</i>
Female flowers in several whorls; plants over 1 ft. .. .. .	
Leaves acute at base:	
Spathe purple .. .. .	4. <i>Lagenandra</i>
Spathe greenish-white .. .. .	5. <i>Aglaonema</i>
Leaves hastate or cordate at base:	
Leaves markedly peltate, points directed downwards:	
Leaves variegated; spathes white .. .. .	6. <i>Caladium</i>
Leaves green; spathes orange .. .. .	7. <i>Colocasia</i>
Leaves not or slightly peltate, points directed upwards .. .. .	8. <i>Alocasia</i>

1. *POTHOS* Linn. Shrubby climbers; leaves distichous, simple; spathe reflexed; flowers hermaphrodite; perianth segments 6; stamens 6; ovary 3-celled, with one ovule in each cell.

*P. scandens* Linn. *Pota-vel*, S., *Anaik-kuringan*, T. Leaves 2-4 in. long; blade ovate-lanceolate; petiole winged; spathe under  $\frac{1}{2}$  in. long, green; spadix round or oblong; berry scarlet. Common in the jungle. Flowers February-August. (Fig. 359.)

2. **TYPHONIUM** Schott. Stemless, tuberous herbs; spathe reflexed; male and female flowers separated, with neuter flowers above the female; 1-celled, with 1-2 basal ovules.

Spathe red-purple; space between male and female inflorescence naked:

- |   |                         |
|---|-------------------------|
| Petiole over 9 inches long; leaves deeply 3-lobed; neuters long, thread-like ..           | 1. <i>T. trilobatum</i> |
| Petiole under 6 inches long; leaves usually shallowly lobed; neuters short, awl-shaped .. | 2. <i>T. Roxburghii</i> |

Spathe green; space between male and female inflorescence covered with neuter flowers ..

3. *T. cuspidatum*

1. **T. trilobatum** Schott. *Panu-ala*, S. Leaves radical, hastately 1-lobed; lobes 5-7 in. long; petiole 1-12 in. long; spathe subsessile, 3-8 in. long, red-purple within; spadix red; neuter flowers thread-like. A common weed on estates. Flowers July-August. (Fig. 360.)

2. **T. Roxburghii** Schott. *Polon-ala*, S. Leaves radical, hastate-deltoid; blade 3-3½ in. long, petiole 2-4 in. long; spathe 3-8 in. long, dark red-purple within; spadix blackish-purple; neuter flowers linear, short, recurved. A common weed in gardens. Flowers March, August, December. (Fig. 361.)

3. **T. cuspidatum** Dene. Leaves radical, hastate-elliptic; blade about 4 in. long; petiole 4-10 in. long; spathe stalked, 4-5 in. long, narrow, green; base ribbed; spadix yellow; lower neuter flowers purple-topped. Among grass near tree or bushes at Peradeniya. Flowers July. (Fig. 362.)

1. **CRYPTOCORYNE** Fisch. *Atiudayan*, S. Stemless herbs; leaves simple; spathe nearly sessile; spadix naked between the male and female flowers; female flowers in a single whorl; ovary 1-celled, with numerous ovules.

Leaves cordate or rounded at base:

- |   |                        |
|---|------------------------|
| Collar of spathe with a broad purple band; limb yellow .. | 1. <i>C. Beckettii</i> |
| Spathe green or yellow:                                   |                        |
| Limb of spathe becoming flattened ..                      | 2. <i>C. lutea</i>     |
| Limb of spathe permanently twisted ..                     | 3. <i>C. Walkeri</i>   |

Leaves cuneate at base; limb of Spathe purple ..

4. *C. Nevillii*

1. **C. Beckettii** Thw. Leaves elliptic to lanceolate, rounded or cordate at base; petiole shorter than the blade; spathe about 3 inches long; tube white with small purple spots; collar with a broad purple band; limb green, turning yellow, twisted when young. In wet places; rather rare. Flowers October, April. (Fig. 363.)

2. **C. lutea** Alst. Leaves lanceolate, cordate at base; petiole longer than the blade; spathe 2-4 inches long; tube white with small purple spots; limb and collar green turning yellow, twisted when young. Wet places; rare. Flowers February. (Fig. 364.)

3. **C. Walkeri** Schott. Leaves oblong-lanceolate, rounded at base; petiole longer than the blade; spathe nearly 3 in. long; tube white, thickly speckled with small purple spots; collar with a fine greenish line; limb dirty green, permanently twisted. Wet places; rare. Flowers February. (Fig. 365.)

4. **C. Nevillii** Trim. Leaves lanceolate, acute at base, erect; petiole longer than the blade; spathe about 1½ inches long, tube white, thickly speckled with small purple spots; lip and collar purple; limb twisted when young. Wet places; rather rare. Flowers February, April. (Fig. 366.)

4. **LAGENANDRA** Dalz. Herbs with short thick stems; leaves simple; spathe stalked; spadix naked between the male and female flowers; female flowers in many whorls; ovary 1-celled, with numerous ovules.

**L. ovata** Thw. (*L. toxicaria* Dalz.) *Vetala*, S. Rootstock thick, creeping; leaves 1-1½ ft. long, 3-5 in. broad, elliptic-lanceolate, acuminate; spathe 3-6 in. long, dark purple within, limb tailed; fruits bending downwards. Common on the banks of streams. Flowers February. (Fig. 367.)

5. **AGLAONEMA** Schott. Herbs with erect or prostrate stems; leaves simple; spathe stalked, hooded; spadix not naked between the male and female flowers;

female flowers in many whorls ; stamens 2-4 ; ovary 1-2-celled, with one anatropous ovule in each cell.

A. OBLONGIFOLIUM Kunth. Perennial herb ; stem up to  $\frac{3}{4}$  in. diameter, green ; petiole green, sheathing ; leaves oblong, dark green with white blotches on the upper surface, crowded at the apex of the stem ; spathe pale green ; spadix cream-coloured ; fruit scarlet, ellipsoid. Common in the jungle near Kandy. Flowers March, June. (Fig. 368.)

6. CALADIUM Vent. Stemless, tuberous herbs ; leaves simple ; spathe peduncled, erect ; male and female inflorescences separated by a zone of sterile flowers ; ovary 2-3-celled, with many ovules in each cell.

C. BICOLOR Vent. Leaves hastate, subpeltate, usually more or less spotted with red or white ; spathe cream-coloured, white within. Cultivated and often found as an escape near rice fields. Flowers April. Native of S. America. (Fig. 369.)

7. COLOCASIA Linn. Stemless herbs with tuberous rootstocks ; leaves ovate-hastate, peltate ; spathe stalked ; male and female flowers separated by a zone of neuter flowers ; ovary 1-celled, with many ovules ; fruit a berry.

C. ESCULENTA Vent. (*C. Antiquorum* Schott.) *Gahala*, S. Leaves 6-16 inches long ; petiole 3-4 ft. long, green or violet ; spathe 8-12 inches long, orange-yellow ; spadix half as long as the spathe. Common near rice-fields. There are also many cultivated varieties such as *Kandala*, *Tadala*, *Yakutala*, &c. Flowers all the year. (Native country unknown.) (Fig. 370.)

8. ALOCASIA Schott. Herbs with thick stems and tuberous rootstocks ; leaves simple, on long petioles ; spathe stalked ; male and female inflorescence separated by a zone of neuter flowers ; ovary 1-celled, with few ovules.

Leaves heart-shaped	..	..	..	1. <i>A. cucullata</i>
Leaves sagittate	..	..	..	2. <i>A. macrorrhiza</i>

1. A. CUCULLATA Schott. *Panu-habarala*, S. Stem about 1 ft. high ; leaves 6-12 in. long, 4-7 in. broad, heart-shaped ; petiole 1-3 ft. long, green ; spathes axillary, pale green ; fruit pale creamy-yellow. Common in waste shady places. Flowers February. (Native of Northern India.) (Fig. 371.)

2. A. MACRORRHIZA Schott. *Habarala*, S. Stem up to 3 ft. high ; leaves 2-4 ft. long, 6-18 inches broad, sagittate ; petiole 2-4 ft. long, green or more rarely purple ; spathes white inside ; ovary incompletely 4-celled. Similar places to *A. cucullata* but less common, also cultivated. (Native country unknown.) (Fig. 372.)

## 91. COMMELINACEAE (Spiderwort Family).

Herbs ; leaves simple, alternate, sheathing ; flowers hermaphrodite ; sepals 3 ; petals 3 ; stamens 6, in 2 whorls or some reduced to staminodes or wanting ; ovary superior, usually 3-celled ; ovules few ; fruit a loculicidal capsule, or rarely indehiscent.

Stamens 6 ; cymes scorpioid, of imbricating bracteoles	..	1. <i>Cyanotis</i>
Stamens 3 ; staminodes 2-3 :		
Cymes scorpioid, enclosed in a spathe ; filaments glabrous	..	2. <i>Commelina</i>
Cymes panicles ; filaments usually bearded	..	3. <i>Aneilema</i>

1. **CYANOTIS** Don. Annual or perennial herbs ; inflorescence a scorpioid, bracteate cyme, enclosed in a large bracteole ; flowers regular ; petals united at base ; stamens 6 ; filaments bearded ; ovary 3-celled, with 2 ovules in each cell.

Stem suberect ; leaves glabrous	..	..	1. <i>C. zeylanica</i>
Stem prostrate ; leaves cottony pubescent	..	..	2. <i>C. fasciculata</i>

1. **C. zeylanica** Hassk. Stems suberect, up to 1 ft. high ; leaves about  $1\frac{1}{2}$  inches long, lanceolate, acute, glabrous ; flowers pale violet ; filaments bearded ; thickened below the tip ; style naked fusiform. Common in shady places and in the jungle. Flowers October-January. (Confined to Ceylon.) (Fig. 373.)

2. **C. fasciculata** Schultes f. Stems up to  $1\frac{1}{2}$  ft. long, branched from the base; leaves about 2 inches long, narrowly lanceolate, with cobwebby hairs; flowers heliotrope; stamens bearded, thickened below the tip; style bearded and thickened below the tip. On rocks, as at Hakkinda. Flowers March, October, December. (Fig. 374.)

2 **COMMELINA** Linn. Annual? herbs; inflorescence a scorpioid cyme, enclosed in a spathe; flowers opening one at a time; petals 2 large and one small; stamens 3; filaments glabrous; staminodes 2-3, with cruciform anthers; ovary 2-3-celled, with 1-2 seeds in each cell.

**C. nudiflora** Linn. *Girapala*, S., *Amalai-pillu*, T. Stem up to 3 ft., creeping, rooting at the nodes; leaves 1-3 in. long,  $\frac{1}{2}$ - $\frac{2}{3}$  in. broad; spathe  $\frac{3}{4}$ - $1\frac{1}{2}$  in. long; flowers  $\frac{3}{8}$  inch across, bright blue; ovary 3-celled, 2 cells, 2-seeded, 1 cell, 1-seeded. Common in shady places. Flowers January, March, May, December. (Fig. 375.)

3. **ANEILEMA** R. Br. Annual or perennial herbs; inflorescence paniculate; petals 3, equal; stamens 2-3; staminodes 2-3; filaments bearded or not; ovary 2-3-celled.

Leaves all the same length . . . . . 1. *A. spiratum*  
 Radical leaves longer than stem leaves . . . . . 2. *A. malabaricum*

1. **A. spiratum** R. Br. Annual, usually about 6 in. high; leaves about 1 in. long, ovate-oblong, acute; panicle few-flowered; flowers heliotrope; stamens fertile; ovary 3-celled; cells with 3 or more ovules; seeds straw-coloured. Common in open places among short grass. (Fig. 376.)

2. **A. malabaricum** Merr. (*A. nudiflorum* R. Br.). Radical leaves up to 5 in. long, forming a rosette; stems trailing and rooting at the nodes; cauline leaves up to  $2\frac{1}{2}$  in. long; panicle 1-sided; flowers heliotrope; 2 stamens fertile; ovary 3-celled, with 2 ovules in each cell; seeds brown. Common in shady places under large trees. Flowers July and December. The flower buds are often attacked by a rust. (Fig. 377.)

## 92. PONTEDERIACEAE (Water Hyacinth Family).

Herbs; leaves simple, petiolate; inflorescence spicate or racemose; flowers hermaphrodite; perianth segments 6, petaloid, united at base; stamens 6, rarely 3; ovary 3-celled, with many ovules in each cell, or rarely unilocular and 1-ovuled; fruit loculicidally dehiscent or indehiscent.

**MONOCHORIA** Presl. Marsh herbs; inflorescence racemose or subumbellate; ovary 3-celled, with many ovules; fruit loculicidally dehiscent.

**M. vaginalis** Presl. *Habarala*, S. Leaves heart-shaped, on long stalks; stems erect, each bearing a single leaf and a raceme of blue flowers; one anther larger than the other 5. Rather common in rice fields. Flowers March. (Fig. 378).

*Ananas comosus* Merr. (*A. sativus* Schult.) *Pineapple*, E., *Annasi*, S., belongs to the *Bromeliaceae*.

## 93. LILIACEAE (Lily Family.)

Herbs or rarely shrubs; leaves simple; inflorescence usually racemose; flowers usually hermaphrodite; perianth-segments petaloid, usually 6, in two whorls, free or united at base; stamens usually 6; ovary superior or rarely inferior, 3-celled, with 1 or more ovules in each cell; fruit a capsule or berry.

Leaves not fleshy :  
 Fruit a capsule; plant climbing . . . . . 1. *Gloriosa*  
 Fruit a berry :  
 Plants erect :  
 Berry yellow . . . . . 2. *Dracaena*  
 Berry blue . . . . . 3. *Dianella*  
 Plant climbing :  
 Leaves broad, 3-nerved . . . . . 4. *Smilax*  
 Leaves minute; plant with linear cladodes . . . . . 5. *Asparagus*  
 Leaves fleshy, almost round; fruit dehiscent irregularly . . . . . 6. *Sansevieria*

1. **GLORIOSA** Linn. Climbing herbs, with tuberous rootstocks; stem leafy, leaves simple, ending in spiral tendrils; flowers solitary, axillary; perianth segments 6; stamens 6; ovary superior; fruit a many-seeded capsule.

**G. superba** Linn. *Niyangala*, S., *Kartikai-kilanku*, *Ventonti*, T. Stems up to 20 ft. long, round; leaves sessile, 6-8 in. long; pedicels 4-6 in. long; flowers 3-4 inches across; petals with wavy margins, yellow and scarlet, finally crimson; style bent at right angles to the ovary. Rather common in scrub jungle and among short grass. Flowers Sept.-January, March. (Fig. 379.)

2. **DRACAENA** Linn. Perennial herbs, shrubs, or trees; leaves spirally arranged; inflorescence a terminal panicle; perianth-segments 6; united at base; stamens 6; ovary 3-celled, with one ovule in each cell; fruit a berry.

**D. Thwaitesii** Regel. Shrubby perennial; stem erect, up to 2½ ft. high; leaves crowded in the upper part of the stem, 7-9 in. long, petiolate; panicle 2-4 in. long; flowers greenish-yellow; fruit orange-yellow, with one or more of the carpels usually abortive. Rather common in the jungle. Flowers May. (Fig. 380.)

3. **DIANELLA** Lamk. Herbs; leaves distichous; inflorescence a cymose panicle; perianth segments 6; stamens 6, in two whorls; ovary 3-celled with 4-8 ovules in each cell; fruit a berry.

**D. ensifolia** Redouté. *Monara-petan*, S. Stems densely tufted, up to 3 ft. high; leaves up to 2 ft. long; flowers pale blue; berries bright blue. Rather common in the jungle. Flowers April. (Fig. 381.)

4. **SMILAX** Linn. Climbing shrubs; leaves alternate; 3-9-veined from the base; inflorescence umbellate; flowers unisexual; male and female on different plants (dioecious); perianth segments 6, free; stamens 6, or 3-6 staminodes in female flowers; ovary 3-celled, with 1-2-ovules in each cell; fruit a berry.

**S. prolifera** Roxb. *Maha-kabarasa*, S. Stem round, with a few scattered prickles; leaves 2-8 in. long, 1-3 inches broad, ovate-elliptic, 3-7-veined from the base often blotched with brown, petiolate, sheathing and bearing tendrils, supposed to be modified stipules, at base; umbels compound; flowers pale green, female with 3-6, staminodes; berries pear-shaped, red. Common in scrub jungle. Flowers February. (Fig. 382.)

5. **ASPARAGUS** Linn. Herbs; stem erect or climbing; leaves represented by minute scales, bearing in their axils tufts of flattened branchlets (cladodes); flowers usually hermaphrodite; perianth-lobes 6; ovary 3-celled, with 2 or more ovules in each cell; fruit a berry.

**A. falcatus** Linn. *Hatavariya*, S. Roots tuberous; stem climbing, bright green, covered with small spines; cladodes (flattened branches) 4-6 inches long, flat; inflorescence racemose; flowers white, sweet-scented; pedicels jointed below the middle; berry crimson. In scrub jungle, rather rare. Flowers September-October. (Fig. 383.)

6. **SANSEVIERIA** Thunb. Perennial herbs, with rigid, thick, radical leaves; inflorescence racemose; perianth segments 6, united to form a tube; stamens 6; ovary superior, 3-celled, with one ovule in each cell; fruit bursting irregularly.

*S. guineensis* Willd., *Bow-string hemp*, E., is commonly cultivated.

**S. zeylanica** Willd. *Niyanda*, S., *Maral*, T. Leaves tufted, up to 3 ft. long, dark green with transverse stripes of light green, concave above, furrowed beneath; inflorescence purple; petals white with purple tips; fruit dull orange-yellow. Common in dry rocky places as at Hakkinda. Flowers January, June. (Supposed to be confined to Ceylon, but probably the same as one of the Indian species.) (Fig. 384.)

## 94. AMARYLLIDACEAE (Daffodil Family).

Bulbous or rhizomatous herbs or rarely shrubs ; leaves radical, distichous ; flowers hermaphrodite or unisexual ; perianth-segments petaloid ; stamens 6 ; ovary inferior, 3-celled, with many ovules in each cell ; fruit a loculicidal capsule or indehiscent.

*Furcraea gigantea* Vent., *Mauritius Hemp*, E., is often cultivated.

Rootstock tuberous ; flowers yellow .. .. 1. *Curculigo*  
Rootstock bulbous ; flowers purplish-white .. .. 2. *Crinum*

1. **CURCULIGO** Gaertn. Herbs with tuberous rootstocks ; leaves plicate ; inflorescence a short spike or raceme ; flowers hermaphrodite or unisexual ; perianth segments 6, united to form a tube ; stamens 6 ; ovary 3-celled, with 2 or more ovules in each cell ; fruit indehiscent.

**C. leptostachya** Alst. (*C. Finlaysoniana* Wall., *Hypoxis leptostachya* Wall.) *Maha-biatal*, S. Leaves 6-24 in. long,  $\frac{3}{4}$ -1 $\frac{1}{2}$  in. broad, pleated ; flowers stalked, yellow ; perianth-tube very short ; fruit oblong. Common in shady places. Flowers March-October, April. (Fig. 385.)

2. **CRINUM** Linn. Bulbous herbs ; inflorescence umbellate ; perianth-segments united at base to form a tube ; stamens 6 ; ovary 3-celled, with a few ovules in each cell ; fruit an irregularly-dehiscent capsule.

**C. defixum** Ker. *Hin-tolabo*, S. Bulbs 3-4 in. in diameter ; leaves 2-3 ft. long,  $\frac{3}{4}$ -1 $\frac{1}{2}$  in. broad ; umbel 6-15-flowered, flowers very shortly stalked ; petals white with a purplish mark down the centre ; stamen declinate, purple ; fruit 1 in. in diameter, round. Common on the banks of streams. Flowers March-July. (Fig. 386.)

## 95. DIOSCOREACEAE (Yam Family).

Climbing or erect, perennial herbs or shrubs ; leaves opposite or alternate ; inflorescence spicate, racemose, or fasciculate ; flowers unisexual or hermaphrodite ; perianth segments 6, in two whorls ; stamens 6 or 3, represented by 3 staminodes in the female flowers ; ovary inferior, 3-celled or rarely 1-celled, with 2 ovules in each cell ; fruit a capsule or berry.

**DIOSCOREA** Linn. Climbers with tuberous roots ; leaves simple or palmately divided ; inflorescence simple or racemose ; flowers unisexual ; ovary 3-celled with axile placentation ; fruit a 3-winged loculicidal capsule.

*D. alata* Linn., *Kiri-kondol*, S. is cultivated.

Leaves simple .. .. 1. *D. spicata*  
Leaves palmately divided :  
Leaves glabrous or sparsely hairy .. .. 2. *D. pentaphylla*  
Leaves densely tomentose beneath .. .. 3. *D. tomentosa*

1. **D. spicata** Roth. *Goni-ala*, S. Tubers 2-3 ft. long ; stem glabrous, usually unarmed ; leaves usually alternate, simple, elliptic-lanceolate, glabrous, 3 or rarely 5-nerved from the base ; lateral nerves nearer the margin than the midrib ; male spikes axillary, solitary or clustered ; flowers with 6 stamens, or 6 staminodes in female flowers, greenish ; female spikes solitary ; fruit 1 $\frac{1}{2}$ -2 in. in diameter. Rather rare in the jungle and in shrubby places. Flowers September-January. (Fig. 387.)

2. **D. pentaphylla** Linn. *Katuvala*, S., *Allai*, T. Tubers 3-6 ft. long ; stem glabrous, armed with scattered prickles ; leaves alternate, palmately divided, glabrous or sparsely pubescent beneath ; leaflets 2-6 in long ; male inflorescence racemose ; flowers with 3 stamens and 3 staminodes, pale greenish ; female inflorescence spicate ; flowers with 3 staminodes ; fruit  $\frac{3}{4}$ -1 in. long. Similar places to *D. spicata* Roth. Flowers August. (Fig. 388.)

3. **D. tomentosa** Heyne, *Uyala*, S. Tubers 1-2 ft. long ; stem tomentose, armed with scattered prickles ; leaves alternate, palmately divided or rarely simple, densely tomentose beneath ; leaflets 2-4 in. long ; inflorescence of racemes paniculately arranged ; male flowers yellowish-white, with 3 stamens and 3 staminodes ; female flowers with 3 staminodes ; fruit 1 inch long. Rather common in scrub jungle. (Fig. 389.)

## 96. ZINGIBERACEAE (Ginger Family).

Herbs with tuberous rhizomes; leaves sheathing, with ligulate processes at the top of the sheath; flowers usually hermaphrodite, irregular, but bilaterally symmetrical; sepals and petals united below to form a tube; one stamen of the inner whorl wanting or represented by staminodes; ovary inferior, 3-celled, with many ovules in each cell; fruit usually a capsule.

*Curcuma domestica* Val., *Turmeric*, E., *Kaha*, S., *Manjal*, T., is cultivated.

Inflorescence terminating the leafy stem:

Leaves spirally arranged .. .. .	1. <i>Costus</i>
Leaves distichous .. .. .	2. <i>Languas</i>

Inflorescences on leafless stems:

Anthers not spurred .. .. .	3. <i>Amomum</i>
Anthers spurred .. .. .	4. <i>Zingiber</i>

1. **COSTUS** Linn. Rootstock tuberous; stem tall; leaves spirally arranged; inflorescence spicate; calyx united; corolla lobes almost equal; lateral staminodes wanting; filament forming a petaloid limb.

**C. speciosus** Sm. *Tebu*, S. Stem 6-9 ft. high; reddish-purple; leaves 6-12 in. long, hairy beneath; bracts reddish-purple; lip crisped, white with an orange yellow centre; fruit 3-angled, 1 in. in diameter. Common in the jungle. Flowers Jan.-March. June. (Fig. 390.)

2. **LANGUAS** Koen. Rootstock stout; stem tall; leaves distichously arranged; inflorescence paniculate or racemose, terminating a leafy stem; calyx tubular, 2-3-toothed; lateral staminodes small or wanting; fruit round.

**L. chinense** Koenig. (*Alpinia Allughas* Rosc.) *Alu-gas*, S. Stem 3-6 ft.; leaves 1-1½ ft. long, narrowly oblong-lanceolate; lip pink, 1 in. long; stalked; connective of anthers produced beyond the cells to form a small crest; fruit ½ in. in diameter, black. On river banks, rather rare. Flowers January-March. (Fig. 391.)

3. **AMOMUM** Linn. Stem tall; leaves distichous; inflorescence spicate or capitate, on a short leafless stem; calyx 2-3-lobed; lateral staminodes wanting or represented by minute teeth; capsule splitting irregularly.

Fruit without spines:

Leaves glabrous beneath .. .. .	1. <i>A. masticatorium</i>
Leaves hairy beneath .. .. .	2. <i>A. hypoleucum</i>

Fruit spiny .. .. .	3. <i>A. echinocarpum</i>
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1. **A. masticatorium** Thw. *Balu-dendu*, S. Rootstock slender; leafy stem usually about 3 ft. high; leaves usually 10 in. long, narrowly lanceolate; flowering stem 2-3 in. high; flowers 1½ in. across; petals yellow; lip yellow dotted with red; fruit round, spiny, ¾ in. in diameter. Rather rare in the jungle. Flowers April, May, September. (Confined to Ceylon.) (Fig. 392.)

2. **A. hypoleucum** Thw. Leafy stem 4-5 ft. high; leaves 1½-2 ft. long, lanceolate, with silvery hairs beneath; flowering stems 1-2 in. high, pale cream-coloured; flowers white, lip blotched with yellow and veined with crimson; fruit round, 6-lobed, brownish-red. Rather common in the jungle. Flowers June-July. (Fig. 393.)

3. **A. echinocarpum** Alst. (*A. echinatum* Trim. not Willd.) Leafy stem 6-12 ft. high; leaves 1-2 ft. long, hairless; dark green; flowering stem about 1 ft. high, crimson; flowers purplish-cream-coloured, the lip orange-yellow, with red markings; anthers crested; fruit 1 in. in diameter, broad, oblong, spiny, black. Rather rare in the jungle. Flowers September, October. (Confined to Ceylon.) (Fig. 394.)

4. **ZINGIBER** Adans. Leafy stem tall ; leaves distichous ; inflorescence spicate ; bracts large ; calyx tubular shortly 3-toothed ; lateral staminodes wanting ; lip not stalked ; connective of anther produced ; fruit oblong, dehiscent.

**Z. Zerumbet** Sm. *Val-inguru*, S., *Kattu-inchi*, T. Leafy stem 5-6 ft. annual ; leaves 10-12. in long, lanceolate, hairless ; flowering stem 12-18 in. high ; bracts of inflorescence light green when flowering, light red in fruit ; flowers pale yellow ; fruit 1 in. long, oblong. Common in the jungle. Flowers June. (Fig. 395.)

*Musa paradisiaca* Linn., *Plantain*, E., *Khel*, S., *Valai* T., belongs to the *Musaceae*.

### 97. CANNACEAE (Indian Shot Family).

Perennial herbs ; leaves pinnately veined ; ligules and pulvini wanting ; flowers hermaphrodite ; sepals 3 ; petals 3 ; stamens represented by a half anther and several staminodes ; ovary inferior, 3-celled ; style petaloid.

**CANNA** Linn. Rhizomatous herbs ; inflorescence a simple or branched raceme ; fruit a spinose capsule containing several seeds.

Eichler (*Bluthendiagramme* I, p. 175) considered that the fertile half-anther and the staminodes, which are united with it, represented the posterior stamen of the inner whorl, the labellum being one of the lateral stamens, and the outer whorl being suppressed. All the staminodes except the labellum may be wanting, or a fourth staminode belonging to the outer whorl may be present behind the fertile stamen. It has also been thought that two of the staminodes attached to the fertile stamens represent stamens of the outer whorl and one the inner one of the outer whorl being repressed.

**C. INDICA** Linn. *Butsarana*, S. Stem up to 4 ft. high ; leaves up to 18 in. long ; inflorescence racemose ; calyx segments membranous ; petals greenish or pink ; staminodes 3, usually yellow with red spots, less frequently pure yellow or red ; fruit  $\frac{1}{2}$  in. long, with numerous, round, black seeds. Common in waste places. (Probably a native of Tropical America.) (Fig. 396.)

### 98. ORCHIDACEAE (Orchid Family).

Herbs, or rarely shrubby ; leaves alternate, simple ; flowers hermaphrodite ; perianth segments 6, in 2 whorls, one segment of the inner whorl, usually larger and often spurred, is known as the lip ; stamens and style united to form a column ; anthers 1-2 ; pollen-grains coherent in waxy or powdery masses (pollinia) ; ovary inferior, 1-or rarely 3-celled ; fruit usually a loculicidal capsule, with many minute seeds.

*Vanilla planifolia* Andr. and many ornamental species are cultivated.

Plants leafless .. .. .	.. .. .	1. <i>Taeniophyllum</i>
Plants with leaves :		
Inflorescence terminal .. .. .	.. .. .	2. <i>Polystachya</i>
Inflorescence axillary :		
Stems shorter than leaves :		
Flowers pure white .. .. .	.. .. .	3. <i>Angraecum</i>
Flowers cream-coloured with purple stripes .. .. .	.. .. .	4. <i>Cymbidium</i>
Stems as long as, or longer than the leaves :		
Leaves round .. .. .	.. .. .	5. <i>Luisia</i>
Leaves flat :		
Plants over 3 in. ; flowers yellow .. .. .	.. .. .	6. <i>Vanda</i>
Plants under 3 in. ; flowers white .. .. .	.. .. .	7. <i>Dendrocolla</i>

1. **TAENIOPHYLLUM** Blume. Stemless, leafless, epiphytes, with green flattened roots ; inflorescence spicate ; perianth-segments united ; lip shortly spurred, column short ; pollinia 4, waxy.

**T. Alwisii** Lindl. Plant up to 1 in. high ; flowers  $1/20$  in. pale greenish orange ; fruit oblong ; curved,  $\frac{1}{3}$ - $\frac{1}{2}$  in. long. Common on trees at Peradeniya. Flowers at any time of year. (Confined to Ceylon). (Fig. 397.)

2. **POLYSTACHYA** Hk. Epiphytes ; stem with a narrow pseudobulb ; leaves distichous ; inflorescence paniculate ; sepals united ; lip 3-lobed ; column short ; pollinia 4.

**P. zeylanica** Lindl. Stem up to 10 in. long ; leaves lanceolate, obtuse, somewhat leathery ; flowers pale yellow tinged with red on the outside ; fruit  $\frac{1}{2}$  in. long. Common on trees in the Peradeniya Gardens. Flowers August, October. (Supposed to be confined to Ceylon, but probably the same as the S. Indian *P. Wightii* Rehb. f.) (Fig. 398.)

3. **ANGRAECUM** Bory. Epiphytes ; stem not pseudobulbous ; leaves distichous inflorescence racemose, axillary ; sepals free ; lip spurred ; column short ; pollinia 2.

**A. hologlottis** Schltr. Stem very short ; leaves oblong-lanceolate, leathery,  $1\frac{1}{2}$ -3 in. long, unequally bilobed at the apex ; racemes usually drooping ; flowers white. Rather rare at Peradeniya. Flowers March, April. (Confined to Ceylon). (Fig. 399.)

4. **CYMBIDIUM** Swartz. Epiphytes with short stems and long leaves ; inflorescence racemose ; perianth segments free ; lip saccate ; column long ; pollinia 2 or 4, waxy.

**C. bicolor** Lindl. Stem tufted ; leaves about 1 ft. long, leathery, jointed at the base, unequally 2-lobed at the lip ; racemes pendulous ; flowers cream with purple stripes ; pollinia 2 ; capsule oblong. Common on trees at Peradeniya. Flowers March-April. The specific name is doubtful. (Fig. 400.)

5. **LUISIA** Gaud. Epiphytes with long stems ; leaves round in cross-section ; inflorescence spicate ; lip obscurely 3-lobed ; column very short ; pollinia 2, waxy.

**L. teretifolia** Gaud. Stem 6-12 in. long ; leaves 4-7 in. long, green, often purple spotted ; sepals and petals pale purplish-yellow ; lip saccate and green spotted with purple at base, tongue obscurely 3-lobed, dark purple. Common on trees at Peradeniya. Flowers April. (Fig. 401.)

6. **VANDA** R. Br. Epiphytes or climbers, not pseudobulbous ; leaves distichous, leathery ; lip funnel-shaped, 3-lobed, spurred ; column short ; pollinia 2, waxy.

Flowers cream coloured, with purple markings on the lip .. 1. *V. testacea*  
Flowers bright yellow .. 2. *V. spathulata*

1. **V. testacea** Reichb. f. (*V. parviflora* Wight.) Stem about 6 in. long ; leaves about 6 in. long, lobed or toothed at apex ; racemes axillary, 3-6 in. long ; flowers about 1 in. across, cream-coloured, with purple markings on the lip ; fruit up to 2 in. long. Common on trees at Peradeniya. Flowers March. (Fig. 402.)

2. **V. spathulata** Spreng. Stem up to 4 ft. long, often climbing ; leaves up to 4 in. long, 2-lobed at apex ; racemes axillary, with the flowers in the upper half ; flowers about  $1\frac{1}{2}$  in. across, bright yellow ; fruit obovoid,  $1\frac{1}{2}$  in. long. On trees at Peradeniya. Flowers March-September. (Fig. 403.)

7. **DENDROCOLLA** Blume. Epiphytes, not pseudobulbous ; stem short ; leaves leathery ; bracts persistent, not distichous ; lip not spurred ; column short ; pollinia 2 ; capsule linear.

**D. pulchella** Thw. (*Sarcophilus pulchellus* Trim.) Stem 2-3 inches high, erect ; leaves 2-2 $\frac{3}{4}$  in. long, linear-oblong, thick and leathery, notched at the apex ; flowers  $\frac{1}{2}$  in. across, white with orange markings on the lip ; capsule 2-3 in. long. Rather common on shrubs at Peradeniya. Flowers April-June. (Confined to Ceylon.) (Fig. 404.)

## APPENDIX I.

A list of grasses, rushes, and flowerless plants found about Kandy. (Endemic species in capitals, introduced and cultivated species in italics.)

## ERIOCAULONACEAE.

- Eriocaulon Linn. *Kokmota*, S.  
*E. truncatum* Ham. (? *E. minimum* Lamk.)  
*E. cinereum* R. Br. (*E. Sieboldianum* S. & Z.)

## CYPERACEAE (Sedge Family).

- Cyperus Linn.  
*C. Iria* Linn. *Vel-hiri*, S., *Chantana-korai*, T.  
*C. difformis* Linn. *Konda-korai*, T.  
*C. uncinatus* Poir. (*C. cuspidatus* H. B. K.)  
*C. Haspan* Linn. *Hal-pan*, S.  
*C. flavidus* Retz.  
*C. corymbosus* Roxb. *Gal-che*, S.  
*C. dehiscons* Steud. *Hevan-pan*, S.  
*C. distans* Linn. f.  
*C. pilosus* Vahl.  
*C. compressus* Linn.  
*C. Zollingeri* Steud.  
*C. rotundus* Linn.  
*Pycereus* Beauv.  
*P. sanguinolentus* Nees. (*Cyperus sanguinolentus* Vahl.)  
*P. polystachyus* Beauv. (*C. polystachyus* Rottb.)  
*P. strictus* Alst. (*C. globosus* All.)  
*P. patens* Alst. (*C. pumilus* Linn.)  
*Mariscus* Vahl.  
*M. Dregeanus* Kunth.  
*M. pictus* Nees.  
*M. paniceus* Vahl.  
*M. Roxburghianus* Alst. (*M. paniceus* var. *Roxburghianus* Clarke.)  
*M. cyperinus* Vahl.  
*M. tenuifolius* Schrad.  
*Kyllinga* Rottb.  
*K. monocephala* Rottb.  
*K. brevifolia* Rottb.  
*Fimbristylis* Vahl.  
*F. annua* R. & S. (*F. diphylla* Vahl.)  
*F. quinquangularis* Kunth.  
*F. miliacea* Vahl. *Mudu-hal-pan*, S.  
*F. monostachya* Hassk.  
*F. dura* Alst. (*F. asperrima* Boeck.)  
*Stenophyllus* Raf.  
*S. barbatus* Cooke (*Bulbostylis barbata* Kunth)  
*Uru-hiri*, S  
*Scirpus* Linn.  
*S. supinus* Linn.  
*Lopocarpa* R. Br.  
*L. argentea* R. Br.  
*Scleria* Berg.  
*S. lithosperma* Sw.  
**GRAMINEAE** (Grass Family).  
*Bambusa* Schreb.  
*B. glaucescens* Sieb. (*B. nana* Roxb.) *Dwarf bamboo*, E., *Munkil*, T., cultivated.  
*B. vulgaris* Schrad. *Common bamboo*, E., *Una*, S., *Munkil*, T., cultivated.  
*Arundo* Linn.  
*A. Donax* Linn., cultivated.  
*Coelachne* R. Br.  
*C. pulchella* R. Br.  
*Elytrophorus* Beauv.  
*E. articulatus* Beauv.  
*Eragrostis* Host.  
*E. tenella* R. & S. (*E. amabilis* Merr.)  
*E. viscosa* Trin. (*E. tenella* var. *viscosa* Stapf.)  
*E. gangetica* Steud. *Ela-kuru-tana*, S.  
*E. unioloides* Nees. (*E. amabilis* Hk. f.)  
*E. pilosa* Beauv.  
*Centotheca* Desv.  
*C. latifolia* Trin. (*C. lappacca* Desv.)

## Cynodon Pers.

- C. Dactylon* Pers. *Doob grass*, *Bermuda grass*, E., *Arukampullu*, T.

## Chloris Sw.

- C. barbata* Sw. *Mayuru-tana*, S.  
*Eleusine* Gaertn.  
*E. coracana* Gaertn. *Kurakkan*, S. & T., cultivated.  
*E. indica* Gaertn. *Bela-tana*, *Vel-kurakkan*, S.  
*Dactyloctenium* Willd.  
*D. aegyptiacum* Willd. (*Eleusine aegyptiaca* Desf.)

## Sporobolus R. Br.

- S. diander* Beauv.  
*Perotis* Ait.  
*P. indica* O. Ktze. (*P. latifolia* Ait.) *Comet grass*, E.

## Oryza Linn.

- O. sativa* Linn. *Rice*, *Paddy*, E., *Vi*, S., *Nel*, *Nellu*, T., cultivated.

## Leersia Sw.

- L. hexandra* Sw. *Layu*, S.  
*Arundinella* Raddi.  
*A. leptochloa* Hk. f.  
*Stenotaphrum* Trin.  
*S. secundatum* O. Ktze. (*S. complanatum* Schrank.)

## Setaria Beauv.

- S. glauca* Beauv. (*S. lutescens* Hubb., *S. geniculata* Beauv.) *Kavalu*, S.  
*S. barbata* Kunth, introduced.  
*S. intermedia* R. & S.  
*Brachiaria* Griseb.  
*B. distachya* Stapf. (*Panicum distachyum* Linn.)

## B. miliiformis Chase

- B. nutica* Stapf. (*P. muticum* Forsk.) *Water grass*, *Mauritius grass*, E., *Diya-tana-kola*, S., introduced.

## Pseudechinolaena Stapf.

- P. polystachya* Stapf. (*Panicum uncinatum* Raddi)

## Axonopus Beauv.

- A. compressus* Beauv. (*Paspalum obtusifolium* Auct.) *Carpet grass* E., introduced.

## Isachne R. Br.

- I. australis* R. Br.  
*Sacciolepis* Nash.

## S. indica Chase (Panicum indicum Linn.)

- Oplismenus* Beauv.  
*O. compositus* Beauv.  
*Echinochloa* Beauv.

## E. colona Link. (Panicum colonum Linn.)

- Panicum* Linn.

## P. brevifolium Linn. (P. ovalifolium Poir)

- P. trypheron* Schult. *Val-meneri*, S.  
*P. maximum* Jacq. *Guinea grass*, E., *Rata-tana*, S., introduced.

## P. repens Linn. Etora, S.

- Paspalidium* Stapf.  
*P. flavidum* Stapf. (*Panicum flavidum* Retz.)  
*Cyrtococcum* Stapf.

## C. oxyphyllum Stapf. (Panicum pilipes Nees &amp; Arn.)

- C. trigonum* A. Camus (*P. trigonum* Retz.)

## Urochloa Beauv.

- U. reptans* Stapf. (*Panicum prostratum* Lamk.) introduced.

## Hemigymnia Stapf.

- H. Arnottiana Stapf.  
 H. ?javanica Alst. (*Panicum ambiguum* Trin.)  
*Paspalum* Linn.  
 P. Commersonii Lamk. (*P. scrobiculatum* Hk. f. in part)  
 P. conjugatum Berg., introduced.  
 P. Metzii Steud.  
 Digitaria Haller  
 D. marginata Link. (*Paspalum sanguinale* Hk. f. not Lamk.) Gurawal, S.  
 D. longiflora Pers. (*Paspalum longiflorum* Retz.)  
 Alloteropsis Presl.  
 A. cimicina Stapf. (*Aconopus cimicinus* Beauv.)  
 Imperata Cyrill.  
 I. cylindrica Beauv. (*I. arundinacea* Cyrill) Thuk, S., Warli-piltu, T.  
*Saccharum* Linn.  
 S. officinarum Linn. Sugar cane, F., Uk, S., Karumpu, T., cultivated.  
 S. arundinaceum Retz. Rambuk, S., Peykarumpu, T.  
*Pogonatherum* Beauv.  
 P. panicum Hack. (*P. crinitum* Kunth.)  
 Pollinia Trin.  
 P. argentea Trin.  
 P. ciliata Trin.  
*Ischaemum* Linn.  
 I. timorense Kunth.  
 I. ciliata Retz. Rat-tana, S.  
 I. commutatum Hack.  
*Arthraxon* Beauv.  
 A. rudis Hochst.  
*Amphilophis* Nash.  
 A. pertusa Stapf. (*Andropogon pertusus* Willd.)  
*Veliveria* Thouars.  
 V. zizanioides Stapf. (*Andropogon squarrosus* Linn.) Khus-khus, E., Sevendara, S., Veddiver, T., cultivated.  
*Chrysopogon* Trin.  
 C. aciculatus Trin. (*Andropogon aciculatus* Retz.) Love grass (in Ceylon), Spear grass, E., Tuttiri, S.  
*Cymbopogon* Spreng.  
 C. confertiflorus Stapf. (*Andropogon Nardus* Hk. f. in part), Mana, S.  
 C. citratus Stapf. (*Andropogon citratus* DC.) Lemon grass, E., Sera, Malay, cultivated.  
*Themeda* Forsk.  
 T. australis Stapf. (*Anthistiria imberbis* Hk. f. not Retz.)  
 T. tremula Hack. (*Anthistiria tremula* Nees.) Pini-baru-tana, S.  
 T. gigantea Hack., introduced.  
*Zea* Linn.  
 Z. Mays Linn. Maize, Indian corn, E., Iringu, S., Irunku, T., cultivated.  
 Coix Linn.  
 C. Lachryma-jobi Linn. Job's tears, E., Kikirindi, S., casual.  
**PTERIDOPHYTA** (Vascular Cryptogams).  
**LYCOPODIALES.**  
**LYCOPODIACEAE** (Club-moss Family).  
*Lycopodium* Linn.  
 L. cernuum Linn. Badal-vanassa, Vil-vanassa, S.  
**SELAGINELLACEAE.**  
*Selaginella* Beauv.  
 S. INTEGERRIMA Spring Balal-pahuru, S.  
 S. proniflora Bak. (S. zeylanica Bak.)  
 S. brachystachya Spreng var.  
**FILICALES** (Fern order)  
**MARATTIACEAE**
- Angiopteris* Hoffm.  
 A. evecta Hoffm. Keren-kola, S  
**GLEICHENIACEAE.**  
*Gleichenia* Sm.  
 G. linearis Clarke Nekilla, S.  
**SCHIZAEACEAE.**  
*Schizaea* Sm.  
 S. digitata Sw.  
*Lygodium* Sw.  
 L. scandens Sw. Hin-pamba, S.  
**MARSILEACEAE.**  
*Marsilea* Linn.  
 M. quadrifolia Linn. Diya-embul-embiliya, Peli-pala, S., Ara-kirai, T.  
**PARKERIACEAE.**  
*Ceratopteris* Brongn.  
 C. thalictroides Brongn. Kuta-mahu-verella, S  
**POLYPODIACEAE** (Fern Family) Miyana, S.  
*Dryopteris* Adans.  
 D. parasitica O. Ktze.  
 D. unita O. Ktze.  
*Polystichum* Roth.  
 P. aristatum Presl.  
*Leptochilus* Kaulf.  
 L. zeylanicus C. Chr.  
*Nephrolepis* Schott.  
 N. exaltata Schott.  
*Schizoloma* Gaud.  
 S. ensifolium J. Sm.  
*Blechnum* Linn.  
 B. orientale Linn.  
*Stenochlaena* J. Sm.  
 S. palustris Bedd. Vel-benduru, S.  
*Ceropteris Calomelanos* Und. (*Gymnogramme Calomelanos* Kaulf.) Ridimiyana, S., introduced.  
*Hemionitis* Linn.  
 H. arifolia Moore  
*Doryopteris* J. Sm.  
 D. concolor Kuhn.  
*Cheilanthes* Sw.  
 C. tenuifolia Sw.  
*Adiantum* Linn.  
 A. caudatum Linn. Vala-venna, S.  
 A. hispidulum Sw.  
*Pteris* Linn.  
 P. biaurita Linn.  
 P. ensiformis Burm.  
*Drymoglossum* Presl.  
 D. heterophyllum Trimen, Panam-peti, Mas-venna, S.  
*Pleopeltis* Hunb. & Bonpl.  
 P. Phymatodes Moore (*Polypodium Phymatodes* Lour.)  
*Cyclophorus* Desv.  
 C. lanceolatus Alst. (C. adnascens C. Chr.)  
*Drynaria* J. Sm.  
 D. quercifolia J. Sm. Renduru, S.  
**MUSCI** (Mosses).  
**FISSIDENTACEAE**  
*Fissidens* Hedw.  
 F. VIRENS Thw. & Mitt.  
 F. zeylanicus Doz. & Molk. (F. Ceylonensis, Doz. & Molk. F. perpusillus Wils.)  
 F. Zippelianus Doz. & Molk.  
 F. firmus Mitt. (F. Griesenhageni Broth.)  
 F. incertus Varde.  
**ARCHIDIACEAE.**  
*Archidium* Brid.  
 A. hermannicum Mitt.  
**DITRICHACEAE.**  
*Garckea* C. Müll.  
 G. phascoides C. Müll.  
**DICRANACEAE.**

- Trematodon Michx.  
 T. ZEYLANICUS C. Müll. (*T. Ceylonensis* C. Müll).  
 Microdus W. P. Schimp.  
 M. brasiliensis Thér. (*Dicranella pomiformis* Jaeg.)  
 Campylopus Brid.  
 C. comosus Doz. & Molk.  
**LEUCOBRYACEAE.**  
 Leucophanes Hampe.  
 L. glaucescens C. Müll.  
 Octoblepharum Hedw.  
 O. albidum Hedw.  
**CALYMPERACEAE.**  
 Calymperes Sw.  
 C. Dozyanum Mitt.  
**POTTIACEAE.**  
 Hymenostomum R. Br.  
 H. edentulum Besch.  
 Hyophila Brid.  
 H. spathulata Jaeg.  
 Barbula Hedw.  
 B. indica Brid.  
 B. javanica Doz. & Molk.  
**BRYACEAE.**  
 Brachymenium Hk.  
 B. leptostomoides Schimp.  
 Bryum Dillw.  
 B. argenteum Linn.  
 (? B. nitens Hk.)  
 B. ambiguum Dub.  
 B. coronatum Schwaegr.  
 B. curyphyllum Dix. & Varde.  
**BARTRAMIACEAE.**  
 Philonitis Brid.  
 P. IMBRICATULA Mitt.  
 P. Turneriana Mitt.  
 P. mollis Bosch. & Sande.  
 P. laxissima Bosch. & Sande.  
**ERPODIACEAE.**  
 Solmsiella C. Müll.  
 S. zeylanica C. Müll. (*S. Ceylonica* C. Müll).  
**ORTHOTRICHACEAE.**  
 Macromitrium Brid.  
 M. japonicum Doz. & Molk.  
**METEORACEAE.**  
 Aerobryopsis Fl.  
 A. longissima Fl.  
**NECKERACEAE.**  
 Calypothecium Mitt.  
 C. Wightii Fl.?  
**THUIDIACEAE.**  
 Haplohymenium Doz. & Molk.  
 H. filiforme Broth.  
 Herpetineurum Card.  
 H. Toccoae Card.  
 Pelekium Mitt.  
 P. velatum Mitt.  
 Thuidium Schimp.  
 T. plumosulum Bosch. & Sande.  
**BRACHYTHECIACEAE.**  
 Rhyncostegium Bruch. & Schimp.  
 R. Hookeri Sauerb.  
**ENTODONTACEAE.**  
 Erythrodonium Hampe.  
 E. julaceum Par.  
 Campylodontium Doz. & Molk.  
 C. flavescens Bosch. & Sande.  
**PLAGIOTHECIACEAE.**  
 Sterophyllum Mitt.  
 S. indicum Mitt. (*S. papillidens* Dix. non Card.)  
**SEMATOPHYLLACEAE.**  
 Meiothecium Mitt.  
 M. microcarpum Mitt.
- Sematophyllum Mitt.  
 S. caespitosum Mitt. (*Rhaphidostegium tristriculatum* Jaeg.)  
 S. subhumile Fl. (*Rhaphidostegium subhumile* Jaeg.)  
**HYPNACEAE.**  
 Ectropothecium Mitt.  
 E. incubans Jaeg.  
 E. cyperoides Jaeg.  
 E. laevigatum Thw. & Mitt.  
 Isopterygium Mitt.  
 I. linicola Jaeg.  
 I. minutirameum Jaeg.  
 Taxiphyllum Fl.  
 T. taxirameum Fl.  
**POLYTRICHACEAE.**  
 Pogonatum Beauv.  
 P. Neesii Mitt.  
**HEPATICAE (Liverworts)**  
**RICCIACEAE.**  
 Riccia Linn.  
 R. sp.  
**AYTONIACEAE.**  
 Aytonia Forst.  
 A. nephalensis Alst. (*Antrocephalus nephalensis* Ldbg. & Bisch.)  
 Asterella Beauv.  
 A. sp.  
**MARCHANTIACEAE.**  
 Dumortiera Nees.  
 D. hirsuta Nees.  
 Marchantia Linn.  
 M. sp.  
 M. sp.  
**METZGERIACEAE**  
 Riccardia Gray  
 R. flacidissima Schimp.  
**BLYTTIACEAE.**  
 Dilaena Dum.  
 D. Lyellii Dum.  
**JUNGERMANNIACEAE.**  
 Aplozia Dum.  
 A. comata Alst. (*Plagiochila comata* Dum.)  
 A. polyrhiza Alst. (*Jungermannia polyrhiza* Hk.)  
 Lophocolea Dum.  
 L. peradeniensis St.  
**LEJEUNEACEAE.**  
 Frullania Raddi.  
 F. squarrosa Dum.  
 F. laciniosa Lehm.  
 Diastoloba Alst. (*Frullania* sect. *Diastoloba* Spruce.)  
 D. angustata Alst. (*Frullania angustata* Mitt.)  
 Rectolejeunea Evans.  
 R. riparia St.  
 Ptychocoleus Trevis.  
 P. peradeniensis St.  
 P. pycnocladus St.  
**ANTHOCEROTACEAE.**  
 Anthoceros Linn.  
 A. sp.  
**LICHENES**  
**CALICIACEAE**  
 Cyphelium Ach.  
 C. leucampyx A. Zahlbr. (*Trachylia leucampyx* Tuck.)  
**COLLEMACEAE.**  
 Physma Massal.  
 P. byrsinum Muell Arg.  
 Leptogium Gray.  
 L. cyanizum Nyl. (*L. cyanescens* Nyl. non Koerb.)  
 L. DEVERTENS A. Zahlbr. (*Stephanophoron devertens* Nyl.)

*L. callithamnion* Nyl.

PANNARIACEAE.

*Coccoaropia* Pers.

*C. pellita* Muell. Arg. var. *parmelioides* Muell. Arg.

(*C. molybdaea* Pers., *C. parmelioides* Trevis.)

PARMELIACEAE.

*Parmelia* Ach.

*P. enteromorpha* Ach. (*Hypogymnia enteromorpha* Ach.)

*P. subflabellata* Ach. (*Hypogymnia subflabellata* Nyl.)

*P. crinita* Ach.

*P. tinctorum* Desf.

USNEACEAE.

*Ramalina* Ach.

*R. farinacea* Ach.

*Usnea* Adans.

*U. articulata* Hoffm.

PHYSICIACEAE.

*Pyxine* Fr.

*P. coccifera* Nyl.

*P. Meissneri* Tuck.

*Physcia* Schreb.

*P. speciosa* Nyl.

*P. picta* Nyl.

LECANORACEAE.

*Lecanora* Ach.

*L. subfusca* Ach.

var. *chlarona* Ach. (*L. chlarona* Cromb.)

*L. rugosa* Nyl.

*L. pulverata* Nyl.

*L. coilocarpa* Nyl.

*L. atra* Ach.

*L. tartarea* Ach.

*L. pertenera* Nyl.

*Haematomma* Massal.

*H. achroelloides* Massal. (*Lecanora achroelloides* Nyl.)

*H. puniceum* Vain. (*L. punicea* Ach.)

PERTUSARIACEAE.

*Pertusaria* DC.

*P. albidella* Nyl.

*P. leioplaca* DC.

*P. pertusa* Tuck. (*P. communis* DC. f. *pertusula* Nyl.)

*P. aspergilla* (*Lichen aspergillus* Ach., *P. velata* Nyl.)

THELOTREMACAE.

*Thelotrema* Ach.

*T. LEPADIZUM* Nyl.

*Gyrostomum* Fr.

*G. scyphuliferum* Nyl.

CLADONIACEAE.

*Cladonia* Hill

*Cladonia* sp.

LECIDEACEAE.

*Gyalecta* Ach.

*G. EFFERVESCENS* Nyl.

*Lecidea* Ach.

*L. HOMOCHROMOIDES* Nyl.

*L. SUBRUFESCENS* Nyl.

*L. vernalis* Ach.

*Catillaria* Thw. Fr.

*C. intermixta* Arn. (*L. intermixta* Nyl.)

*C. METALEPTODES* A. Zahlbr. (*L. metaleptodes* Nyl.)

*Bacidia* A. Zahlbr.

*B. spadicea* A. Zahlbr. (*Lecidea spadicea* Ach.)

*B. submedialis* A. Zahlbr. (*L. submedialis* Nyl.)

*Buellia* De Not.

*B. parasaema* Th. Fr. (*B. disciformis* Nyl.)

var. *triphragma* (*L. triphragmia* Nyl.)

*B. myriocarpa* Mudd. (*L. myriocarpa* Nyl.)

DERMATACEAE.

*Dirina* Fr.

*D. cerato iae* Fr.

LECANACTACEAE.

*Schismatomma* Massal.

*S. GEMMATUM* A. Zahlbr. (*Platygrapha gemmata* Leight.)

CHRYSOTHRICACEAE.

*ASTERISTION* Leight.

*A. erumpens* Leight.

ARTHONIAEAE.

*Arthonia* Ach.

*A. tumidula* Ach. var. *rubra* (*Spiloma tumidulum* var. *rubrum* Ach., *A. cinnabarina* Wallr.)

*A. SIMPLICASCENS* Nyl.

*A. varia* Nyl. var. *stenographella* Vain. (*A. stenographella* Nyl.)

*Arthothelium* Massal.

*A. dispersum* Mudd. (*Arthonia anastomosans* Nyl.)

*A. SUBILICINUM* A. Zahlbr. (*Arthonia subilicina* 'c ht.)

*Arthoniopsis* Muell. Arg.

*A. phyllospiliza* A. Zahlbr. (*Arthonia phyllospiliza* Nyl.)

GRAPHIDACEAE.

*Opigrapha* Hamb.

*O. inaequalis* Fée.

*O. LEPTOTERODES* Nyl.

*Melaspilea* Nyl.

*M. SUBFORMIS* Nyl.

*Graphis* Adans.

*G. marginata* Raddi var. *intricata* (*G. intricata* Fée, *G. assimilis* Nyl.)

*G. scripta* Ach.

*G. tenella* Ach.

*Phaeographis* Muell. Arg.

*P. subinusta* Muell. Arg. (*Graphis subinusta* Leight.)

*Graphina* Muell. Arg.

*G. oblecta* Muell. Arg. (*Graphis oblecta* Nyl.)

*G. Poitiaei* Muell. Arg. (*Graphis Poitiaei* Fée)

*G. simulans* Muell. Arg. (*Graphis simulans* Leight.)

*Phaeographina* Muell. Arg.

*P. chrysentera* Muell. Arg. (*Graphis chrysentera* Nyl.)

*P. contexta* Muell. Arg. (*Graphis contexta* Nyl.)

*P. grisea* A. Zahlbr. (*Graphis grisea* Nyl.)

*Helminthocarpon* Fée

*H. Leprevostii* Fée

CHIODECTONACEAE.

*Glyphis* Ach.

*G. cicatricosa* Ach. (*G. favulosa* Ach.)

*Sarcographa* Fée

*S. SUBTORQUESCENS* A. Zahlbr. (*Glyphis subtorquescens* Nyl.)

*S. subtricolora* Muell. Arg. (*Glyphis subtricolora* Leight.)

*Sarcographina* Muell. Arg.

*S. gyrizans* Muell. Arg. (*Glyphis gyrizans* Leight.)

*Chiodecton* Ach.

*C. sphaerale* Ach.

*C. hypochnoides* Nyl.

PARENULACEAE.

*Porina* Muell. Arg.

*P. innata* Muell. Arg. (*Verrucaria innata* Nyl.)

*Pyrenula* Massal.

*P. interducta* A. Zahlbr. (*Verrucaria interducta* Nyl.)

*P. mamillana* Trevis. (*V. mamillana* Ach. *V. satiensis* Nyl.)

*Anthrocothecium* Hampe.

- A. EMERGENS A. Zahlbr. (*V. emergens* Leight.)  
 A. paramerum Muell. Arg. (*V. paramera* Nyl.)  
 A. variolosum Muell. Arg.  
 STRIGULACEAE.  
 Strigula Fr.  
 S. complanata Nyl.  
 TRYPETHELIACEAE.  
 Trypethelium Spreng.  
 T. catervarium Tuck (*V. catervaria* Fée)  
 T. eluteriae Spreng. (*V. Sprengelii* Ach.)  
 T. tropicum Muell. Arg. (*V. tropicum* Ach.)  
 HETEROCOCCALES.  
 Ophiocytium Naeg.  
 O. capitatum Wall. var. longispinum Lemm.  
 MAE OTAENIACEAE.  
 Cylindrocystis Menegh.  
 C. angulata W. & G. S. West  
 C. pyramidata W. & G. S. West  
 ZYGNEMACEAE.  
 Spirogyra Link.  
 S. neglecta Kütz.  
 S. decimina Kütz.  
 S. rivularis Hass.  
 Gonatozygon De Bary  
 G. Ralfsii De Bary  
 DESMIDACEAE.  
 Closterium Nitzsch.  
 C. acerosum Ehrenb.  
 C. moniliferum Ehrenb.  
 C. Venus Kütz.  
 Pleurotaenium Naeg.  
 P. indicum Lund. var. crassius Lagerh.  
 P. Ehrenbergii De Bary var. undulatum Schaarschm.  
 P. maximum Lund var. phaeodermum W. & G. S. West  
 Euastrum Ehrenb.  
 E. spinulosum Delp.  
 E. personatum W. & G. S. West  
 E. denticulatum F. Gay.  
 E. binale Ehrenb.  
 Xanthidium Ehrenb.  
 X. ZEYLANICUM W. & G. S. West (*X. ceylanicum* W. & G. S. West).  
 Cosmarium Corda  
 C. Hammeri Reinsch.  
 C. granatum Bréb.  
 C. pachydermum Lund. var. minus Nordst.  
 C. Regnellii Wille  
 C. laeve Rabenh.  
 var. septentrionale Wille.  
 C. exiguum Arch.  
 C. incisum Josh.  
 C. margaritatum Roy. & Biss.  
 C. quadratum Lund.  
 C. binum Nordst.  
 C. subcostatum Nordst.  
 C. Wallichii W. & G. S. West  
 Staurastrum Meyen  
 S. polymorphum Bréb.  
 S. longiradiatum W. & G. S. West.  
 S. gracile Ralfs.  
 var. nanum Wille  
 var. subornatum Schmidle  
 var. ELEGANTULUM W. & G. S. West  
 BACILLARIACEAE (Diatoms)  
 Cymbella Ag.  
 C. cymbiformis Bréb.  
 Encyonema Kütz.  
 E. gracile Rabenh.  
 Navicula Bory  
 N. viridis Kütz.  
 N. bicapitata Lagerstedt  
 N. gracilis Kütz.  
 N. cuspidata Kütz.  
 Pleurosigma W. Sm.  
 P. acuminatum Grun.  
 Gomphonema Ag.  
 G. tenellum W. Sm.  
 G. gracile Ehrenb.  
 Achnanthes Bory  
 A. linearis Grun  
 Epithemia Bréb.  
 E. gibba Kütz.  
 E. Argus Kütz.  
 Eunotia Ehrenb.  
 E. gracilis Rabenh.  
 E. pectinalis Rabenh.  
 E. Veneris Kütz.  
 Actinella Lewis  
 A. punctata Lewis  
 Synedra Ehrenb.  
 S. pulchella Kütz.  
 S. Ulna Ehrenb.  
 var. subaequalis van Hourck.  
 S. Acus Kütz.  
 S. radians Kütz.  
 Fragilaria Lyngb.  
 F. virescens Ralfs.  
 F. capucina Desmaz.  
 Tabellaria Ehrenb.  
 T. fenestrata Kütz.  
 Suriella Turp.  
 S. robusta Ehrenb. var. splendida van Hourck.  
 Melosira Ag.  
 M. Roseana Rabenh.  
 M. granulata Ralfs.  
 CHLAMYDOMONADACEAE.  
 Gloeocystis Naeg.  
 G. vesiculosa Naeg.  
 G. gigas Lagerh.  
 TETRASPORACEAE  
 Sphaerocystis Chod. (*Gloeococcus* A. Br.)  
 S. Schroeteri Chod. (*Gloeococcus Schroeteri* Lemm. *G. muscosa* R. Br.)  
 SCENEDESMACEAE  
 Oocystis Naeg.  
 O. gigas Archer var. incrassata West.  
 Tetradron Kütz. (*Polyedrium* Naeg.)  
 T. cruciatum W. & G. S. West.  
 T. caudatum Hansg.  
 Coelastrum Naeg.  
 C. cubicum Naeg.  
 C. pulchrum Schmidle  
 C. reticulatum Senn.  
 Rhaphidium Kütz.  
 R. polymorphum Fresen. var. aciculare Rabenh.  
 Scenedesmus Meyen.  
 S. denticulatus Lagerh. var. linearis Hansg.  
 S. quadricauda Bréb. var. maximus W. & G. S. West  
 HYDRODICTYACEAE.  
 Pediatrum Meyen.  
 P. tetras Ralfs.  
 P. Boryanum Menegh.  
 P. duplex Meyen.  
 P. simplex Meyen.  
 P. clathratum Lemm.  
 ULOTRICHACEAE.  
 Ulothrix Kütz. (*Hormiscia* Fr.)  
 U. subtilis Kütz. var. tenerrima (*Hormiscia subtilis* De Toni var. *tenerrima* Kirchn., *U. tenerrima* Kütz.)  
 CHAETOPHORACEAE  
 Endoderma Kütz.  
 E. Reineckei Schmidle  
 APHANOCHAETACEAE.  
 Aphanochaete Berth.

*A. pilosissima* Schmidle.  
**COLEOCHAETACEAE.**

*Coleochaete* Bréb.  
*C. scutata* Bréb.  
*C. soluta* Pringsh.

**CHROOLEPIDACEAE.**

*Cephaleuros* Kunze.  
*C. mycoidea* Karst.  
*Trentepohlia* Mart.  
*T. polycarpa* Nees.  
*T. odorata* Wittr.  
*T. calamicola* De Toni & Levi.

*T. abietina* Hansg.  
*T. Bleischii* Wille  
*T. umbrina* Born.

*T. zeylanica* C. Müll.  
**OEDOGONIACEAE.**

*Oedogonium* Link.  
*O. cryptoporum* Wittr. var. *vulgare* With.  
*O. longicolle* Nordst. var. *senegalense* Nordst.  
*Bulbochaete* Alg.

*B. elatior* Pringsh.  
**CLADOPHORACEAE.**

*Cladophora* Wittr. (*Cladophora* Auct.).  
*P. radians* W. & G. S. West.

**CHARACEAE.**

*Nitella* Ag.  
*N. acuminata* A. Br.  
*N. mucronata* Miq.  
*N. oligospira* A. Br.  
*N. microcarpa* A. Br.  
*Chara* Caill.

*C. corallina* Willd.  
**CYANOPHYCEAE.**

**CHROOCOCCACEAE.**

*Microcystis* Kütz.

*M. aeruginosa* Kütz. (*Polycystis aeruginosa* Kütz.)

*M. flos-aquae* Kirchn.  
*Coelosphaerium* Naeg.

*C. dubium* Grun.

*Merismopedia* Meyer.

*M. glauca* Naeg.

*M. tenuissima* Lemm.

**OSCILLATORIAEAE.**

*Oscillatoria* Vauch.

*O. limosa* Ag.

*O. tenuis* Ag.

*Lyngbya* C. Ag.

*L. versicolor* Gomont

*L. major* Menegh.

*Dasygloea* Thw.

*D. amorpha* Thw.

**SCYTONEMACEAE.**

*Plectonema* Thur.

*P. Wollei* Farlow

*Tolypothrix* Kütz.

*T. crassa* W. & G. S. West.

*T. phyllophila* W. & G. S. West.

**STIGONEMACEAE**

*Nostochopsis* Wood

*N. lobatus* Wood

**RIVULARIACEAE.**

*Calothrix* Kg.

*C. julianus* Born. & Flah.

*C. fusca* Born. & Flah.

*C. breviararticulatus* W. & G. S. West.

**RHODOPHYCEAE.**

**BATRACHOSPERMACEAE**

*Batrachospermum* Roth.

*B. angolense* W. & G. S. West.

APPENDIX II.

GLOSSARY OF BOTANICAL TERMS.

*Achene*—a small, dry, hard, 1-celled, 1-seeded, indehiscent fruit.

*Actinomorphic*—symmetrical about any plane passing through the centre.

*Acuminate*—prolonged into a point.

*Acute*—sharp-pointed.

*Alternate*—scattered; used in opposition to *opposite*.

*Amphitropous*—applied to an ovule or seed when it is half-inverted and straight, with the hilum lateral.

*Amplexicaul*—embracing the stem.

*Anastomosing*—forming a network; applied to the veins of leaves.

*Anatropous*—applied to an inverted ovule with a straight axis, when the micropyle is next to the hilum and the radicle inferior.

*Anemophilous*—wind-pollinated.

*Annual*—a plant producing seed and dying in the first year. Used in opposition to *biennial*—producing seed and dying in the second year, and to *perennial*—lasting several years.

*Anomalous*—deviating from a general rule.

*Anterior*—applied to the relation of the parts of a flower to the axis. Used in opposition to *posterior* or *superior*. Those parts of a flower are *anterior* which are placed outwardly with respect to the axis about which they are arranged; they are *posterior* when placed inwardly.

*Anther*—that portion of the stamen which contains the pollen.

*Apetalous*—without petals.

*Apex*—used in opposition to *base*.

*Apocarpous*—applied to a fruit consisting either of a single carpel or of several distinct or slightly united carpels. Used in opposition to *syncarpous*, in which two or several carpels are completely united into a one- or several-celled fruit.

*Aquatic*—growing in water.

*Arborescent*—growing to the size of a tree.

*Aril*—an expansion (usually fleshy) of the funicle, arising from the placenta and enveloping the seed.

*Arillate*—having an aril.

*Articulate*—jointed, separating by a clean scar.

*Ascending*—applied to stems or branches when they spread horizontally or nearly so at the base, and then turn upwards and become erect.

*Auricle*—an ear-shaped appendage.

*Awn*—a bristle-shaped appendage.

*Axil*—the angle between the leaf and the branch.

*Axile*—applied to ovules or seeds attached to the axis of a syncarpous ovary.

*Axillary*—in the axil formed by leaf and branches.

- Baccate*—having the nature of a berry; see under *fruit*.
- Bark*—the periderm and tissues external to it.
- Basifixed*—attached by the base.
- Beaked or rostrate*—having a process like a beak.
- Berry*—a fleshy, indehiscent fruit; see under *fruit*.
- Bi*—two, twice; a Latin prefix meaning two, as *bidentate*, or two-toothed; *bifid*—divided about halfway to the base into two parts; *bi-foliolate*—with two leaflets; *bi-jugate*—in two pairs; *bi-lobed*—divided less than halfway to the base into two parts; *bi-pinnate*—twice pinnate; *bi-pinnatifid*—twice pinnatifid; *bi-ternate*—twice ternate.
- Blade*—the expanded portion of a leaf.
- Bract*—the modified upper leaves of a plant in flower.
- Bracteate*—having bracts.
- Bracteolate*—having bracteoles.
- Bracteole*—the two last bracts or prophylls close under each flower.
- Bristle*—a stiff hair.
- Bud*—the rudimentary or unexpanded state of a flower or branch.
- Bulb*—a thick short, more or less succulent underground stem in which the buds are covered by leaf scales.
- Bullate*—applied to leaves when the surface is prominently raised between the veins.
- Caducous*—applied to organs, especially stipules which fall off very early compared with other parts.
- Calyx*—the outermost whorl of floral-leaves collectively (see under *flower*); the calyx-leaves separately are called *sepals*; when the sepals are united at the base, the lower portion is the *tube*, and the upper free portion is the *limb*, usually divided into calyx-teeth, -lobes, or -segments.
- Campfanulate*—bell-shaped.
- Campylotropous*—applied to an ovule when the embryo or the endosperm is curved so as to bring the micropyle near the hilum.
- Canescent*—grey or hoary.
- Capitate*—applied to an inflorescence when the flowers are collected into a compact head.
- Capsule*—a dry dehiscent fruit, composed of 2 or more carpels.
- Carpel*—the female organs of the flower individually; see under *flower*.
- Cauliflorous*—producing flowers from the old wood.
- Cauline*—belonging to the stem, usually applied to leaves.
- Cell*—the cavity of an ovary or fruit containing the ovules or seeds, more correctly *loculus*; the pollen-sac of an anther.
- Ciliate*—bordered by hairs.
- Ciliculate*—bordered by very small hairs.
- Circumscissile*—dehiscing transversely.
- Clavate*—club-shaped.
- Claw*—the narrow base of a petal.
- Cleistogamous*—fertilized in the bud.
- Coccus*—the one-seeded carpels of a syncarpous fruit separating from each other when ripe.
- Column*—the solid body formed by the combined stamens and styles in Orchids.
- Coma*—a tuft of hairs at the apex of some seeds, especially Apocynaceae.
- Compound*—as opposed to *simple*, a leaf divided to the base or midvein into leaflets; also used for inflorescences.
- Compressed*—flattened.
- Connate*—united.
- Connective*—the portion of a stamen which connects the two lobes of anthers.
- Contorted*—applied to the petals of a flower bud, when each overlaps its neighbour on one side and is overlapped by its neighbour on the other side, as in most Apocynaceae.
- Cordate*—heart-shaped, applied to leaves that are broadly notched at the base.
- Coriaceous*—leathery.
- Corm*—a tuberous underground stem shaped like a bulb, but which is not covered by scales, or of which the scales are very thin.
- Corolla*—the second whorl of floral-leaves collectively (see under *flower*); the corolla-leaves separately are called *petals*, which may be free or united.
- Corona*—a whorl of, appendages between the corolla and the stamens.
- Corymb, corymbose*—an inflorescence is described as a *corymb* or as *corymbose* when the flowers, although starting from different points, all attain the same level, the lower pedicels being much longer than the upper.
- Cotyledon*—the seed-lobes, which usually become the first leaves of the young plant.
- Crenate*—regularly and bluntly notched, usually applied to the margins of leaves.
- Crenulate*—slightly crenate.
- Cuneate*—wedge-shaped, usually applied to the base of leaves.
- Cyme, cymose*—an inflorescence in which the central or uppermost flower opens first.
- Deciduous*—falling off; used in opposition to *persistent*.
- Declinate*—inclined downwards or forwards.
- Decumbent*—prostrate, but with the apex ascending.
- Decurrent*—extending downwards beyond the place of insertion, applied to leaves when the base of the lamina is continued down the stem forming raised lines.
- Decussate*—arranged in opposite pairs alternately crossing each other at right angles; applied to leaves or branches.
- Dehiscent*—opening or bursting when ripe.
- Deltoid*—of the shape of an equilateral triangle.
- Diadelphous*—applied to stamens when they are united by their filaments into two clusters.
- Dichasium*—a false dichotomy in which two lateral shoots of about equal size arise from below the apex of the plant which is terminated by a bud or flower.
- Dichotomous*—forking, applied to branches when there is no bud in the angle of the fork.
- Didynamous*—having four stamens in two pairs, one of which pairs is shorter than the other.
- Diffuse*—loosely spreading.
- Dimorphic, dimorphous*—where similar parts of the same plant assume different shapes.
- Dioecious*—applied to unisexual plants whose male and female flowers are on distinct individuals.
- Disk*—an enlargement of the receptacle of a flower, within the calyx, also applied to the central part of composite flower-heads.
- Distichous*—regularly arranged one above another in two opposite rows.
- Dorsal*—the surface turned away from the axis.
- Drupaceous*—possessing the characters of a drupe.

**Drupe**—a stone fruit, in which the mesocarp only is succulent and endocarp, containing the seed or seeds, hard.

**Elliptic, ellipsoid**—shaped like an ellipse; the form *ellipsoid* is applied to solids.

**Emarginate**—notched at the apex.

**Embryo**—the rudiment of a plant contained in the seed or archogonium, consisting of the *radicle* or future root, one or more *cotyledons* and the *plumule* or future bud.

**Endemic**—indigenous to a particular botanical region (Ceylon in this book), but not native elsewhere.

**Endocarp**—the innermost layer of the pericarp.

**Endosperm**—the nutritive tissue within the innermost seed-coat exclusive of the embryo.

**Entire**—without any division or incision, usually applied to the margins of leaves.

**Epicalyx**—an involucre of bracts simulating an accessory calyx.

**Epiphyte**—a plant growing upon another plant without deriving direct nutriment from it.

**Exserted**—projecting beyond surrounding parts; usually applied to stamens and styles when they project beyond the corolla.

**Exstipulate**—without stipules.

**Extrorse**—applied to anthers opening towards the circumference of the flower; used in opposition to *introrse*—opening towards the centre of the flower.

**Falcate**—scythe-shaped.

**Family**—a named group of allied genera, greater than a tribe and smaller than an order.

**Farinose**—covered with a flour-like powder.

**Fascicled, fasciculate**—growing in clusters from the same point.

**Fastigiate**—erect and crowded together.

**Female**—a plant or a flower which bears carpels but no stamens.

**Ferruginous**—rust-coloured.

**Fertile**—capable of producing fruit.

**Fertilisation**—in flowering plants, the application of the pollen to the stigma or the ovule.

**Fibrous**—consisting of many thread-like parts.

**Filament**—the stalk of a stamen.

**Filiform**—thread-like.

**Fimbriate**—fringed by fine marginal divisions.

**Flaccid**—lax or weak.

**Fleshy**—thick, firm and succulent.

**Floret**—applied to small flowers that compose a flower-head in the Compositae.

**Flower**—the parts of a plant destined for the production of seed, consisting, when perfect of 4 whorls of floral leaves. (1) the outermost whorl or *calyx*, (2) the *corolla*, (3) the *stamens*, and (4) the *carpels*.

**Foliaceous**—leaf-like.

**Foliate, unifoliate**—a normally compound leaf reduced to an apparently simple leaf by the abortion of all the leaflets but one; it can usually be distinguished from a true simple leaf by the jointed petiole.

**Follicle**—a single carpel, opening by the ventral suture, to which the ovules are attached.

**Free**—not united to any other similar part, usually applied to petals, &c.

**Free central placentation**—when the ovules are attached to a central column in a 1-celled ovary.

**Fronid**—a term applied to the leaf-like organs of ferns.

**Fruit**—the mature carpels and whatever other parts of the flower that may externally adhere to them at the time that the seeds are ripe.

All simple fruits are divisible into two groups:

- I. *indehiscent fruits*, and II. *dehiscent fruits*.
- I. The principal kinds of dry indehiscent fruits are 1. *achene* when 1-seeded, 2. *caryopsis*—(e. g. grasses) when the pericarp closely adheres to the seed, 3. *samara*—when with membranous wing-like expansions (e.g., *Ventilago*), 4. *berry* when the whole substance of the fruit is more or less succulent and the seeds are usually immersed in pulp, 5. *drupe* or *stone fruit* when the mesocarp only is succulent or rarely fibrous, and the endocarp containing the seeds is dry, bony, or cartilaginous.
- II. The principal kinds of dehiscent fruits are 1. *capsule*—when syncarpous and one- or several-celled, 2. *follicle*—when apocarpous and opening at the inner suture only, 3. *pod* or *legume*—when opening at both sutures.
- Funicle**—the stalk of an ovule.
- Funnel-shaped**—tubular and gradually enlarged upwards.
- Fusiform**—tapering gradually at each end, and with a circular transverse section.
- Geniculate**—bent abruptly, so as to form a decided angle like a knee.
- Genus, genera**—a natural group of species having certain essential characters in common.
- Gibbous**—swollen on one side.
- Glabrous**—destitute of hairs or scales.
- Gland**—A secreting surface or structure; it is probable that many so-called glands do not secrete anything.
- Glandular**—furnished with glands.
- Glaucous**—greyish-green.
- Glume**—the dry scaly bracts of the Gramineae.
- Gynobasic**—when the style arises from the base of the ovary.
- Habit**—the general appearance of a plant.
- Habitat**—the natural abode of a plant.
- Hastate**—applied to leaves when spear-shaped with the base diverging on each side into a lobe.
- Head**—a *capitulum*, see *capitate*.
- Herb**—a plant which does not possess a woody stem, either above or below the ground.
- Herbaceous**—green and succulent; used in opposition to *woody* and to *scarious*.
- Hermaphrodite**—having the organs of both sexes.
- Hilum**—the scar left on a seed at the spot where it was attached to the funicle.
- Hirsute**—covered with rather long, stiff hairs.
- Hispid**—densely covered with long bristly hairs.
- Hyaline**—translucent.
- Hybrid**—the offspring of two distinct species.
- Imbricate**—applied to the corolla when both margins of one petal are external in bud, and to leaves and scales when overlapping like the tiles of a roof.
- Imparipinnate**—pinnate, with an odd terminal leaflet.
- Incumbent**—applied to cotyledons when the back of one lies against the radicle.
- Indehiscent**—applied to fruits when they do not burst when ripe.
- Indumentum**—a general term for the hairy coverings of plants.
- Indusium**—an epidermal outgrowth forming the membranous covering of the sori of many ferns.

*Inferior*—when one organ is placed below another. Applied to the ovary when adherent to the calyx-tube so that the limb of the calyx appears to be inserted above the ovary.

*Inflorescence*—the flowering part of a plant.

The principal forms of inflorescence are

1. a *spike*—when the flowers are sessile on a simple axis,
2. a *spadix*—when the flowers are sessile on a simple fleshy axis,
3. a *catkin*—when unisexual flowers are closely crowded round a simple axis and the perianth is reduced to a bract,
4. a *raceme*—when the flowers are borne on pedicels along a simple undivided axis, the lower flowers usually opening before the upper,
5. a *panicle*—when the axis is divided into branches bearing two or more flowers,
6. a *head* or *capitulum*—when several sessile flowers are collected into a compact head-like cluster,
7. an *umbel*—when the flowers are pedicellate and the pedicels all spring from the summit of the peduncle,
8. a *corymb*—when the branches and pedicels, although starting from different points, all attain the same level, the lower ones being much longer than the upper,
9. a *cyme* or *cymose*—when branched like a panicle, but the central or uppermost flower opens first.

*Inserted, insertion*—the mode or place of attachment of an organ to its support.

*Internode*—the portion of the stem between two nodes.

*Interpetiolar*—between the petioles of opposite leaves; applied to stipules (in Rubiaceae, Loganiaceae and Rhizophoraceae).

*Interrupted spike*—when the flowers are in distinct clusters, with bare spaces between them.

*Introrse*—applied to anthers opening towards the centre of the flowers; used in opposition to *extrorse*.

*Involucre*—a whorl of bracts surrounding a head or umbel of flowers or a single flower.

*Irregular flower*—applied to a flower when the parts of any one of the whorls are unequal in size, dissimilar in shape, and do not spread regularly round the axis, it includes:—1. *zygomorphic* flowers, which are laterally symmetrical and 2. *asymmetric* flowers.

*Keel*—the two lowest and more or less connate petals of the Papilionaceae. Applied also to a projecting ridge along the middle of a flat or curved surface.

*Keeled*—furnished with a keel.

*Knot*—a swelling in some stems where the attachment of the leaves takes place or the node of a stem.

*Labellum*—the lowest petal of Orchids, usually much differing in form and size from the two lateral petals, and by tortion of the ovary become anterior, from its normal posterior position. Applied also to the large petaloid staminodes of the Scitamiaceae.

*Laciniate*—cut into narrow lobes.

*Lamina*—the expanded portion of a leaf.

*Lanceolate*—twice or more times as long as broad, broadest below the middle and tapering to each end like the head of a lance.

*Lateral*—fixed on or near the side of an organ.

*Leaf*—the green, usually deciduous lateral organs of a plant. They are usually (except *Welwitschia*) of limited growth.

*Leaflet*—each separate part of a compound leaf.

*Leaf-opposed*—opposite to a leaf, as opposed to *axillary*.

*Legume*—An apocarpous, unilocular fruit, opening on both sutures.

*Lepidote*—scaly.

*Ligule*—a term applied to the membranous appendage at the summit of the sheathing petiole of Gramineae and Zingiberaceae. and to a structure internal to the leaf-base in the Selaginellaceae; also applied to the head of the ray florets of Compositae.

*Limb*—the upper free parts of the corolla or calyx.

*Linear*—long and narrow, with parallel sides.

*Lip*—the upper and lower divisions of a bilabiate corolla and calyx.

*Loculicidal*—applied to the dehiscence of a capsule when it opens into the cells of the ovary as opposed to *septicidal* when the capsule splits along the cell-walls.

*Loculus*—the cell of an ovary or an anther.

*Male*—a plant or flower which bears stamens but no carpels.

*Marcescent*—persistent, though withering.

*Marginal*—placed upon the edge of anything.

*Membranous*—very thin and soft.

*Mericarp*—a portion of the gynaeceum which splits away as a perfect fruit.

*Mesocarp*—the middle layer of a pericarp.

*Micro-pyle*—the orifice through which the pollen-tube reaches the nucleus of an ovule.

*Midrib*—the main vein or nerve of a leaf.

*Monadelphous*—applied to stamens when united by their filaments into a tube or column.

*Moniliform*—like a string of beads.

*Monocious*—with stamens and carpels in separate flowers but on the same plant.

*Naked*—where a surface is destitute of hair or where any part of a plant usually covered by other organs is exposed.

*Natural Order*—an obsolete term now replaced by the word *family*.

*Net-veined*—when the smaller veins are connected like the meshes of a net.

*Ob*—a Latin prefix used to signify that the meaning of the simple word is reversed, thus:—*obovate*—the inverse of *ovate*.

*Oblong*—longer than broad, and with more or less parallel sides.

*Obtuse*—blunt.

*Opposite*—applied to branches, leaves, and flowers when two proceed from the same node on opposite sides of the stem; also applied to a stamen situated in front of the centre of a petal.

*Orbicular*—flat, and circular in outline.

*Orthotropous*—applied to an erect ovule with the micro-pyle at the apex.

*Ovate*—in shape like the longitudinal section of an egg, with the broader end below the middle.

*Ovoid*—egg-shaped; applied to solids.

*Ovule*—the seed before fertilization.

*Palea*—the membranous bracts found amongst the flowers in the capitula of the Compositae.

*Palmate*—applied to a compound leaf when the leaflets diverge from the same point.

*Palmatifid*—applied to a simple leaf cut into segments, having a palmate arrangement.

*Panicle, paniculate*—an inflorescence divided into branches each bearing more than one flower.

*Papilionaceous*—like a pea-flower.

*Pappus*—the modified calyx of the Compositae.

- Parasite*—a plant which obtains its nourishment directly from another plant to which it is attached.
- Parietal placentation*—applied to ovules that are attached to the ovary-wall.
- Paripinnate, equally pinnate*—pinnate, but without a terminal leaflet.
- Partite*—cleft into segments, the divisions extending nearly to the base.
- Pedicel*—the stalk of an individual flower.
- Peduncle*—the main stalk of an inflorescence, which may be one- or many-flowered.
- Pedunculata*—on a peduncle.
- Peltate*—applied to a leaf whose stalk, instead of proceeding from the lower edge of the blade, is attached to the under surface.
- Pendulous*—hanging down.
- Perfoliate*—applied to leaves, when the stem apparently passes through them.
- Perianth*—the calyx and corolla collectively. "Perianth" is frequently used instead of calyx and corolla in such flowers where one of the floral envelopes is wanting or when they are indistinctly visible.
- Pericarp*—the wall of a ripe carpel. The pericarp consists of the outer-skin called *epicarp*; the inner-skin, called *endocarp*; and the intermediate part called *mesocarp*.
- Perigynous*—inserted on the calyx-tube round the ovary; usually applied to stamens.
- Petals*—each floral-leaf of the second whorl separately; see also *corolla*.
- Petaloid*—coloured and usually of thin consistence, hence resembling a petal.
- Petiolate*—having a petiole.
- Petiole*—a leaf-stalk.
- Phylloclade*—a flattened branch functioning as a leaf, as in *Asparagus*.
- Phyllode*—a flattened petiole functioning as a leaf, as in *Acacia Melanoxylon*.
- Pilose*—sprinkled with rather long, simple hairs
- Pinnate leaf*—a compound leaf, whose leaflets are arranged on opposite sides of a common petiole. The pinnate leaf is called *equally pinnate* or *paripinnate*—when the leaflets are in pairs without a terminal odd one, and *unequally pinnate* or *imparipinnate*—when it has an odd terminal leaflet.
- Pinnatifid*—applied to a simple leaf cut into lobes having a pinnate arrangement.
- Pinnatisect*—applied to a simple leaf pinnately divided down to the midrib.
- Pinnule*—the secondary divisions of a leaf that is twice or three times pinnate.
- Pistil*—the female organs of the flower individually, see *carpel*.
- Placenta*—the part of the ovary to which the ovules are attached.
- Placentation*—the arrangement of the placentas, which may be *axile*, *basal*, *parietal* or *free central*.
- Plicate or plaited*—folded longitudinally.
- Plumose*—applied to hairs invested with fine branches like a feather.
- Pod*—an apocarpous, unilocular fruit, opening on both sutures.
- Pollen*—the microspores of angiosperms, see also *stamen*.
- Polygamous*—having the male, female and hermaphrodite flowers on the same (*polygamomonocious*) or on different (*polygamodioecious*) individuals of the same species.
- Polypetalous*—having free petals.
- Procumbent*—trailing or spreading along the ground, without putting forth roots.
- Prostrate*—nearly synonymous with procumbent, but lying closer to the ground.
- Protandrous, proterandrous*—applied to flowers in which the anthers shed their pollen before the stigma of the same flower becomes receptive.
- Protogynous, proterogynous*—when the stigmas become receptive before the anthers of the same flower dehisce.
- Pseudo-bulbs*—the swollen bulb-like internodes of the stems of many Orchidaceae.
- Pubescent*—covered with hairs, especially applied to short soft hairs.
- Punctate*—dotted with translucent internal glands.
- Pyrene*—when a stone-fruit is divided into several parts and contains several distinct stones each enclosing a seed, each part is called a *pyrene*.
- Raceme*—applied to an inflorescence when the flowers are borne on pedicels along a simple axis.
- Rachis*—the axis of a compound leaf.
- Radiate*—spreading from a common centre.
- Radical*—proceeding from a point close to the base of the stem.
- Ray*—the outer, ligulate flowers of a Composite flower-head.
- Receptacle*—the expanded or produced extremity of a peduncle bearing the flower or flowers.
- Regular (= actinomorphic)*—applied to flowers when the parts spread regularly round the axis.
- Reniform*—kidney-shaped.
- Resupinate*—inverted so that the parts naturally uppermost become undermost.
- Reticulate*—net-veined.
- Retinaculum*—the gland which retains the pollen masses in the Orchidaceae and Asclepiadaceae; applied also to the processes on the placentae of the Acanthaceae.
- Retuse*—notched at the apex.
- Revolute*—applied to leaves rolled backwards from the margin upon the under side towards the midrib.
- Rhachis, rachis*—the axis of a compound leaf.
- Rhizome*—a prostrate or subterranean stem from which roots are emitted and scaly leaves or branches given off at the nodes.
- Rhomboid*—approximating to the form of a rhombus.
- Rib*—a prominent longitudinal vein of a leaf.
- Root*—the descending axis of a plant.
- Rostellum*—an extension of the upper end of the stigma in front of the anthers in the Orchidaceae.
- Rostrate*—beaked.
- Rugose*—wrinkled.
- Ruminate*—applied to the endosperm when it is marked by transverse lines due to the infolding of a dark inner layer of the seed-coat into the paler endosperm.
- Saccate*—pouched.
- Sagittate*—shaped like a barbed arrow-head.
- Samara*—an apocarpous, 1-seeded fruit, with wing-like expansions.
- Sarcocarp*—a succulent mesocarp.
- Saprophyte*—a plant which feeds on decaying vegetable matter.
- Scabrous*—rough to the touch.
- Scale*—a kind of indumentum consisting of flat plates; a degenerate state of leaves.
- Scaly*—furnished with scales.

- Scap*—a radical peduncle bearing flowers without leaves.
- Schizocarp*—a fruit which splits into one-seeded portions or mericarps.
- Scorpioid*—a cyme whose main axis is rolled up at the end like the tail of a scorpion, unrolling as the flowers expand.
- Secund*—directed to one side of the axis only.
- Sensitive*—applied to leaves when they display movements under the influence of external stimuli.
- Sepal*—a leaf or segment of a calyx.
- Sepaloid*—green and herbaceous, hence resembling sepals.
- Septate*—divided by partitions or septa.
- Septicidal*—applied to the dehiscence of a capsule when it splits along the septa, or cell-walls of the ovary.
- Serrate*—notched on the edge like a saw.
- Sessile*—stalkless.
- Seta*—any stiff hair or bristle.
- Setaceous*—bristle-like.
- Setose*—bearing bristles.
- Sheath*—a petiole, or a portion of it, which embraces the stem to which it is attached.
- Shrub*—relatively small woody plants which do not usually form a true trunk like trees, but have several stems rising from the root.
- Silky*—clothed with long and fine hairs, with a glossy appearance.
- Simple*—used in opposition to *compound*. A simple leaf may be entire or variously lobed.
- Sinuate*—a wavy margin of a leaf.
- Sinus*—the angle between two lobes.
- Solitary*—singly disposed.
- Sorus*—a small cluster of sporangia on the frond of ferns.
- Spadix*—a fleshy spike.
- Spathe*—a large bract enclosing or situated at the base of an inflorescence, usually a spadix.
- Spathulate*—applied to a leaf which is linear at the base, and enlarged and rounded towards the summit.
- Species*—a collective term applied to a group of mutually fertile plants which differ from all other plants by certain constant and distinctive characters.
- Spike*—an inflorescence in which the flowers are sessile on a simple axis.
- Spikelet*—a small spike of which several, aggregated on a common rachis, constitute a compound spike or a panicle.
- Spine or thorn*—a sharply pointed projection.
- Spinescent*—terminating in a spine.
- Spinous*—bearing spines.
- Spongy*—where the cellular tissues form a sponge-like mass.
- Sporangium*—the sac in which the spores are enclosed. It is called *megasporangium* when it contains only megaspores, and *microsporangium* when it contains only microspores.
- Spore*—the reproductive body in Cryptogamous plants. They are called *megaspores* when relatively large and *microspores* when relatively small.
- Sporophyll*—a spore-bearing leaf.
- Spur*—a conical or cylindrical, usually hollow, projection from the base or side of one of the floral envelopes.
- Spurred*—having a spur.
- Squarrose*—rough with processes spreading at right angles.
- Stamen*—the third whorl of floral leaves. The stamen is composed of the *anther* consisting normally of two cells containing the pollen, and its stalk called the *filament*.
- Staminode*—an abortive stamen.
- Stem*—the ascending axis of a plant.
- Stem-clasping*—applied to a sessile leaf if its base clasps the stem.
- Sterile*—infertile.
- Stigma*—that part of the pistil which receives the pollen.
- Stipulate*—provided with stipules.
- Stipule*—a scale-like-appendage on each side of the base of certain leaves.
- Stolon*—a runner or rooting basal branch.
- Stoma*—a minute pore on the surface of a leaf or stem.
- Stone-fruit*—a drupe.
- Striate*—marked with parallel longitudinal lines.
- Style*—the columnar part of the pistil which bears the stigma at its apex.
- Subulate*—awl-shaped (narrow and gradually tapering to a fine point).
- Succulent*—juicy or fleshy.
- Sulcate*—grooved.
- Superior*—applied to an ovary when the sepals, petals and stamens are inserted below it.
- Suture*—the lines down the side of a carpel, representing the junction of the leaf-margin.
- Tailed*—having a tail-like appendage.
- Taproot*—the main root of a plant when it descends perpendicularly into the earth, emitting only small fibrous branches.
- Tendril*—special coiled, filiform, clasping-organs of climbing plants. They may be morphologically-modified branches, as in *Strychnos*; modified leaflets, as in *Bignonia unguis* and *Pyrostegia ignea*; modified stipules, as in *Smilax* (these are leaflets according to some authorities); or modified inflorescences as in *Cissus*, *Cardiospermum*, *Cucurbitaceae* (leaflets or stipules according to some authorities) and *Passiflora*.
- Terete*—circular in transverse section.
- Terminal*—situated at the extremity of some part.
- Ternate*—arranged in three whorls.
- Terrestrial*—growing on the earth.
- Testa*—the outer coat of seeds.
- Thallus*—a vegetative body undifferentiated into stem and leaf.
- Thorn*—spine.
- Throat*—the opening in the upper part of the tube of a gamopetalous corolla.
- Tomentose*—covered with closely matted wool or short hairs.
- Toothed*—dentate, shallowly and regularly lobed.
- Tree*—a large woody plant with a trunk or single stem rising above the ground.
- Tribe*—a group of genera subordinate to a family.
- Trigonous*—3-angled in cross-section.
- Triquetrous*—with three acute angles.
- Triternate*—thrice ternate.
- Truncate*—terminating abruptly as if cut short by a transverse line.
- Trunk*—the main stem of a tree.
- Tuber*—a short, thick, more or less succulent subterranean branch.
- Tuberculate*—warted.
- Tuberous*—applied to roots thickened so as to resemble tubers.
- Tufted*—applied to stems or leaves when many grow close together from the same stock or node.

*Turbinate*—shaped like a whipping-top.

*Twiner*—a plant which climbs by winding its stem spirally round a support.

*Twining*—winding spirally.

*Typical*—especially presenting the chief characteristics of a particular species.

*Umbel*—an inflorescence in which a number of pedicels or peduncles diverge from the same point.

*Unarmed*—without spines or prickles.

*Uncinate*—hooked.

*Undulate*—waved, bent up and down.

*Unilateral*—one-sided.

*Unisexual*—a flower or plant having reproductive organs of one sex only.

*Urceolate*—urn-shaped; applied to a corolla when the tube is short, swollen, contracted at the top, and slightly expanded again into a narrow rim.

*Valvate*—applied to petals or sepals when their margins meet, in bud, without overlapping.

*Valve*—distinct portions of certain organs; the pieces into which a capsule splits when it dehisces.

*Variety*—an individual or group of individuals possessing a form to a certain degree different from that which is considered to be typical of the species, but usually connected with it by individuals which are intermediate in form.

*Vein*—the vascular bundles penetrating a leaf or foliaceous organ.

*Venation*—the manner in which the veins of leaves are arranged.

*Ventral*—the side opposite to the dorsal side, the inner side of a carpel.

*Vernation*—the manner in which unexpanded leaves are disposed in the bud.

*Versatile*—applied to an anther that is attached near the middle and swings freely from the top of the filament.

*Verticil*—a whorl of similar parts.

*Villous*—having long, soft, straight, weak hairs.

*Viscid*—sticky.

*Whorl*—any set of organs or appendages arranged in a circle round an axis.

*Whorled*—disposed in whorls.

*Wing*—applied also to various membranous and herbaceous expansions, and to each of the two lateral petals of the flowers of Papilionaceae.

*Winged*—supplied with wing-like expansions.

*Wooly*—having long, curled and matted hairs.

*Xerophyte*—a plant which can subsist on a comparatively small amount of moisture.

*Zygomorphic* (= *bilaterally symmetrical*)—flowers which are divisible into similar halves in one plane only.

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<i>V. quadrangularis</i> Wall. .. ..	38	<i>Zea</i> Linn. .. ..	77
		<i>Zea mays</i> Linn. .. ..	77
<i>Walteria</i> Linn. .. ..	19	<i>Zingiber</i> Adans. .. ..	73 74
<i>W. americana</i> Linn. .. ..	19	<i>Z. Zerumbet</i> Sm. .. ..	74
<i>W. indica</i> Linn. .. ..	19	Zingiberaceae .. ..	73
Warli-pillu .. ..	77	<i>Zizyphus</i> Mill. .. ..	37
Water grass .. ..	76	<i>Z. Oenoplia</i> Mill. .. ..	37
Water-Hyacinth Family .. ..	70	<i>Z. rugosa</i> Lamk. .. ..	37
<i>Wendlandia</i> Bartl. .. ..	49	Zygnaemaceae .. ..	80

MAGNOLIACEAE-ANNONACEAE.



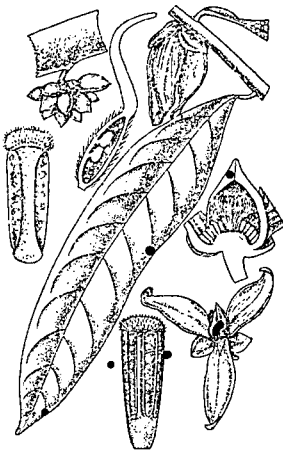
Drawn by Arthur DeClerk, 1894

1. MICHELIA CHAMPACA Linfr.  
Gini-hapu, Miung-hapu, Sapu, S., Chenpakam, T.



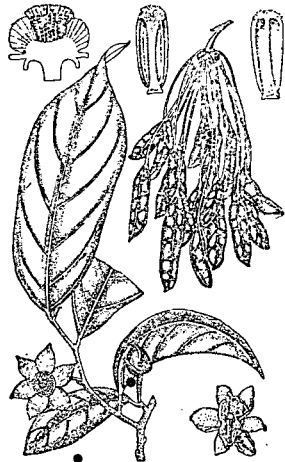
Drawn by Arthur DeClerk, 1894

2. MILIUSA INDICA Lesch.  
Kekili-messa, S.



Drawn by Arthur DeClerk, 1894

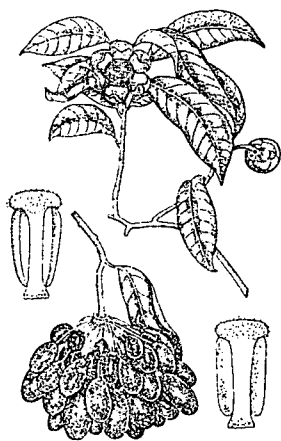
3. GONIOTHALAMUS GARDNERI Hk. f. & Th.  
6—J. N. 63684 (2/37)



Drawn by Arthur DeClerk, 1894

4. UVARIA MACROPODA Hk. f. & Th.

ANNONACEAE-LAURACEAE.



5. *UVARIA NARUM* Wall.



6. *CYATHOCALYX ZEYLANICUS* Cahmp.  
*Kakala, Ipelta, S.*



7. *CANANGIUM ODORATUM* Baill.  
*Vana-hapu, S.*



8. *LITSEA LONGIFOLIA* Benth. & Hk. f.  
*Rala-keliya, S.*

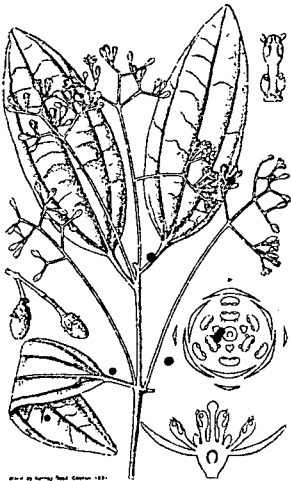
LAURACEAE-MYRISTICACEAE.



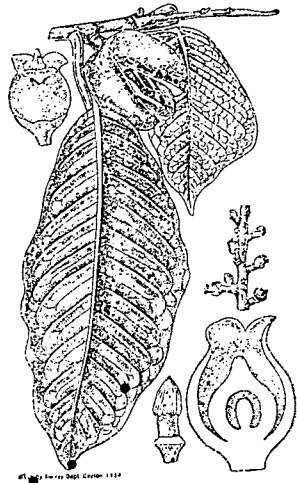
9. *LITSEA TOMENTOSA* Heyhe  
 • *Kosboia, Landittan, S.*



10. *NEOLITSEA INVOLUCRATA* Alst.  
 • *Davul-kurundu, Kududavula, S.*



11. *CINNAMOMUM ZEYLANICUM* Bl  
 • *Cinnamon, E., Kurundu, S., Karuva, T.*



12. *MYRISTICA DACTYLOIDES* Gaertn.  
 • *Malaboda, S., Palmanikkam, T.*

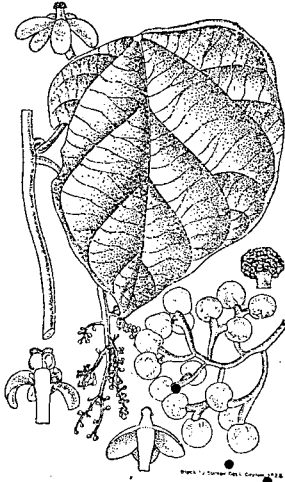
RANUNCULACEAE-MENISPERMACEAE.



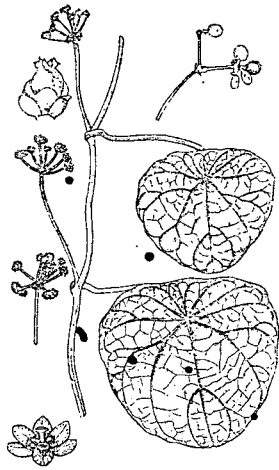
13. *NARAVELIA ZEYLANICA* DC.  
*Nara-vel*, S.



14. *KYTSEIPA CUSPIDATA* Miers

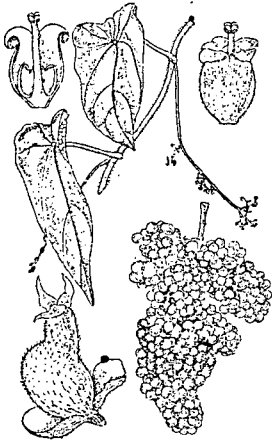


15. *ANAMIRTA COCCULUS* W. & A.  
*Titta-vel*, S., *Kakkaikollivirai*, T.

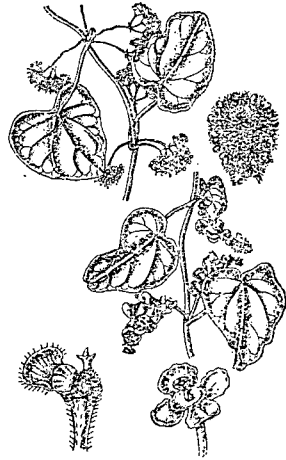


16. *STEPHANIA JAPONICA* Miers

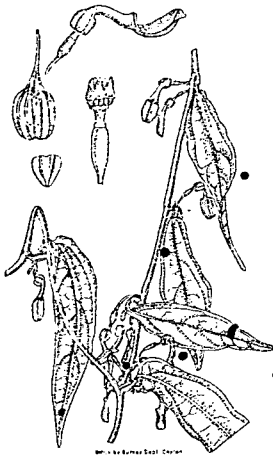
MENISPERMACEAE-ARISTOLOCHIACEAE-PIPERACEAE.



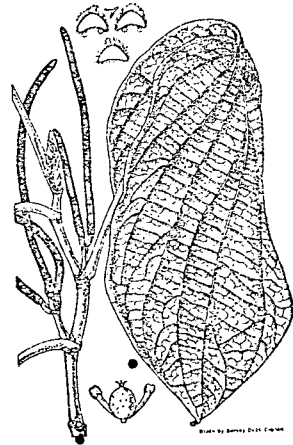
17. *CYCLEA BURMANI* Miers  
*Kehi-pittan*, S.



18. *CISSAMPELOS PAREIRA* Linn.  
*Diyamitta, Pon-muchiddai, Vaddatirupi*, T.



19. *ARISTOLOCHIA INDICA* Linn.  
*Sap-sanda*, S., *Perumarantu, Talaisuruli,*  
*I-chua-mull*, T.

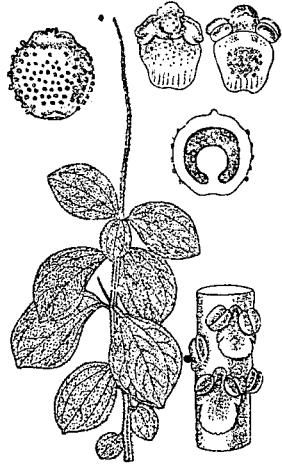


20. *HECKERIA UMBELLATA* Kunth.  
*Maha-labu*, S.

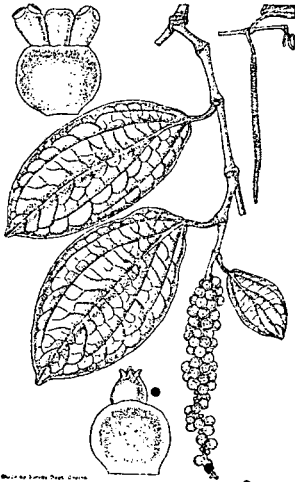
PIPERACEAE-CAPPARIDACEAE.



21. PEPEROMIA FRASERI C. DC.



22. P. DINDIGULENSIS Miq.



23. PIPER SYLVESTRE Lamk.  
*Val-gammiris-vel, Mala-miris-vel, S.*



24. CLEOME VISCOSA Linn.  
*Val-aba, Ran-manissa, S., Naykkaduku, Nay-velai, T.*

CRUCIFERAE-CRASSULACEAE-PODOSTEMACEAE.



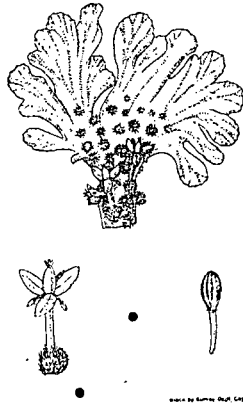
25. *BRASSICA JUNCEA* COSS.  
Aba, S., Kaduku, T.



26. *CARDAMINE HIRSUTA* Linn.  
Kaduppillu, T.

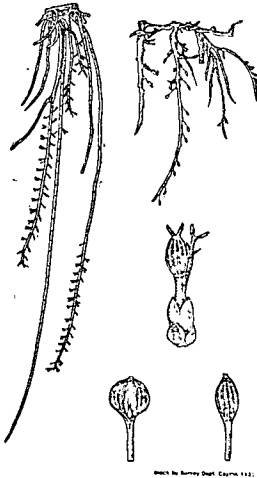


27. *BRYOPHYLLUM PINNATUM* KUNZ.  
Akkana, Rata-gova, S., Malai-kalli, T.

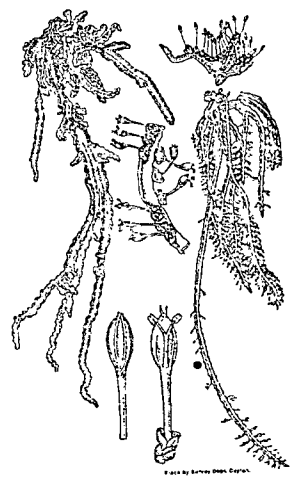


28. *LAWIA ZEYLANICA* Tul.

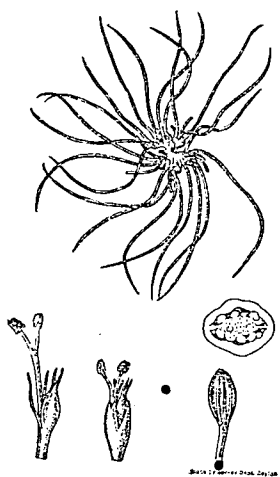
PODOSTEMACEAE.



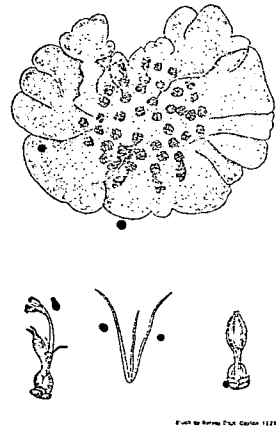
29. DICRAEA ELONGATA Tul.



30. DICRAEA STYLOSA Tul.

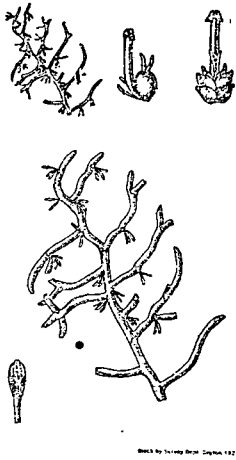


31. PODOSTEMON SUBULATUS Gardn.

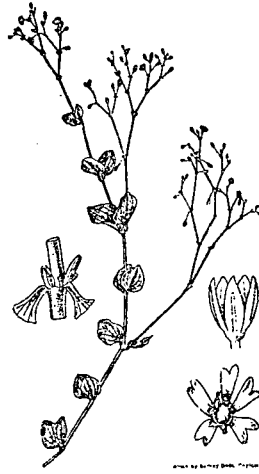


32. HYDROBRYUM OLIVACEUM Tul.

PODOSTEMACEAE-CARYOPHYLLACEAE-MOLLUGINACEAE-PORTULACACEAE.



33. *FARMERIA METZGEROIDES* Willis



34. *DRYMARIA CORDATA* Willd.

*Kukulu-pala*, S., *Pattanip-pillu*, *Kadalaip-pillu*, T.



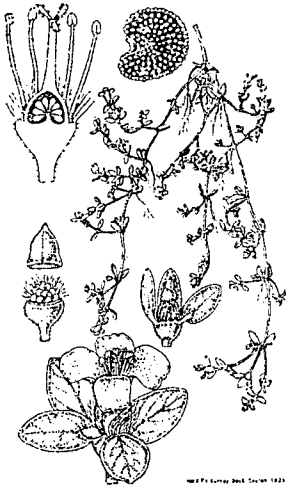
35. *MOLLUGO STRICTA* Linn.



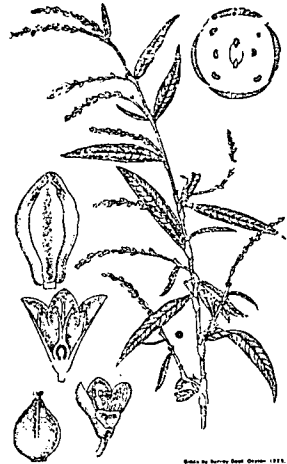
36. *PORTULACA OLERACEA* Linn.

*Common Purslane*, E., *Genda-kola*, S., *Pulikkirai*, *Pulichechan-kirai*, *Nilappochali*, *Paruppu-kirai*, *Pachalik-kirai*, *Karik-kirai*, T.

PORTULACACEAE-POLYGONACEAE-PHYTOLACCACEAE.



37. *PORTULACA QUADRIFIDA* Linn.  
*Hin-genda-kola*, S., *Chinna-parupukirai*,  
*Chiru-pachalik-kirai*, T.



38. *POLYGONUM MINUS* Huds.



39. *POLYGONUM CHINENSE* Linn.  
*Meyan-kola*, S.

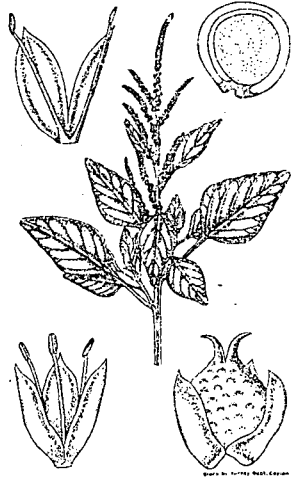


40. *RIVINA HUMILIS* Linn.  
*Bloodberry*, E.

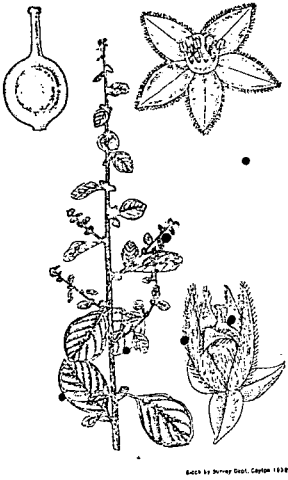
AMARANTACEAE.



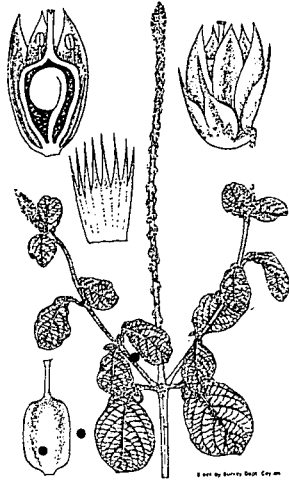
41. *AMARANTUS SPINOSUS* Linn.  
*Spiny Pig-weed*, E., *Katu-tampala*, S.,  
*Mudkirai Mulluk-kirai*, T.



42. *AMARANTUS VIRIDIS* Linn.  
*Green Pig-weed*, E., *Kura-tampala*, S.

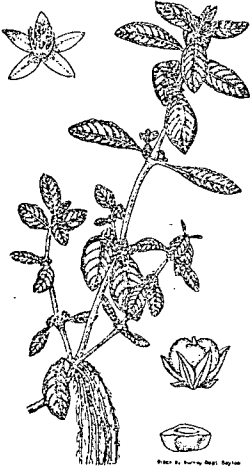


43. *AERUA LANATA* Juss.  
*Pol-kudu-pala*, S., *Tenkaip-pu-kirai*,  
*Chiru-pulai-ver*, T.

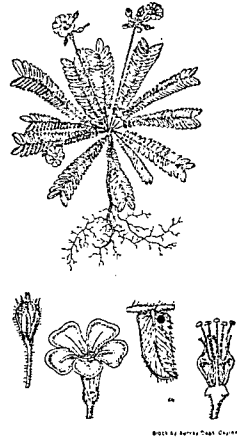


44. *ACHYRANTHES ASPERA* Linn.  
*Chaff-flower*, E., *Gas-karal-heba*, S., *Nayuruvi*, T.

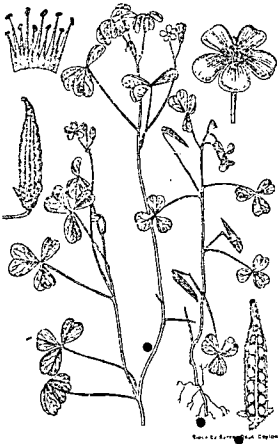
AMARANTAC AE-OXALIDACEAE.



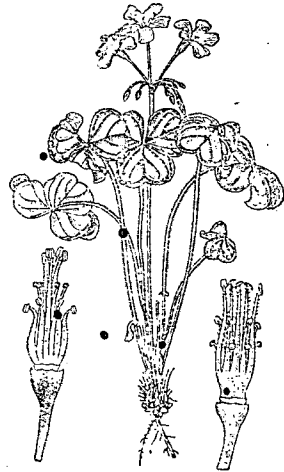
45. *ALTERNANTHERA SESSILIS* R. Br.  
*Mukunu-venna*, S., Ponnankani, T.



46. *BIOPHYTUM REINWARDTII* Klotzsch.  
*Gas-nidikumba*, S.

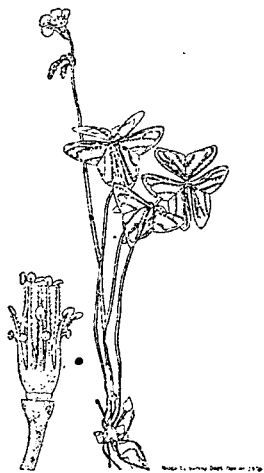


47. *OXALIS CORNICULATA* Linn.  
*Hin-embul-embiliya*, S., Kodippuliyarai, T.



48. *OXALIS CORYMBOSA* DC.  
*Periya-puliyarai*, T.

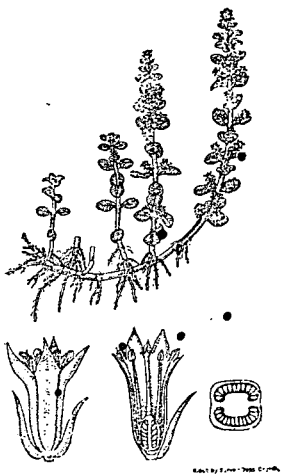
OXALIDACEAE-BALSAMINACEAE-LYTHRACEAE-ONAGRACEAE.



49. OXALIS LATIFOLIA H. B. K.



50. IMPATIENS BIFIDA Thunb.  
*Kudalu-mal, S., Attaip-pu, T.*



51. ROTALA INDICA Koehne.



52. JUSSIAEA TENELLA Burm. f.

ONAGRACEAE-THYMELAEACEAE.



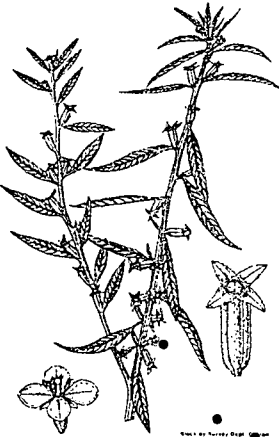
Drawn by Arthur Debel, Copenhagen

53. JUSSIAEA SUFFRUTICOSA Linn.



Drawn by Arthur Debel, Copenhagen

54. JUSSIAEA PERUVIANA Linn.



Drawn by Arthur Debel, Copenhagen

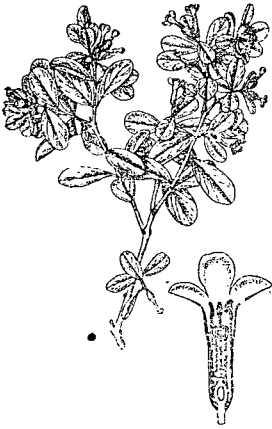
55. LUDWIGIA PERENNIS Linn.



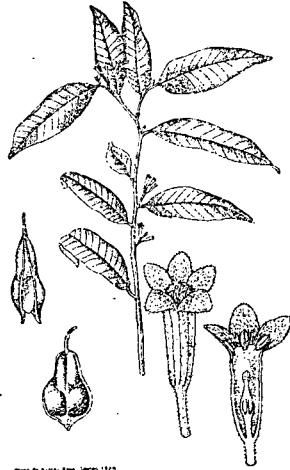
Drawn by Arthur Debel, Copenhagen 1934

56. LASIOSIPHON ERIOCEPHALUS Dene.  
Naka, S.

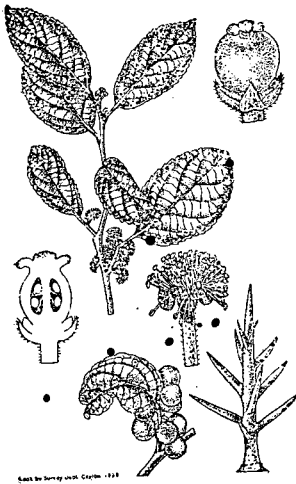
THYMELAEACEAE-FLACOURTIACEAE.



57. WIKSTROEMIA INDICA C. A. Mey



58. GYRINOPS WALLA Gaertn.  
*Valla, Patta-valla, S*



59. FLACOURTIA RAMONTCHI L'Hérit.  
*Uguressa, S., Kaddukkali, Karumurukki, T.*

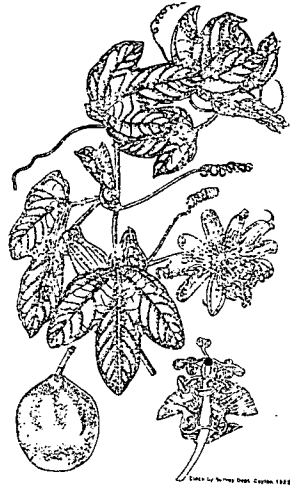


60. HYDNOCARPUS VENENATA Gaertn.  
*Makulu, S., Makal, Niradimuttu, Manoa-vitai T.*

PASSIFLORACEAE.



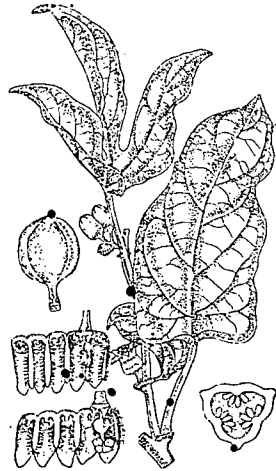
61. PASSIFLORA SUBEROSA Linn.



62. PASSIFLORA STIPULATA Aubl.

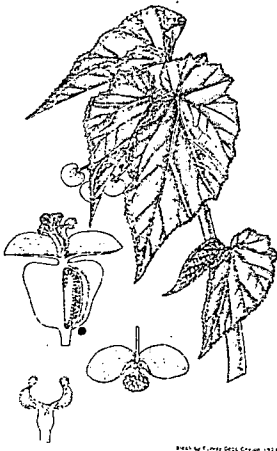


63. PASSIFLORA FOETIDA Linn.



64. ADENIA PALMATA Engl.  
*Hondala, Potu-honda, S.*

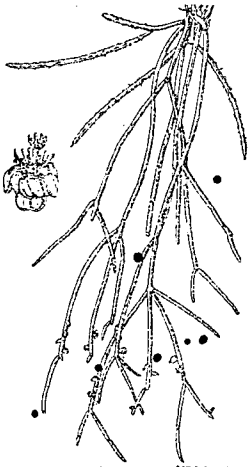
BEGONIACEAE-CACTACEAE.



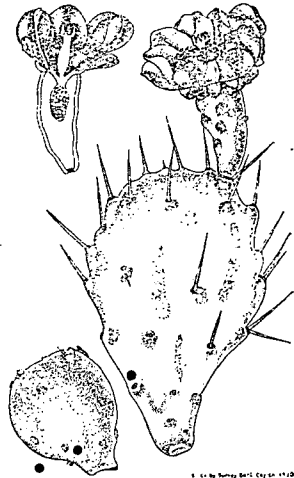
65. *BEGONIA MALABARICA* Lamk.  
*Hak-ambala*, S.



66. *BEGONIA HUMILIS* Dryand.



67. *RHIPSALIS CASSYTHA* Gaertn.  
*Vel-navahandi*, S.

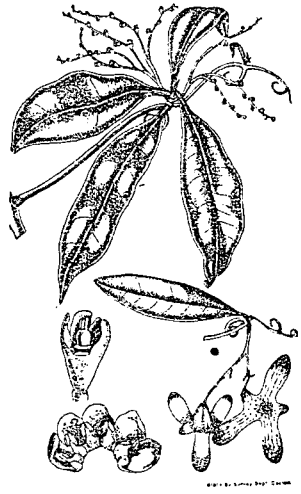


68. *OPUNTIA VULGARIS* Mill.

OCHNACEAE-ANCISTROCLADACEAE-MYRTACEAE.



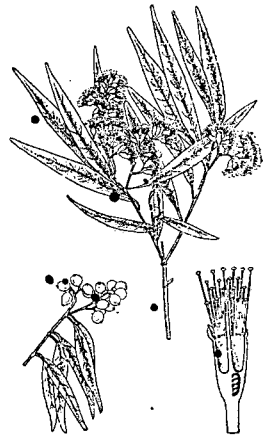
69. *OURATEA ZEYLANICA* Alst.  
*Bo-keru*, S.



70. *ANCISTROCLADUS HAMATUS* Prain.

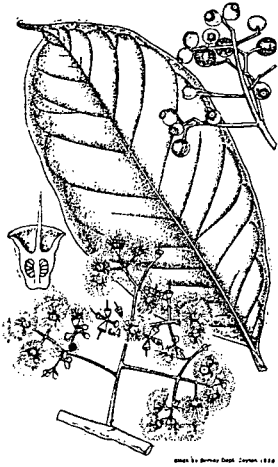


71. *SYZYGIUM JAMBOS* Alst.  
*Rose apple*, *E. Jambu*, S.



72. *SYZYGIUM ZEYLANICUM* DC.  
*Maran*, *Maranda*, S., *Mārungi*, T.

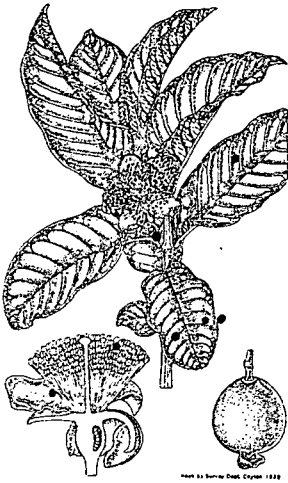
MYRTACEAE.



73. SYZYGIUM OPERCULATUM Neid.  
*Bata-damba, Kobo-mal, S.*



74. SYZYGIUM CARYOPHYLLATUM Alst.  
*Hin-dan, S.*



75. PSIDIUM GUAJAVA Linn.  
*Guava, E., Pera, S., Koyya, T.*



76. CAREYA COCCINEA A. Chev.  
*Patana Oak, E., Kahata, S., Kachaddai, T.*

MELASTOMACEAE-COMBRETACEAE.



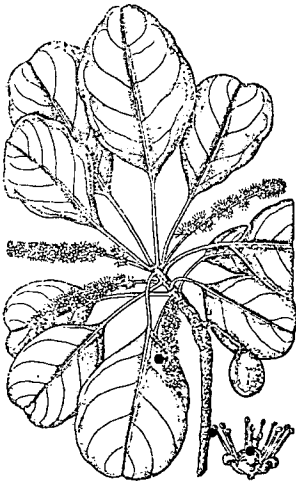
Drawn by Spring, Bot. Garden, 1878.

77. OSBECKIA OCTANDRA DC.



© Bot. Garden, 1878.

78. MEMECYLON UMBELLATUM Burm.  
*Kora-kaha, S., Pandik-kaya, T.*



79. TERMINALIA BELLIRICA Roxb.  
*Bulu, S., Yanti, T.*



© Bot. Garden, 1878.

80. TERMINALIA ARJUNA W. & A.  
*Kumbuk, S., Marutu, T.*

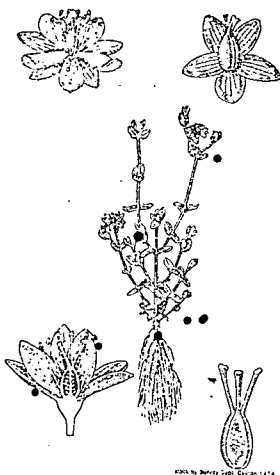
RHIZOPHORACEAE-HYPERICACEAE-GUTTIFERAE.



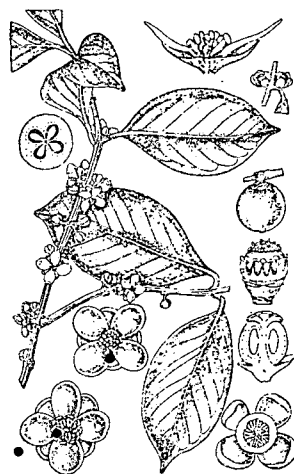
81. CARALLIA BRACHIATA Merr.  
*Davata*, S.



82. ANISOPHYLLEA CINNAMOMOIDES Alst.  
*Veli-penna*, S.

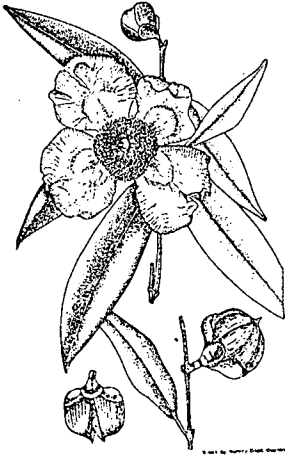


83. HYPERICUM JAPONICUM Thunb.

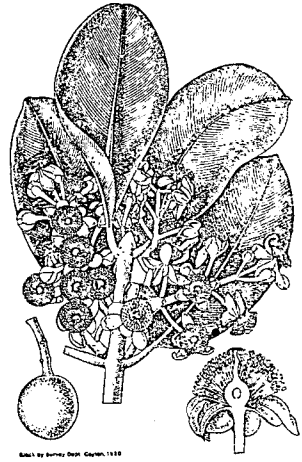


84. GARCINIA MORELLA Desr.  
*Kana-goraka*, S., *Korukkapp-puli*, *Makki*, T.

GUTTIFERAE-TILIACEAE.



85. *MESUA FERREA* Linn.  
*Ceylon Ironwood, E., Na, S., Naka, T.*



86. *CALOPHYLLUM INOPHYLLUM* Linn.  
*Domba, Tel-domba, S., Punnai, Dommak-kottai, Punnakam, T.*

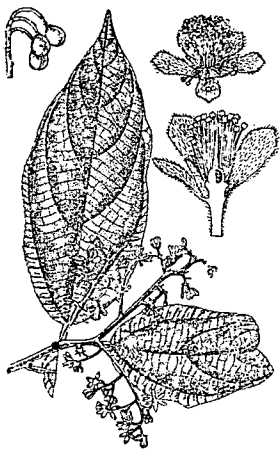


87. *GREWIA COLUMNARIS* Sm.



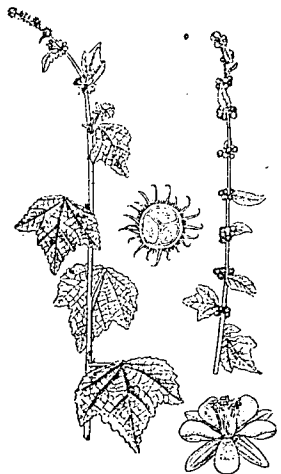
88. *GREWIA ORIENTALIS* Linn.

TILIACEAE-STERCULIACEAE.



Drawn by Hermann Bode, Capriolo, 1877.

89. ● GREWIA MICROCOS Linn.  
*Keliya Kohu-kirilla, S.*



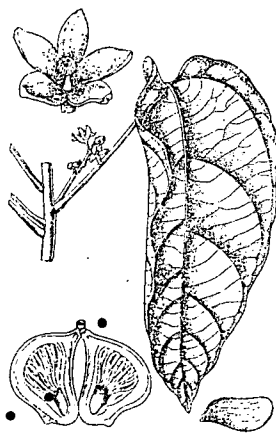
Drawn by Ludwig Reut. Capriolo.

90. TRIUMFETTA BARTRAMIA Linn.  
*Paroquet Burr, E., Epala, S., Adai-oddi, T.*



Drawn by Hermann Bode, Capriolo.

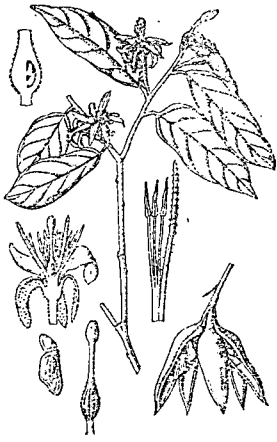
91. ● ELAEOCARPUS SERRATUS Linn.  
*Wild olive, E., Veralu, S.*



Drawn by Hermann Bode, Capriolo.

92. ● PTERYGOTA THWAITESII Alst.

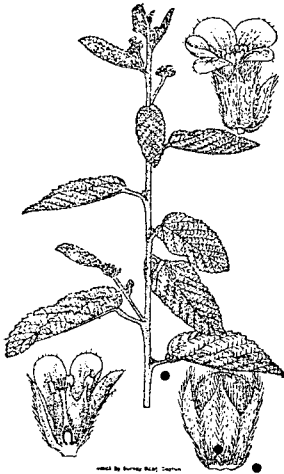
STERCULIACEAE-BOMBACACEAE.



93. *PTEROSPERMUM CANESCENS* Roxb.  
*Vclanga, Ee, S., Vinnanku Tada, T.*



94. *MELOCHIA UMBELLATA* Stapf



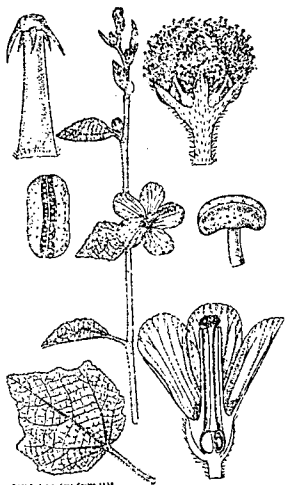
95. *WALTHERIA INDICA* Linn.  
*Punnikki, T.*



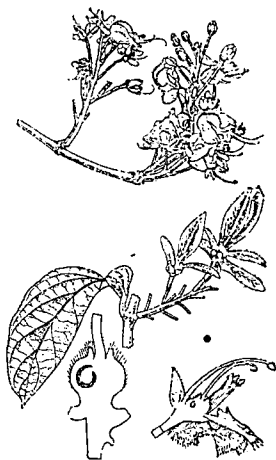
96. *GOSSAMPINUS MALABARICUS* Alst.  
*Cotton tree, E., Kaluimbul, S., Barutti, T.*



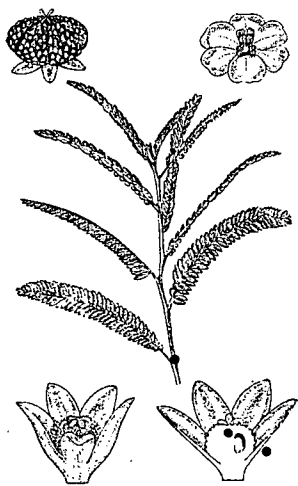
MALVACEAE-MALPIGHIACEAE-EUPHORBIACEAE.



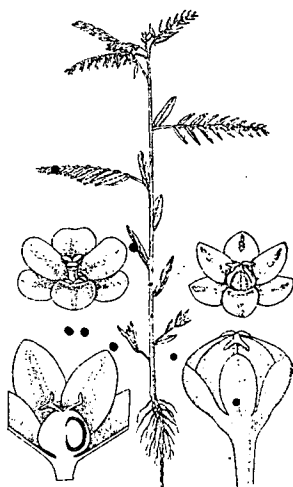
101. URENA LOBATA Linn.  
*Patta-epala, S.*



102. HIPTAGE BENGALENSIS KURZ.  
*Puvak-gediya-vel, S., Nerunkate, T.*

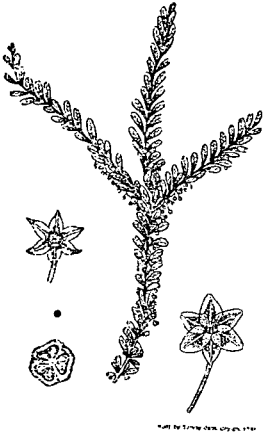


103. PHYLLANTHUS URINARIA Linn.  
*Rat-pitarakka, S., Chicappuk-kilkay-nelli, T.*

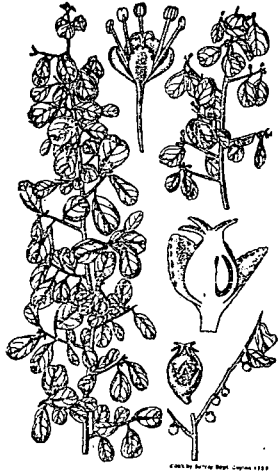


104. PHYLLANTHUS NIRURI Linn.  
*Pitarakka, S., Vellaik-kilkay-nelli, T.*

EUPHORBIACEAE.



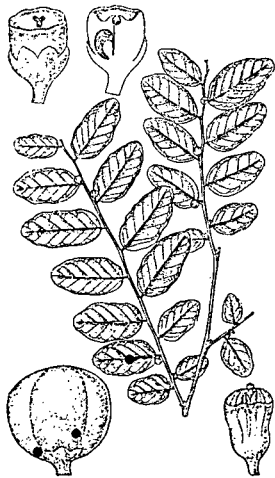
105. *PHYLLANTHUS MYRTIFOLIUS* Moon



106. *FLUEGGEA LEUCOPYRUS* Willd.  
*Hin-kau-pila*, S., *Mudpullanti*, T.



107. *BREYNIA RETUSA* Alst.  
*Val-murunga*, S.

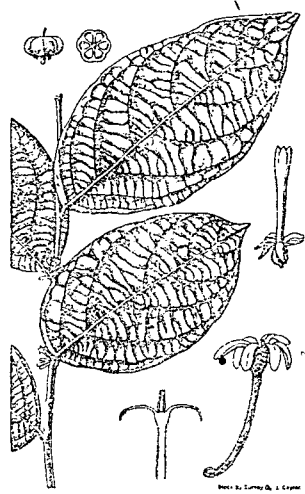


108. *BREYNIA RHAMNOIDES* Muell. Arg.  
*Gas-kayita*, S., *Manippullanti*, T.

EUPHORBIACEAE.



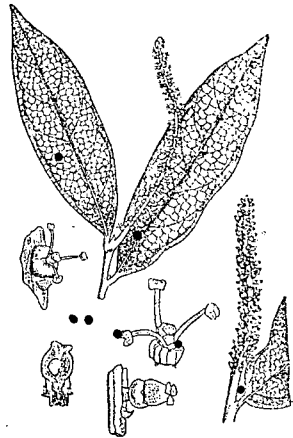
109. EMBLICA OFFICINALIS Gaertn.  
*Nelli, S., Toppu-nelli, T.*



110. GLOCHIDION MOONII Thw.  
*Bu-humu-kirilla, S.*

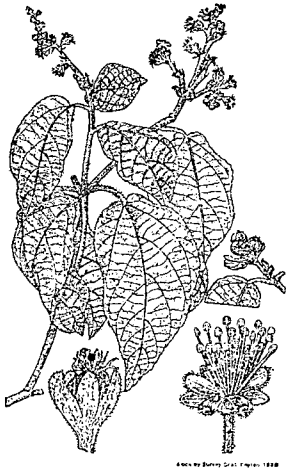


111. APOROSA LINDLEYANA Baill.  
*Kebella, Barana-embilla, S.*

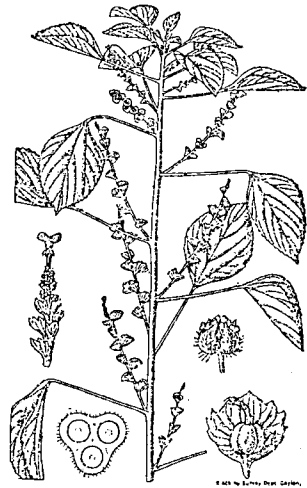


112. ANTIDESMA BUNIAS Spreng.  
*Karavala-kebeila, S.*

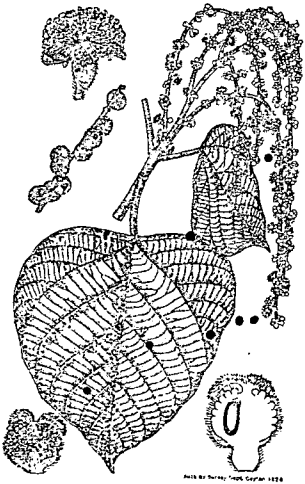
EUPHORBIACEAE.



113. *CROTON LACCIFERUS* Linn.  
*Keppitiya, Gas-keppitiya, S.,*  
*Teppadi, Vidpanai, T.*



114. *ACALYPHA INDICA* Linn.  
*Kuppa-meniya, S., Kuppaimeni,*  
*Punavarananki, T.*



115. *MALLOTUS TETRACOCCLUS* Kurz.  
*Bu-kenda, S.*

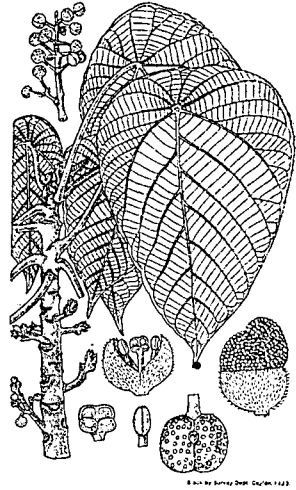


116. *MALLOTUS WALKERAE* Hk. f.

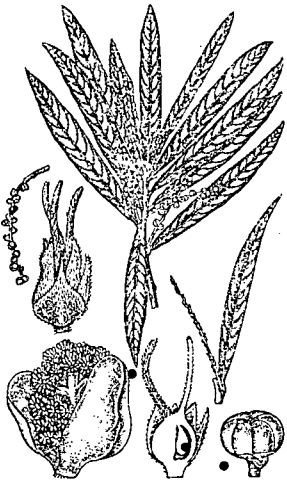
EUPHORBIACEAE.



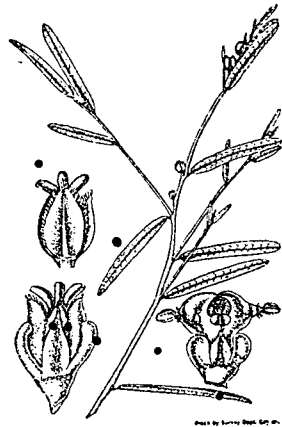
117. *MALLOTUS PHILIPPINENSIS* Muell. Arg.  
*Hamparila*, S., *Kapila*, *Kamala-ma*, T.



118. *MACARANGA PELTATA* Muell. Arg.  
*Pat-kenda*, S., *Vaddakanni*, T.

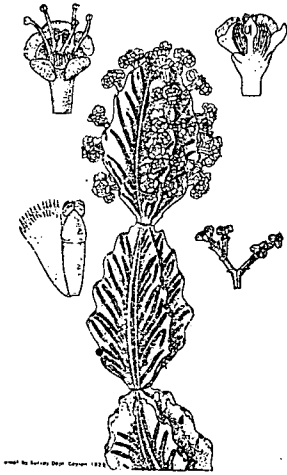


119. *HOMONOIA RIPARIA* Lour.



120. *SEBASTIANIA CHAMAELEA* Muell. Arg.  
*Kat-pitavakka*, S.

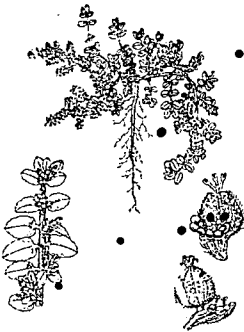
EUPHORBIACEAE-CHAILETIACEAE.



121. *EUPHORBIA ANTIQUORUM* Linn.  
*Syurge cactus*, F., *Daluk*, S., *Chaturakkalli*,  
*Madduypach Chanicpillu*, T.



122. *EUPHORBIA HIRTA* Linn.  
*Bu-dada-kiriya*, S., *Palavi*, T.



123. *EUPHORBIA THYMIFOLIA* Linn.  
*Bin-dada-kiriya*, S., *Chittiraip-palavi*,  
*Amman-pachcharichip-pillu*, T.

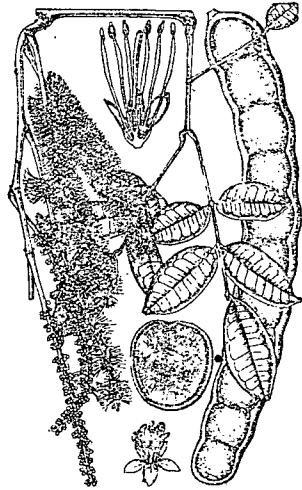


124. *DICHAPETALUM GELONIOIDES* Engl.

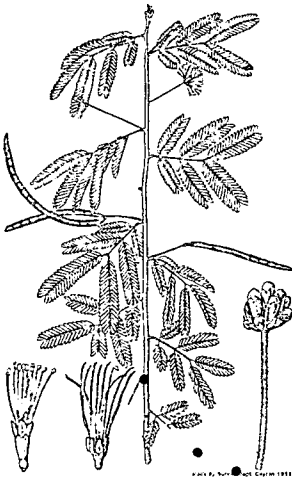
ROSACEAE-LEGUMINOSAE.



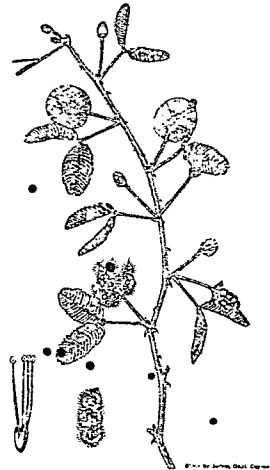
125. RUBUS INDICUS Thunb.  
*Vel-buté*, S.



126. ENTADA PURSAETHA DC.  
*Pus-vel*, S.

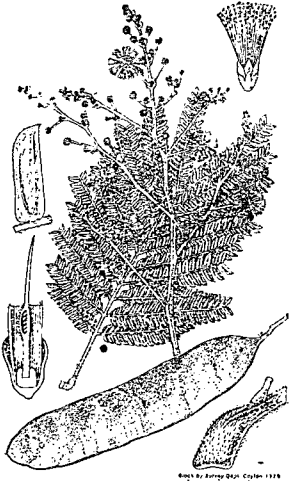


127. DESMANTHUS VIRGATUS Willd.

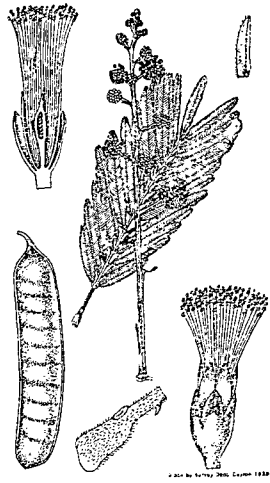


128. MIMOSA PUDICA Linn.  
*Nidi-kumba*, S., *Todda-vadik-kodi*,  
*Todda-chinunki*, T.

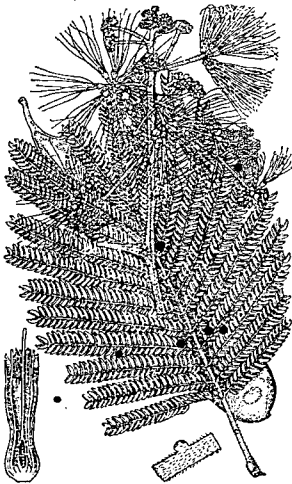
LEGUMINOSAE.



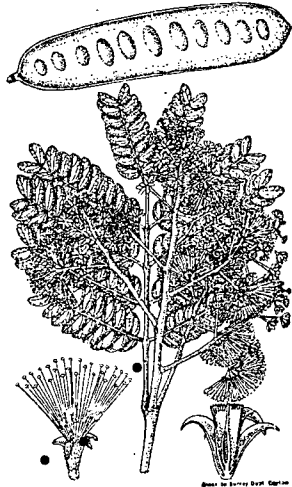
129. ▲CACIA CAESIA Willd.  
*Hingūru, S.*



130. ACACIA TOMENTELLA Zipp.



131. ALBIZZIA CHINENSIS Merr.  
*Kabal-mara, Hulan-mara, S.*



132. ALBIZZIA ODORATISSIMA Benth.  
*Suriya-mara, S., Ponnai-murunkai, Karu-  
vakai, Karu-venkai, Karu-naka, T.*

LEGUMINOSAE.



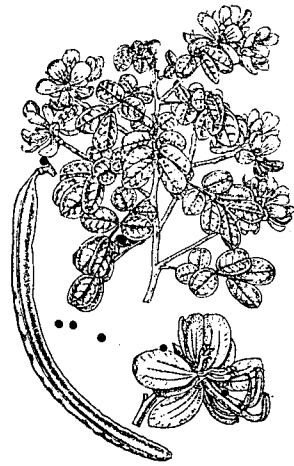
133. CAESALPINIA SAPPAN Linn.  
*Sappan, E., Patangi, S.*



134. CAESALPINIA NUGA Ait.  
*Diya-vavul-etiya, S.*



135. MEZONEURUM FURFURACEUM Prain  
*Goda-vavul-etiya, S.*



136. CASSIA BICAPSULARIS Linn.

LEGUMINOSAE.



137. *CASSIA SIAMEA* Lamk.  
*Va, Aramana, S., Vakai, Munka-*  
*konnai, T.*



138. *CASSIA OCCIDENTALIS* Linn.  
*Peni-tora, S., Ponnan-takarai, T.*

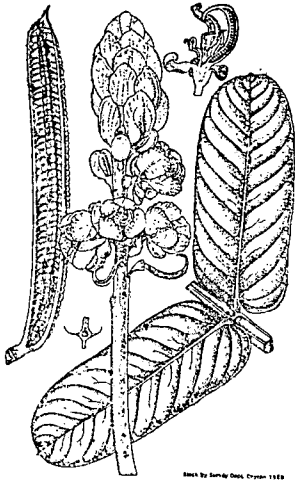


139. *CASSIA HIRSDTA* Linn.  
*Parangi-tora, S.*



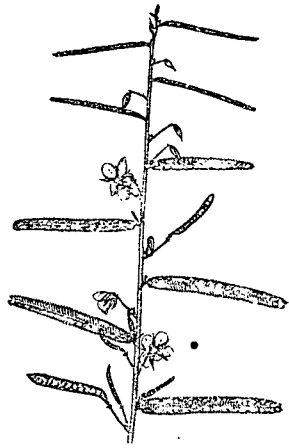
140. *CASSIA TORA* Linn.  
*Peti-tora, S., Vaddat-takarai, Pandit-*  
*takarai, T.*

LEGUMINOSAE.



141. CASSIA ALATA Linn.

*Rata-tora*, S., *Chimai-akatti*, *Vandukolli*, T.



142. CASSIA MIMOSAIDES Linn.

*Bin-siyambala*, S.



143. CASSIA LESCHENAULTIANA DC.



144. MYROXYLON BALSAMUM Hartw.

LEGUMINOSAE.



Drawn by Ernest Druce, Clayton, 1876

145. *CROTALARIA INCANA* Linn.



Drawn by Ernest Druce, Clayton, 1876

146. *CROTALARIA STRIATA* DC.



Drawn by Ernest Druce, Clayton, 1922

147. *CROTALARIA BROWNEI* Bortero



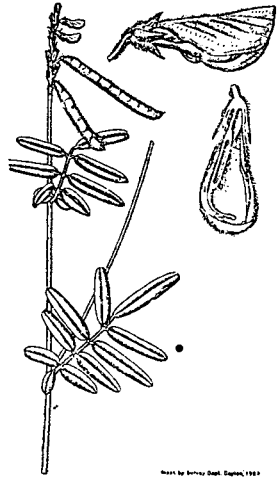
Drawn by Ernest Druce, Clayton, 1922

148. *CROTALARIA LABURNIFOLIA* Linn.  
*Yak-beriya*, S.

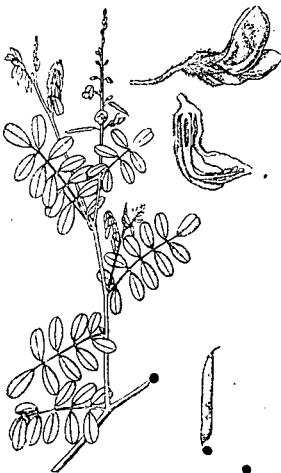
LEGUMINOSAE.



149. FLEMINGIA STROBILIFERA R. Br.  
*Hop-bean, E., Hampinna, S.*



150. TEPHROSIA TINCTORIA Pers.  
*Alu-pila, S.*



151. TEPHROSIA PURPUREA Pers.  
*Pila, S., Kolinchi, Kavilay, Kollukayilai, T.*

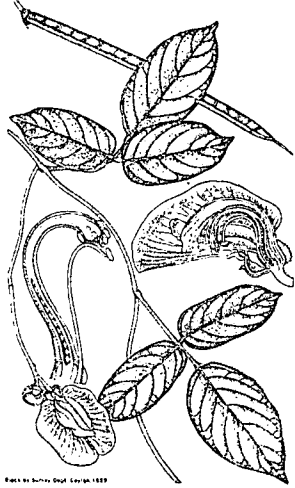


152. INDIGOFERA SUFFRUTICOSA Mill.  
*Guatemala Indigo, E.*

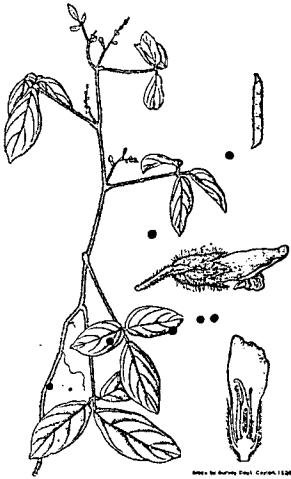
LEGUMINOSAE.



153. *ERYTHRINA FUSCA* Louf.  
*Yak-erabadu*, S.



154. *CENTROSEMA PUBESCENS* Benth.



155. *TERAMNUS MOLLIS* Benth.

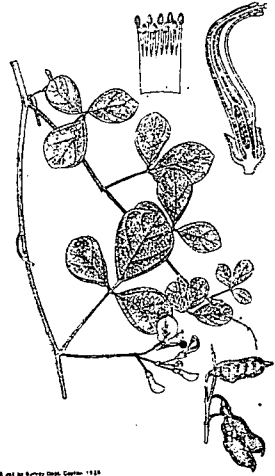


156. *DOLICHOS BIFLORUS* Linn.

LEGUMINOSAE.



157. *DOLICHOS FALCATUS* Klein  
*Val-dambala*, S.



158. *ATYLOSIA ALBICANS* Benth.



159. *DUNBARIA HEYNEI* W. & A.



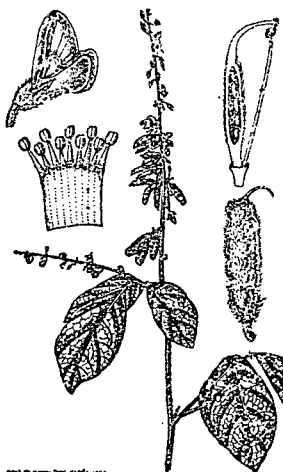
160. *PONGAMIA PINNATA* Merr.  
*Magul-karanda*, S., *Punku*, T.

LEGUMINOSAE.



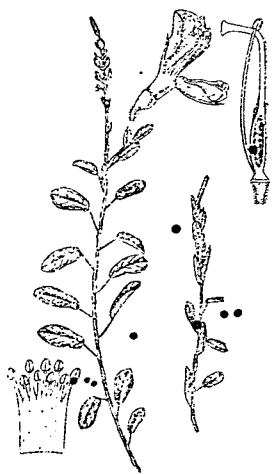
Made by Arthur Duff, 1874.

161. DALBERGIA PSEUDO-SISSOO Miq.  
*Bambara-vel*, S.



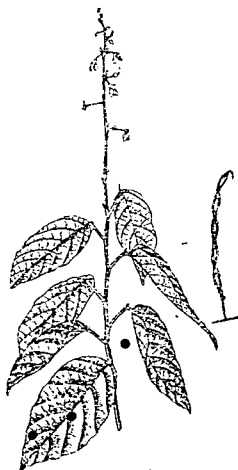
Made by Arthur Duff, 1874.

162. PSEUDARTHRIA VISCIDA W. & A.  
*Gas-gonika*, S.



Made by Arthur Duff, 1874.

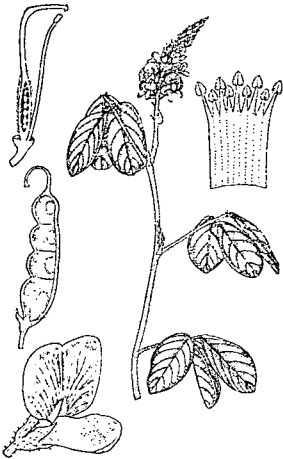
163. ALYSICARPUS VAGINALIS DC.  
*Ascenna*, S.



Made by Arthur Duff, 1874.

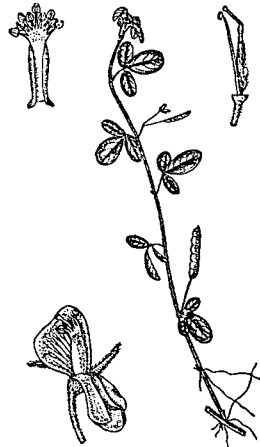
164. DESMODIUM ORMOCARPOIDES DC.

LEGUMINOSAE.



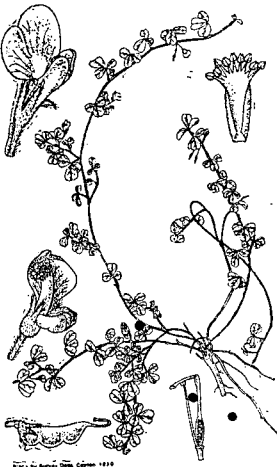
Drawn by Arthur Deane, Calicut, 1822.

165. *DESMODIUM HETEROCARPUM* DC.  
*Et-undu-piyali*, S.



Drawn by Arthur Deane, Calicut, 1822.

166. *DESMODIUM HETEROPHYLLUM* DC.  
*Maha-undu-piyali*, S.



Drawn by Arthur Deane, Calicut, 1822.

167. *DESMODIUM TRIFLORUM* DC.  
*Hin-undu-piyali*, S.



Drawn by Arthur Deane, Calicut, 1822.

168. *SMITHIA CONFERTA* Sm.

LUMACEAE.



Drawn by Harvey Dept. Cornell

169. *CELTIS CINNAMOMEA* Lindl.  
*Gurenda*, S.



Drawn by Harvey Dept. Cornell

170. *CELTIS WIGHTII* Planch.  
*Meditella*, S.



Drawn by Harvey Dept. Cornell

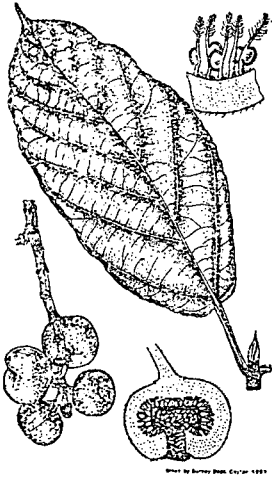
171. *TREMA ORIENTALIS* Bl.  
*Charcoal-tree*, E., *Gedumba*, S.



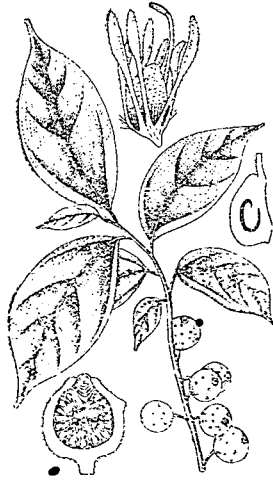
Drawn by Harvey Dept. Cornell

172. *GIRONNIERA CUSPIDATA* Kurz.  
*Val-munamal*, S.

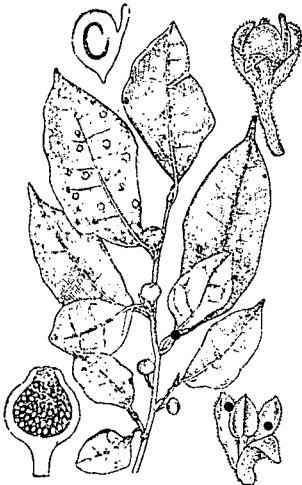
MORACEAE.



173. *FICUS HISPIDA* Linn.  
*Kota-dimbula*, S., *Pe-atti*, T



174. *FICUS ASPERRIMA* Roxb.  
*Furniture leaf*, E., *Sevena-mediya*, S.

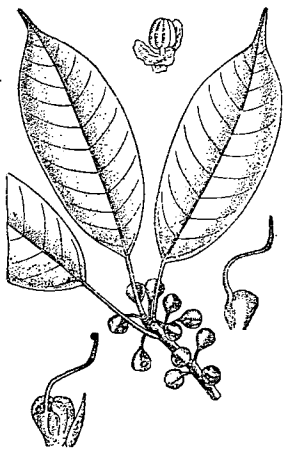


175. *FICUS PARASITICA* Koen.  
*Gas-netul*, *Vel-ehetu*, S.

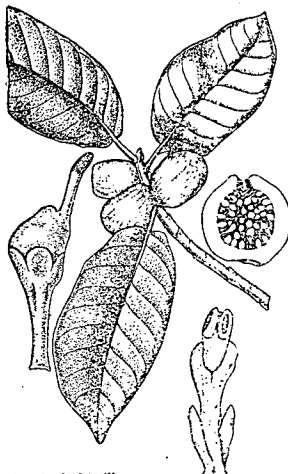


176. *FICUS NERVOSA* Heyne  
*Kalumaduva*, S.

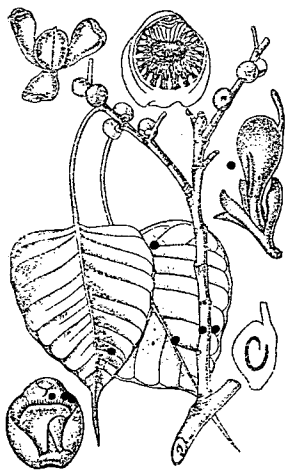
MORACEAE.



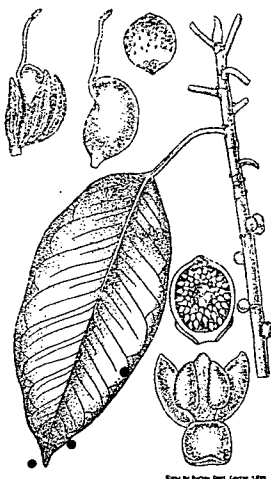
177. *FICUS MOONIANA* King



178. *FICUS COTONEAEFOLIA* Vahl  
*Buruga*, S.

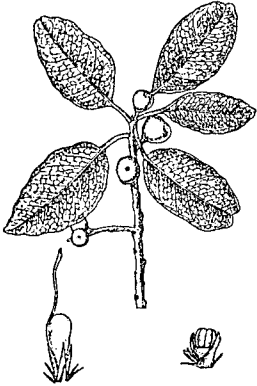


179. *FICUS RELIGIOSA* Linn.  
*Bo*, S., *Arachu*, T.



180. *FICUS TSJAKELA* Burm.  
*Kiri-pella*, S., *Toir*, T.

MORACEAE.



Drawn by Harvey Dalziel, Capricorn

181. *FICUS LUCESCENS* Bl.  
*Kalaba*, S.



Drawn by Harvey Dalziel, Capricorn

182. *FICUS RETUSA* Linn.  
*Panu-nuga*, S, *Itti*, T.



Drawn by Harvey Dalziel, Capricorn

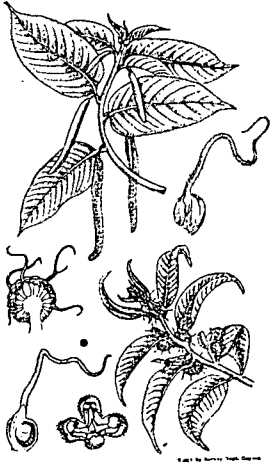
183. *PLECOSPERMUM SPINOSUM* Tréc.  
*Katu-timbol*, S.



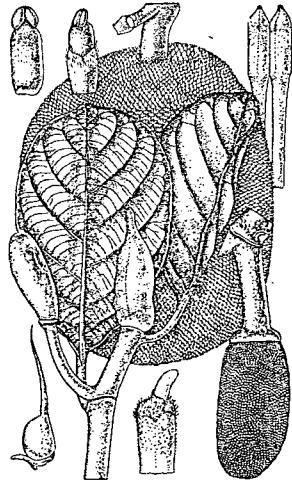
Drawn by Harvey Dalziel, Capricorn

184. *STREBLUS ASPER* Lour.  
*Geta-netul*, S, *Pirayam*, *Palpiray*,  
*Pirasu*, T.

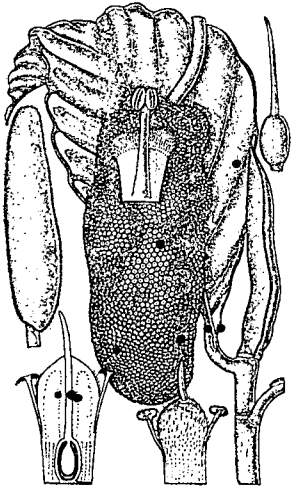
MORACEAE-URTICACEAE.



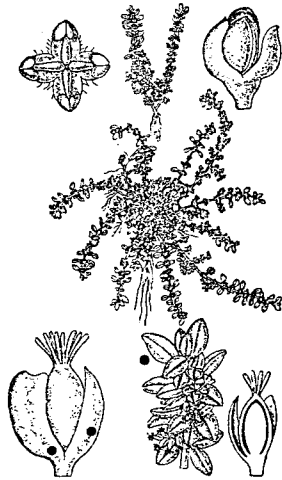
185. *ALLAETHUS ZEYLANICUS* Thw.  
*Alandu*, S.



186. *ARTOCARPUS INTEGR*A Merr.  
*Jak-tree*, E., *Kos*, S., *Pila* T.

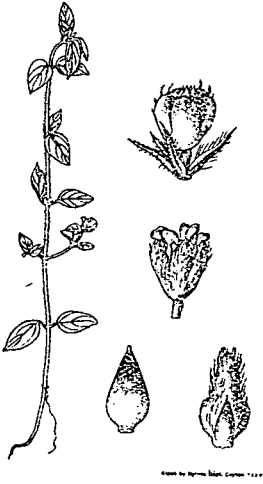


187. *ARTOCARPUS NOBILIS* Thw.  
*Wild Bread fruit*, E., *Del*, *Bedi-del*, S.,  
*Iral-pila*, T.

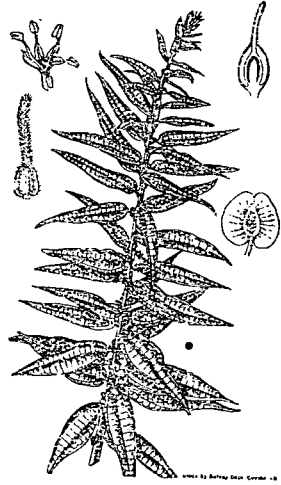


188. *PILEA MICROPHYLLA* Liebm.  
*Gunpowder plant*, E.

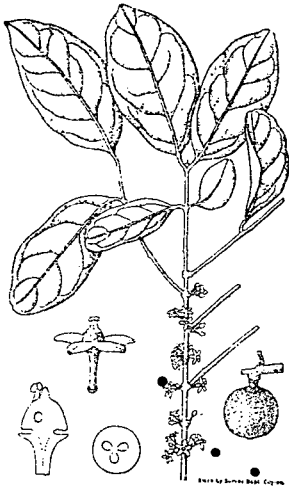
URTICACEAE-HIPPOCRATEACEAE-ICACINACEAE.



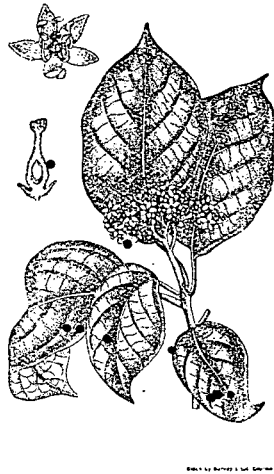
189. *POUZOLZIA ZEYLANICA* Benn.



190. *POUZOLZIA WALKERIANA* Wight

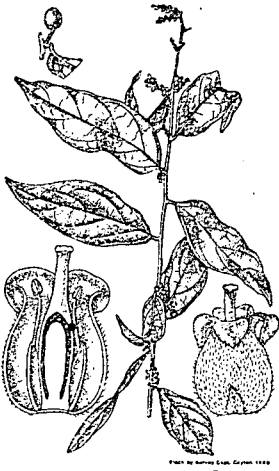


191. *SALACIA RETICULATA* Wight  
*Kottala-himbutu-vel, S.*

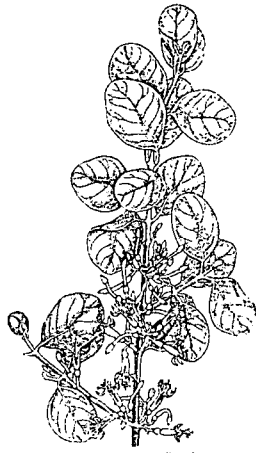


192. *MAPPIA OVATA* Miers  
*Gandapana, S.*

OPILIACEAE-LORANTHACEAE.



193. *CANSJERA RHEEDII* Gmel.  
*Eta-mura*, S.



194. *LORANTHUS TOMENTOSUS* Heyne



195. *LORANTHUS CUNEATUS* Heyne

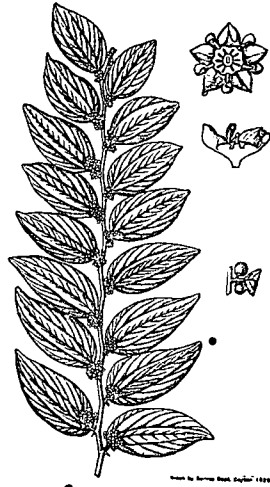


196. *LORANTHUS NEELGHERRENSIS* W. & A.

LORANTHACEAE-RHAMNACEAE.



197. LORANTHUS FALCATUS Linn.



X 198. ZIZYPHUS OENOPLIA Mill.  
*Hin-eraminiya, S., Perilantai, Churai, T.*



199. ZIZYPHUS RUGOSA Lamk.  
*Maha-eraminiya, S., Churai, T.*

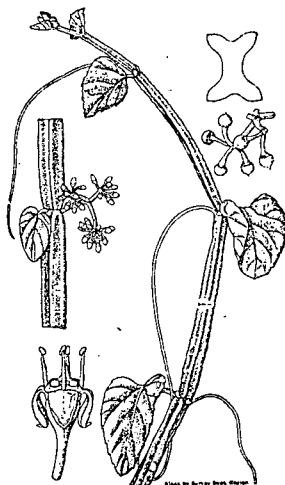


200. VENTILAGO MADERASPATANA Gaertn  
*Yakkada-vel, Kobovakka, S., Vempadan, T.*

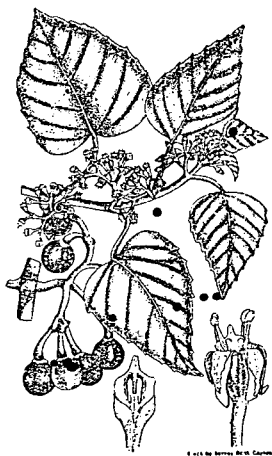
ELAEAGNACEAE-VITACEAE.



201. ELAEAGNUS LATIFOLIA Linn.  
*Vel-embilla, Katu-embilla, S.*



202. CISSUS QUADRANGULARIS Linn.  
*Hiresa, S., Pirandai, T.*

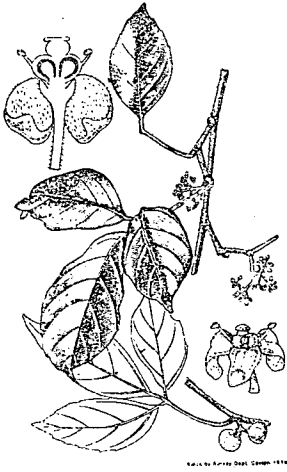


203. CISSUS HEYNEANA Steud.



204. COLUMELLA PEDATA Lour.  
*Mediya-vel, S.*

VITACEAE-RUTACEAE.



205. *TETRASTIGMA MURICATUM* Gamble



206. *LEEA INDICA* Merr.  
*Burulla, Gurulla, S., Ottainali, Nayaki, T.*



207. *CLAUSEANA DENTATA* M. Roem.  
*Veda-pana, S.*



208. *MICROMELUM MINUTUM* W. & A.  
*Val-karapincha, S., Kakkayyp-palai, T.*

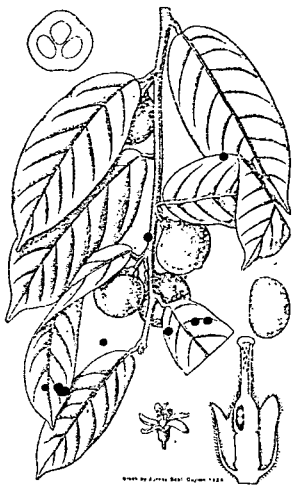
RUTACEAE.



209. *GLYCOSMIS PENTAPHYLLA* Corr.  
*Dodan-pana*, S., *Kulap-pannai*, T.



210. *ACRONYCHIA PEDUNCULATA* Miq.  
*Ankenda*, S., *Mutta*, *Nari*, T.



211. *PARAMIGNYA MONOPHYLLA* Wight



212. *TODDALIA ASIATICA* Lamk.  
*Kutu-miris*, S., *Kandai*, *Milakar-anai*, T.

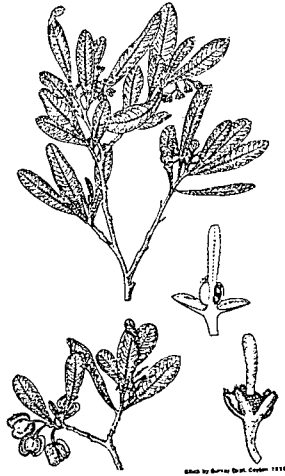


SAPINDACEAE.



Drawn by Arthur Dorr, Cornell 1922

217. *CARDIOSPERMUM MICROCARPUM* H. B. K.  
*Penela-vel*, S.



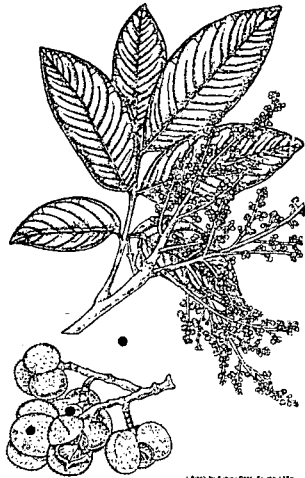
Drawn by Arthur Dorr, Cornell 1922

218. *DODONAEA VISCOSA* Linn.  
*Eta-verella*, S., *Virali*, *Pandari*, *Lakmi*, T



Drawn by Arthur Dorr, Cornell 1922

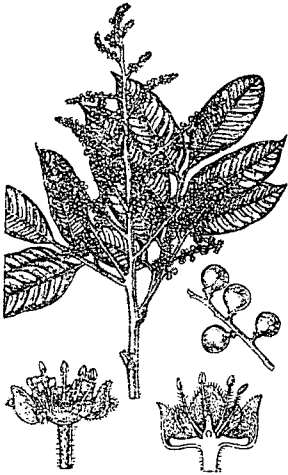
219. *THRAULOCOCCUS ERECTUS* Radlk.



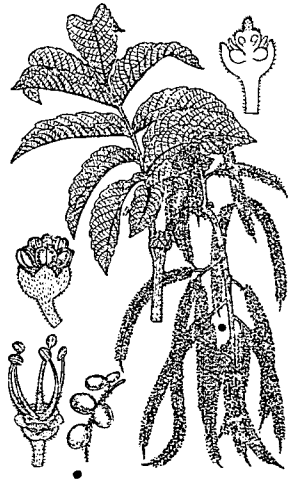
Drawn by Arthur Dorr, Cornell 1922

220. *SAPINDUS TRIFOLIATUS* Linn.  
*Kuha-penela*, S., *Ponnamkoddai*, T.

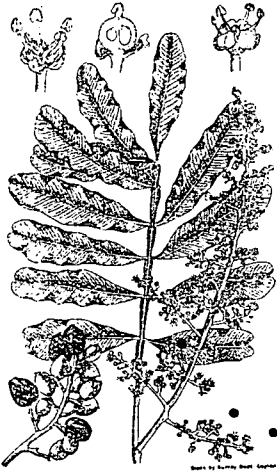
SAPINDACEAE.



221. *NEPHELIUM LONGANA* Camb.  
*Longan, E., Mora, Rasu-mora, S.,*  
*Nurai, Puvatti, T.*



222. *POMETIA EXIMIA* Hik. f  
*Gal-mora, Bulu-mora, Na-imbul, S.*

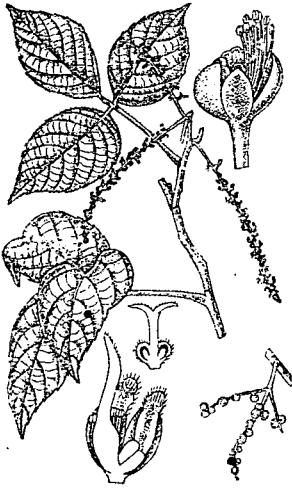


223. *FILICIUM DECIPIENS* Thw.  
*Pehimbiya, S., Chittirai-empu*  
*Kaddup-purarasu, T.*



224. *LEPISANTHES TRICHOCARPA* Aist.

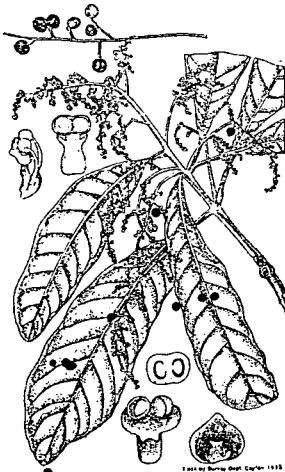
SAPINDACEAE-SABIACEAE-STAPHYLEACEAE.



225. ALLOPHYLUS COBBE Bl.  
*Kobbe, Bu-kobbe, S., Amarai, T.*



226. SCHLEICHERIA OLEOSA Merr.  
*Ceylon Oak, B., Kon S., Puvu, Kula, T.*



227. MELIOSMA SIMPLICIFOLIA Walp.  
*Elbedda, S.*

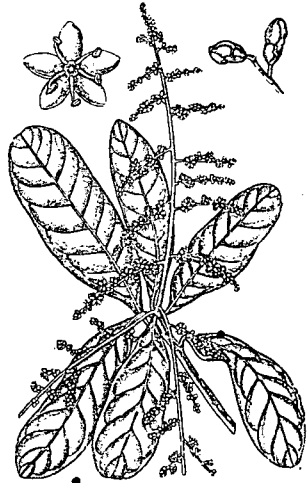


228. TURPINIA MALABARICA Gamble  
*Eta-hirilla, Kankumbala, Kukulman, S.*

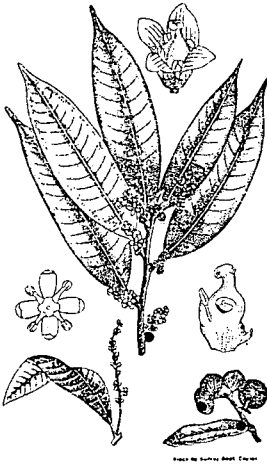
ANACARDIACEAE.



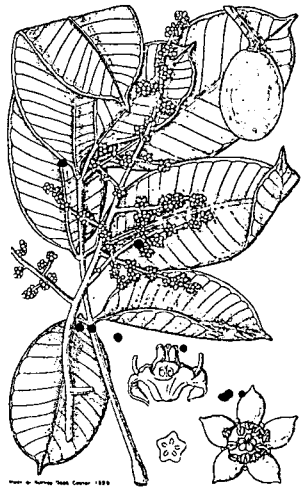
229. *MANGIFERA ZEYLANICA* Hk. f.  
*El-amba, Val-amba, S., Kadduma, T.*



230. *SEMECARPUS OBSCURA* Thw.  
*Badulla S.*

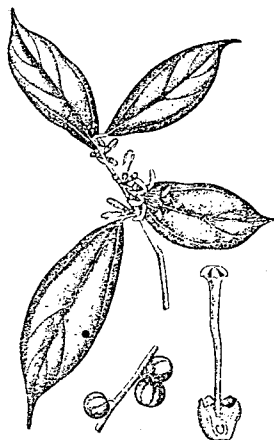


231. *NOTHOPEGIA BEDDOMEI* Gamble  
*Bala, S.*



232. *SPONDIAS PINNATA*, Kurz.  
*Embarella, S., Ampallai, Marimenchedi, T.*

ALANGIACEAE-ARALIACEAE-UMBELLIFERAE.



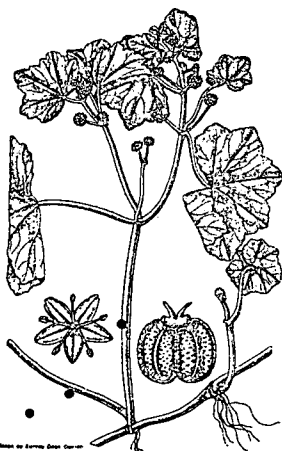
233. ALANGIUM HEXAPETALUM Lamk.  
*Alinchi*, T.



234. SCHEFFLERA STELLATA Baill.  
*Itta-vel*, S.



235. HYDROCOTYLE SIBTHORPIOIDES Lamk.  
*Kallu-vallarai*, S.

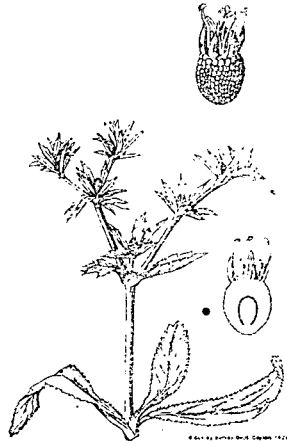


236. HYDROCOTYLE JAVANICA Thunb.  
*Maha-gotu-kola*, S., *Min-vallarai*, T.

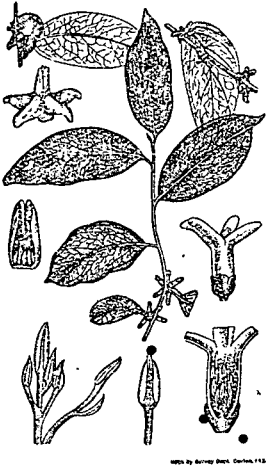
UMBELLIFERAE-EBENACEAE.



237. *CENTELLA ASIATICA* Urb.  
*Hin-gotu-kola*, *Makulu-venna*,<sup>2</sup> S., Vallarai, T.



238. *ERYNGIUM FOETIDUM* Linn.  
*Andu*, S

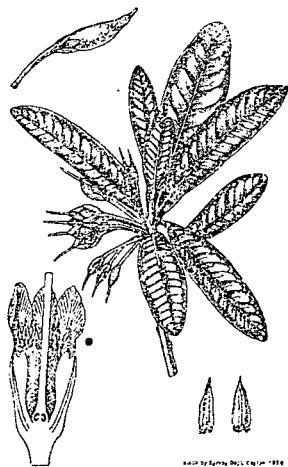


239. *DIOSPYROS EBENUM* Koen.  
*Ebony*, E., *Kalu-rara*, S., *Karunkali*, T.

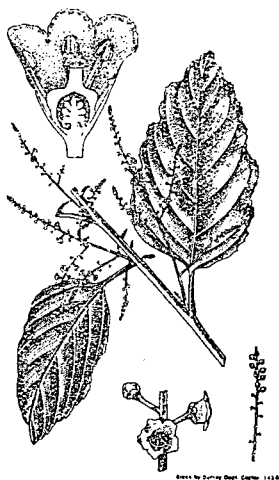


240. *DIOSPYROS WALKERI* Guerke  
*Bastara ebony*, E., *Kadumberiya*, S., *Kallu*, T.

SAPOTACEAE-MYRSINACEAE-SYMPLOCACEAE-LOGANIACEAE.



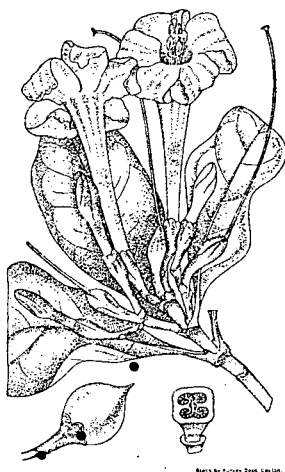
241. MADUCA NERIFOLIA H. Lam.  
*Gan-mi*, S.



242. MAESA PERROTTETIANA A. DC  
*Matabimbiya*, S.



243. SYMPLOCOS SPICATA Roxb.  
*Val-bombu*, S., *Elumpurukki*, T.



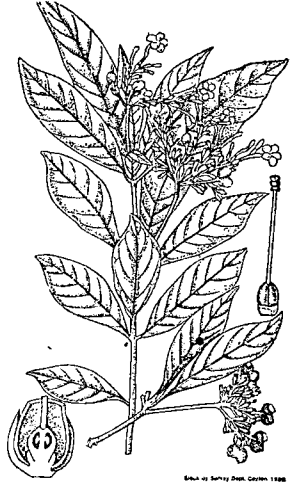
244. FAGRAEA ZEYLANICA Thunb.  
*Etamburu*, S.

OLEACEAE-APOCYNACEAE.



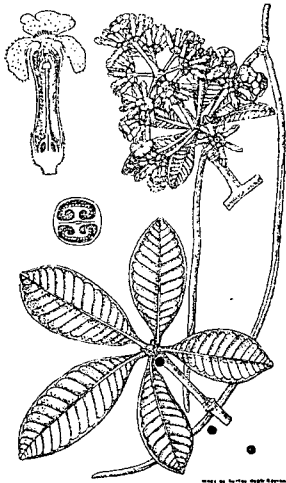
Drawn by Bertram Dool. Contour 1374

245. *JASMINUM ANGUSTIFOLIUM* Vahl  
*Val-picheha*, S.



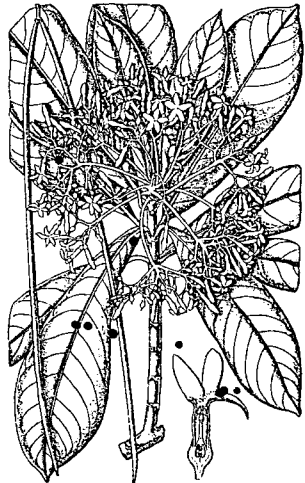
Drawn by Bertram Dool. Contour 1388

246. *RAUVOLFIA SERPENTINA* Hk. f.  
*Rat-ekaveriya*, S.



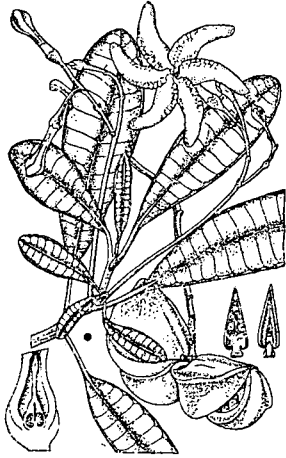
Drawn by Bertram Dool. Contour 1398

247. *ALSTONIA SCHOLARIS* R. Br.  
*Ruk-attana*, S., *Etilaip-palai*, T.

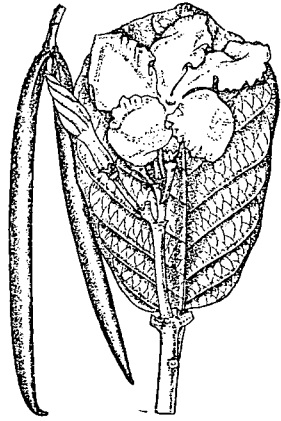


248. *ALSTONIA MACROPHYLLA* Wall.  
*Havari-nuga*, S.

APOCYNACEAE.



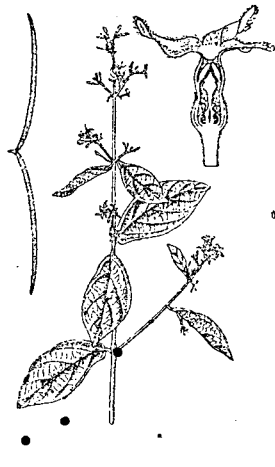
249. *RAUVOFFIA DICHOTOMA* Gamble  
*Divi-kaduru, S., Kadaralaik-kadu, T.*



250. *CHONEMORPHA FRAGRANS* Alst.  
*Bu-val-anguna, S.*



251. *ANODENDRON PANICULATUM* A. DC.  
*Gerandi-dul, As-vel, S.*

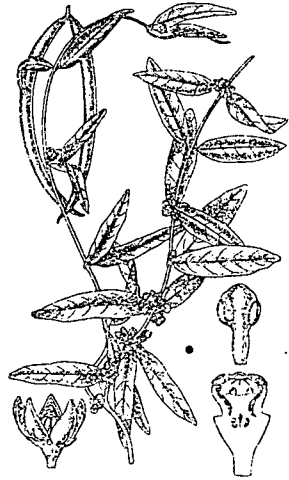


252. *ICHCNOCARPUS FRUTESCENS* Ait.  
*Kiri-vel, S.*

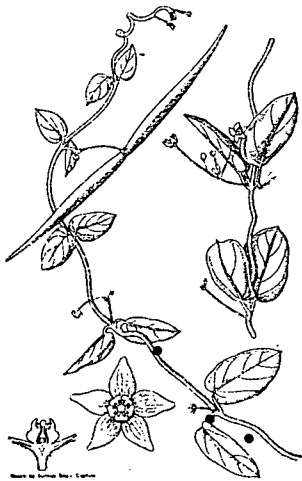
ASCLEPIADACEAE-RUBIACEAE.



253. CALOTROPIS GIGANTEA R. Br.  
*Vara*, S., *Manalkkovi*, *Erukatalai*,  
*Urkkovi*, *Erukku*, T.



254. HEMIDESMUS INDICA R. Br.  
*Ceylon Sarsaparilla*, E., *Iramusu* S.,  
*Nannari*, T.

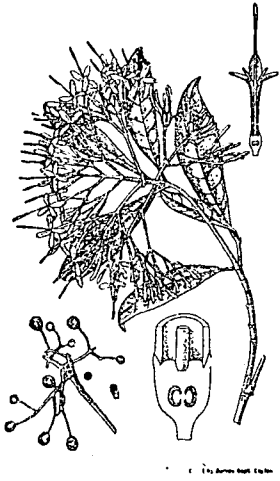


255. TYLOPHORA INDICA Merr.  
*Ceylon Ipecacuanha*, E., *Bin-nuga*, S.,  
*Peyp-palai*, *Nancharappanchan*, T.



256. MUSSAENDA FRONDOSA Linn.  
*Mussaenda*, *Vel-but-sarana*, S., *Vel-ilai*, T.

RUBIACEAE.



277. *PAVETTA INDICA* Linn.  
*Pavatta*, S., *Pavaddai*, T.



258. *WENDLANDIA THYRSOIDEA* Steud.  
*Ravanidala*, S.

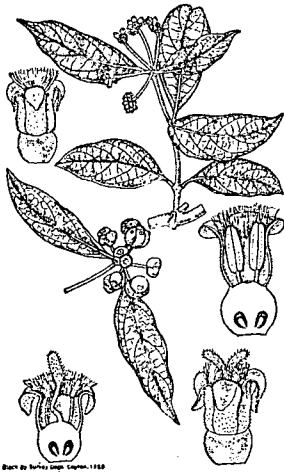


259. *CANTHIUM DICOCCUM* Merr.  
*Pana-karavu*, *Gal-karanda*, *Panduru*, S.,  
*Vach-chikkuran*, *Yerkkoli*, T.

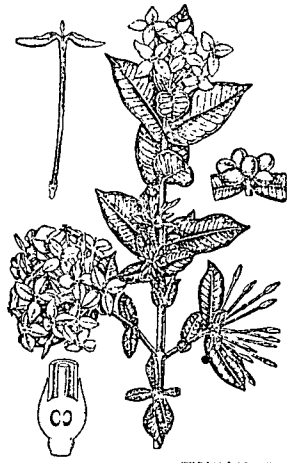


260. *PSYCHOTRIA NIGRA* Alst.

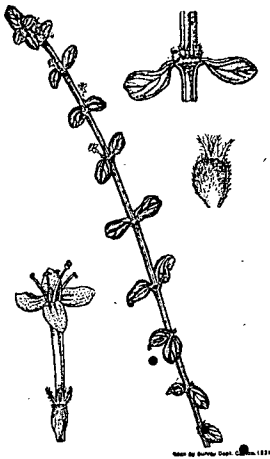
RUBIACEAE.



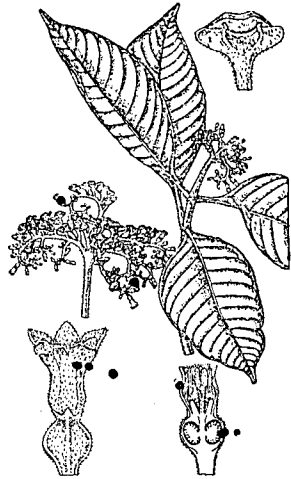
261. MORINDA UMBELLATA Linn.  
Maha-hiri-vel, S., Nuna, T.



262. IXORA COCCINEA Linn.  
Rat-mal, Ratambaia, S., Vedchi, T.

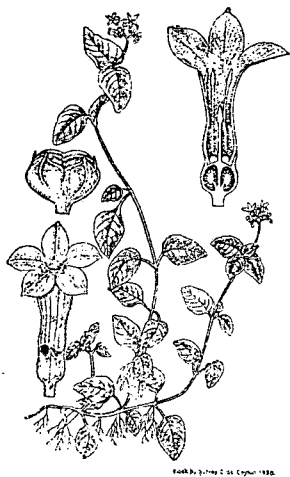


263. SPERMACOCE HISPIDA Linn.  
Hin-geta-kola, S., Yar, Nattaichhuri, T.

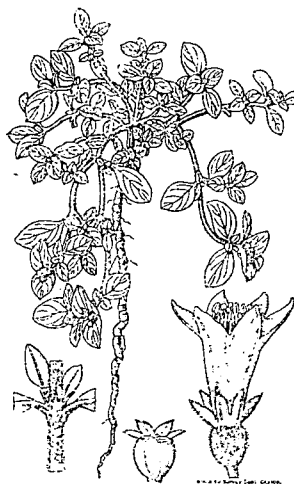


264. OPHIORRHIZA MUNGOS Linn.  
Dal-ketiya, Val-ekaveriya, S.

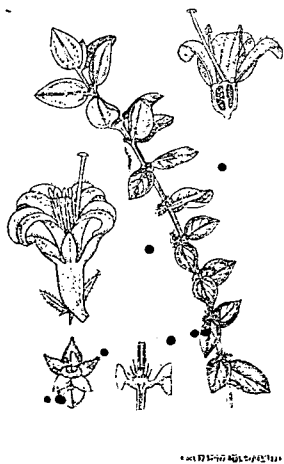
RUBIACEAE.



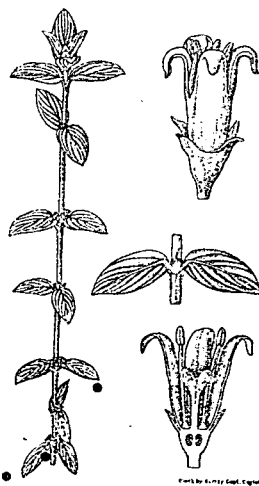
265. OPHIORRHIZA RADICANS Gardn.



266. RICHARDIA SOABRA Linn.  
*Buta-suri*, T.

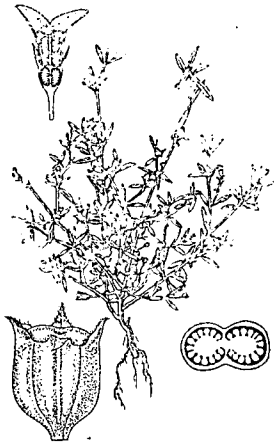


267. HEDYOTIS NITIDA W. & A.  
*Pita-sudu-pala*, S.



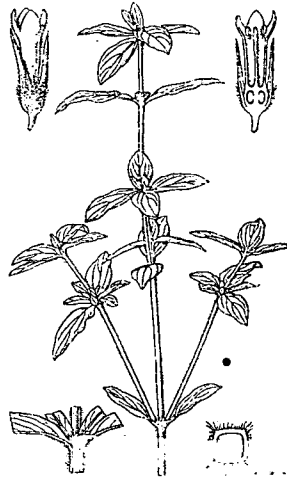
268. HEDYOTIS AURICULARIA Linn.  
*Geta-kola*, S.

RUBIACEAE-COMPOSITAE.

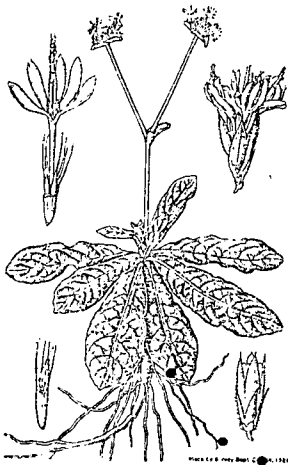


(*Aster-lundia*)

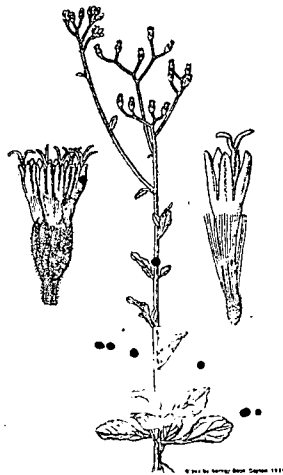
269. *HEDYOTIS CORYMBOSA* Lamk.  
*Val-patpadagam*, S.



270. *MITRACARPUM VELOSUM* Ch. & Bol.



271. *ELEPHANTOPUS SCABER* Linn.  
*Et-adi*, S., *Anichchovadi*, T.



272. *VERNONIA CINEREA* Less.  
*Monara-kudumbiya* S., *Chiteviya-chenkatuviz* T.

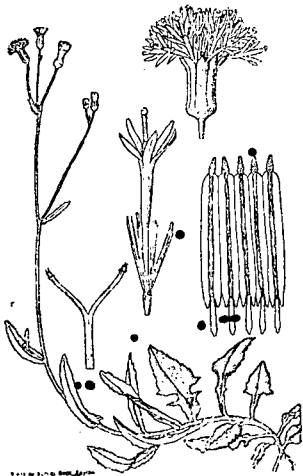
COMPOSITAE.



273. *VERNONIA HOCKERIANA* Ait.

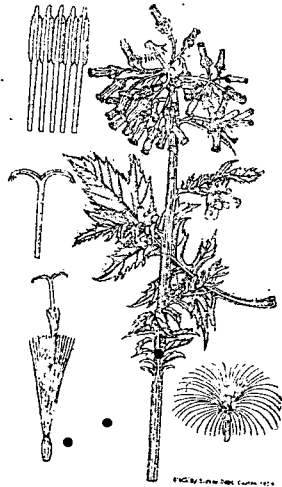


274. *VERNONIA ZEYLANICA* Less  
*Pupula, Hin-boiya, S., Kuppilay, T.*



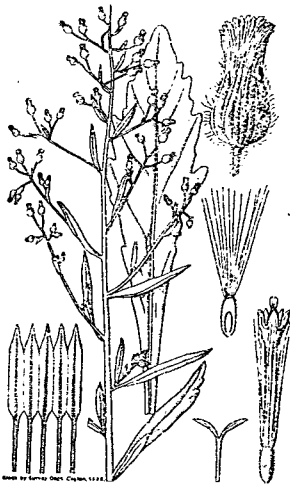
275. *EMILIA JAVANICA* C. Rob.  
*Kudupara, S.*

*Emilia* ~~Semen~~ *Sonchi folia*



276. *ERECHTHITES VALERIANAEFOLIA* DC.

COMPOSITAE.



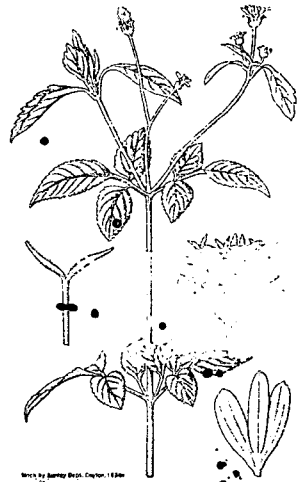
277. ERIGERON SUMATRENSIS Retz.  
*Alavangup-pillu*, T.



278. AGERATUM CONYZOIDES Linn.  
*White-weed*, *Goat-weed*, E., *Hudantela*, S.,  
*Pum-pillu*, T.



279. MIKANIA SCANDENS Willd.  
*Pulun-taliya*, *Loka-palu*, *Gan-palu*, S.



280. BIDENS CHINENSIS Willd.  
*Spanish needle*, E., *Val-to-kola*, S.,  
*Othu-pillu*, T.

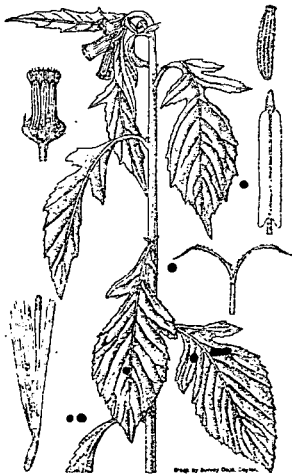
COMPOSITAE.



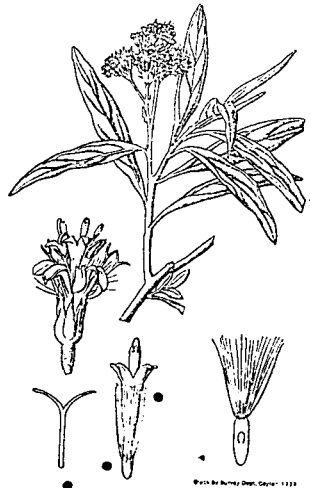
281. *ECLIPTA ALBA* Hassk.  
*Kikirindiya, S., Karippan,  
 Karichalankanni, Katkechi,  
 Kaivichi-ilai, T.*



282. *CENTIPEDA MINIMA* A. Br. & Asch.  
*Visaduti, S.*

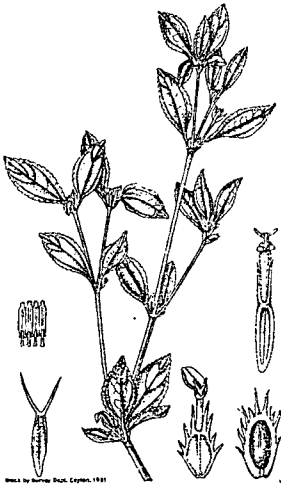


283. *GYNURA CREPIDIOIDES* Benth.  
*Tanduk-kiraip-pillu, T.*

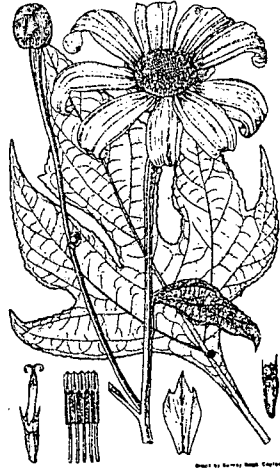


284. *MICROGLOSSA ZEYLANICA* Clarke  
*Pupuli, S.*

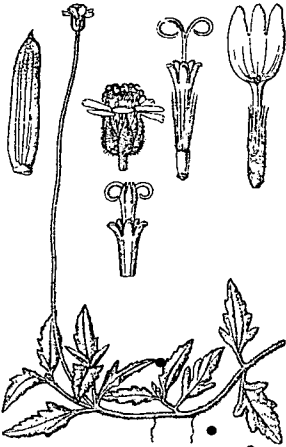
COMPOSITAE.



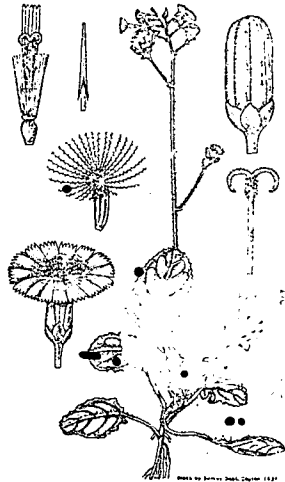
285. *SYNEDRELLA NODIFLORA* Gaertn.



286. *TITHONIA DIVERSIFOLIA* A. Gray  
*Wild sunflower, T., Val-curiyakali, Nata-suriya S.*

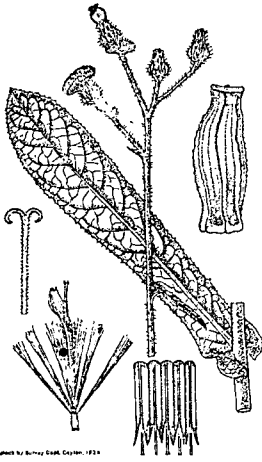


287. *TRIDAX PROCUMBENS* Linn.  
*Mexican Daisy, E.*

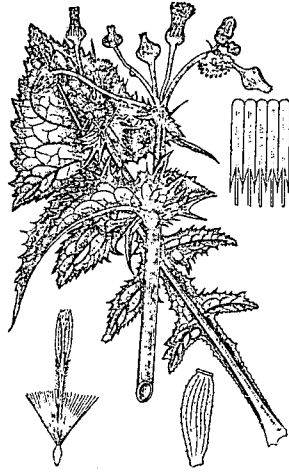


288. *CREPIS JAPONICA* Benth.

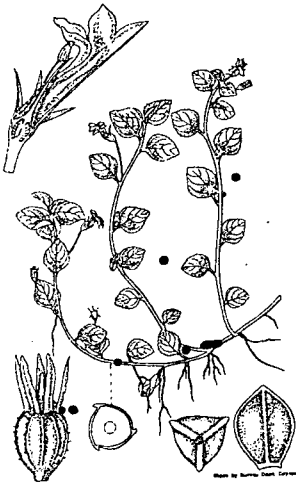
COMPOSITAE-LOBELIACEAE.



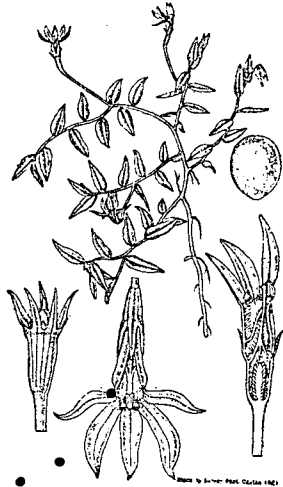
289. *SONCHUS ARVENSIS* Linn.  
*Corn Southistle*, E., *Val-dun-kola*, S.,  
*Pollaip-pillu*, T.



290. *SONCHUS OLERACEUS* Linn.  
*Southistle*, E.



291. *LOBELIA TRIGONA* Roxb.

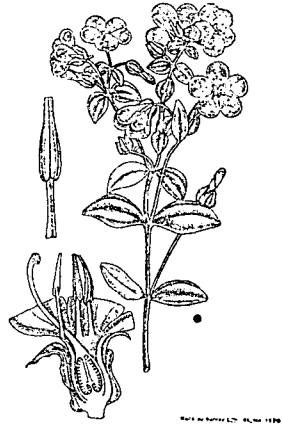


292. *LOBELIA RADICANS* Thunb.

LOBELIACEAE—GENTIANACEAE—HYDROPHYLLACEAE—BORAGINACEAE.



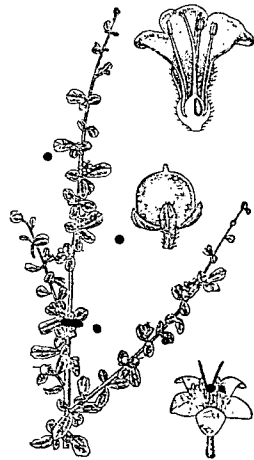
293. *ISOTOMA LONGIFLORA* Presl.



294. *EXACUM TRINERVIUM* Druce  
*Bindara, Gini-kiriya, S.*

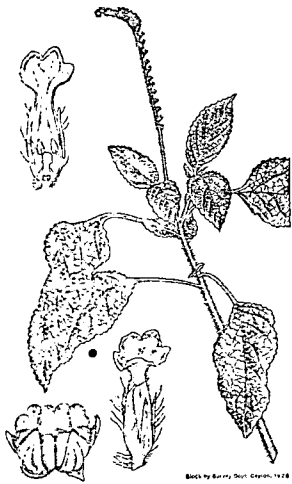


295. *HYDROLEA ZEYLANICA* Val.  
*Diya-kirilla, S.*



296. *EHRETIA MICROPHYLLA* Lamk.  
*Hin-tambala, S., Pakku-veddi, T.*

BORAGINACEAE-SOLANACEAE.



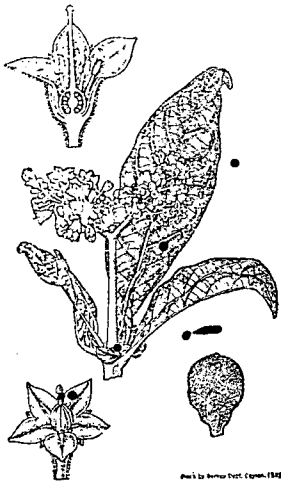
297. *HELIOTROPIMUM INDICUM* Linn.

*Et-seliya, Et-honda, S., Dimbiya, Tel-kodukku, Telmunnai, T.*



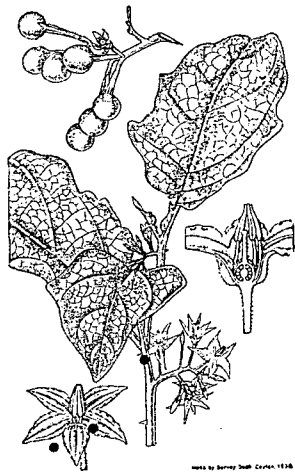
298. *SOLANUM NIGRUM* Linn.

*Kalu-kan-veriya, S., Manal-takkali, T.*



299. *SOLANUM AURICULATUM* Ait.

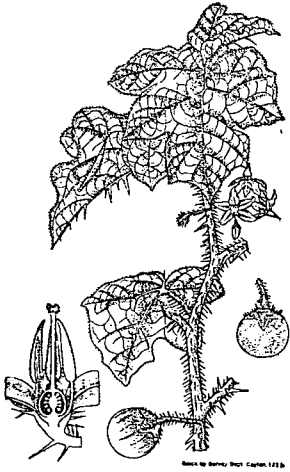
*Hekarilla, S.*



300. *SOLANUM TORVUM* Sw.

*Gona-batu, S., Chundakkay, T.*

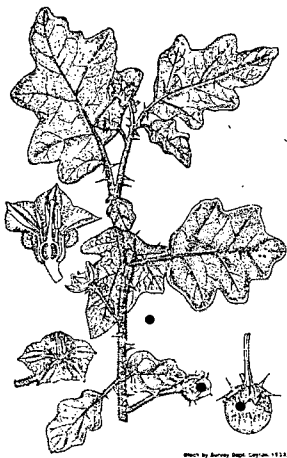
SOLANACEAE.



301. SOLANUM ACULEATISSIMUM Jacq.



302. SOLANUM INDICUM Linn.  
*Tibbatu, S., Pappara-multi, T.*

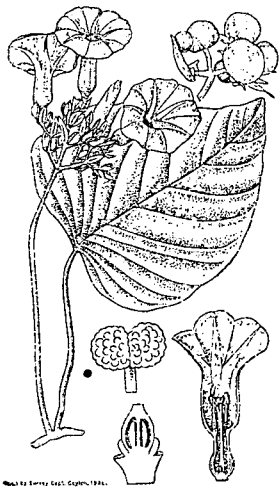


303. SOLANUM SURATTENSE Burm. f.  
*Ela-batu, S., Vaddu, T.*



304. DATURA FASTUOSA Linn.  
*Attana, S., Umattai, T.*

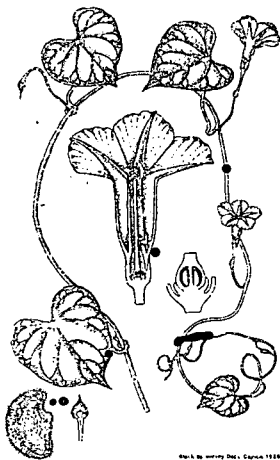
CONVOLVULACEAE. •



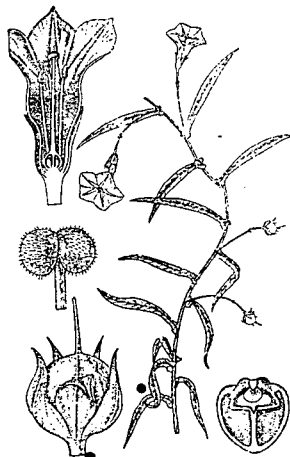
305. ARGYREIA POPULIFOLIA Chois.  
Giri-tilla, S.



306. IPOMAEA CYMOSA R. & S.  
Kiri-madu, S.  
Mahanadu S.  
Madu-kal S.

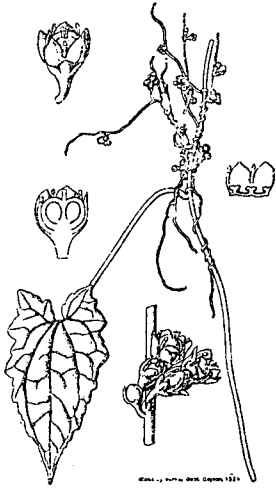


307. IPOMAEA OBSCURA Ker.  
Tel-kota, S., Chiru-tali, T.

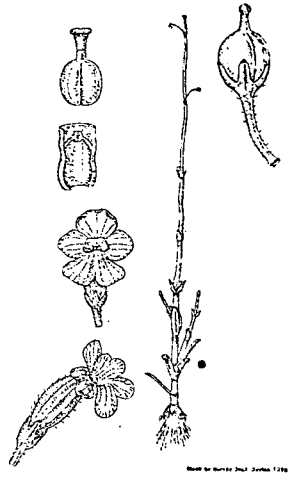


308. IPOMAEA ANGUSTIFOLIA Jacq.  
Hin-mudu, Apasu-mudu, S., Tala-neli, T.  
Madu-kal-S.  
Madu-kodi T.

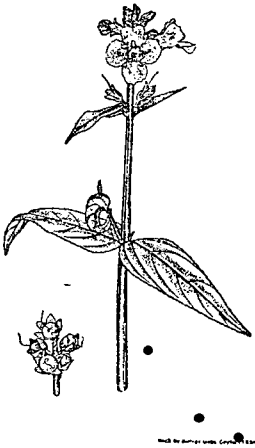
CONVOLVULACEAE-SCROPHULARIACEAE.



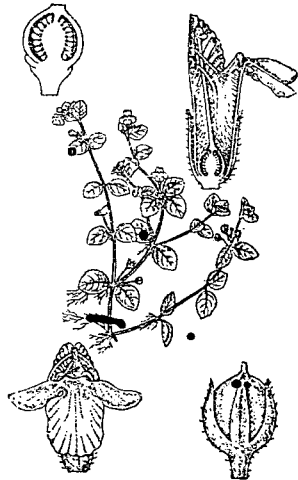
309. *CUSCUTA CHINENSIS* Lamk.  
*Aga-mula-neti-vel*, S.



310. *DOPATRIUM JUNCEUM* Ham.  
*Bin-savan*, S.

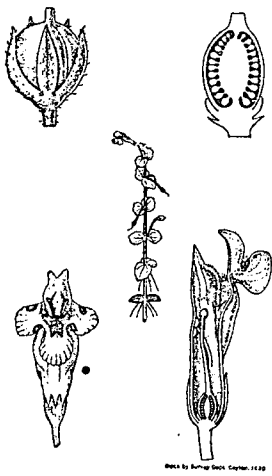


311. *ARTANEMA LONGIFOLIA* Vatke  
*Gas-kotala*, S.

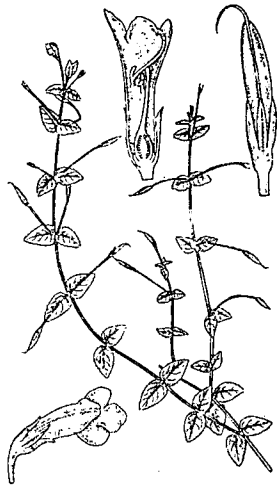


312. *LINDERNIA PUSILLA* Merr.

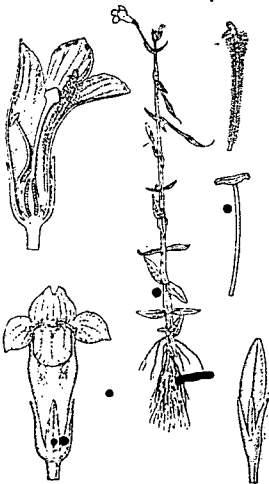
SCROPHULARIACEAE.



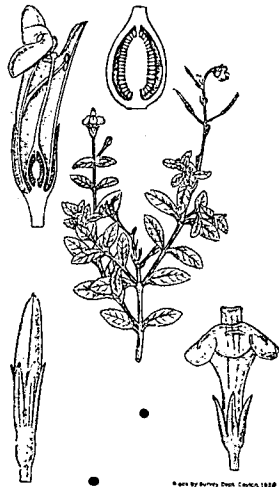
313. *LINDERNIA ROTUNDFOLIA* Alst.



314. *LINDERNIA CORDIFOLIA* Alst.

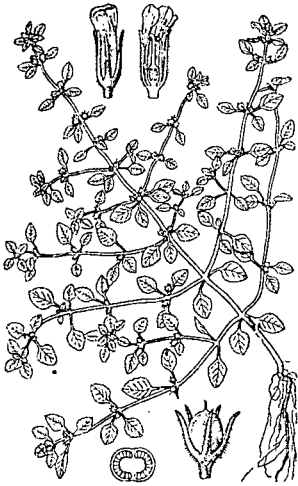


315. *LINDERNIA HYSSOPIOIDES* Haines



316. *LINDERNIA ANTIPODA* Alst.  
*Vita, S.*

• SCROPHULARIACEAE.



317. *STEMODIA VERTICILLATA* Sprague



318. *LIMNOPHILA CONFERTA* Benth.  
*Amba-vila*, S.

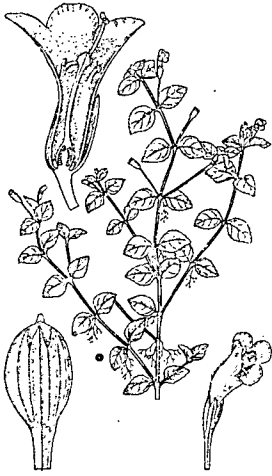


319. *LIMNOPHILA AROMATICA* Merr.

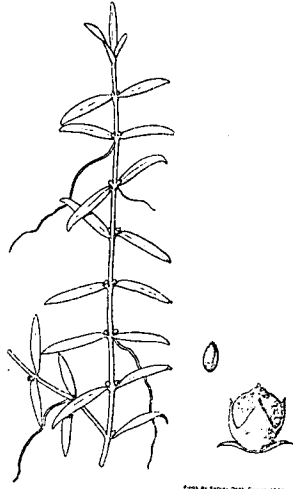


320. *TORENIA CYANEA* Alst.

SCROPHULARIACEAE.



321. *TORENTIA CRUSTACEA* Ch. & Schl.



From the Botany Dept., Cornell Univ.

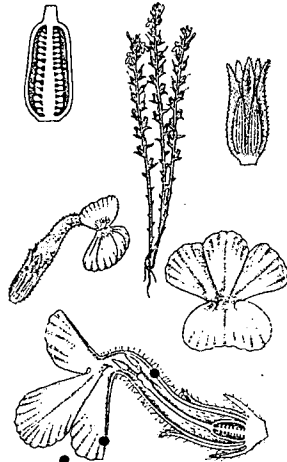
322. *MICROCARPÆA MINIMA* Merr.



From the Botany Dept., Cornell Univ.

323. *SCOPARIA DULCIS* Linn.

*Wai. Kottamalli. S.*



From the Botany Dept., Cornell Univ.

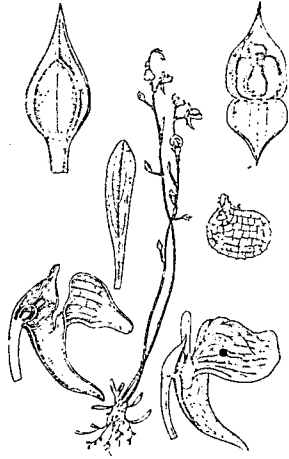
324. *STRIGA LUTEA* Lour.

SCROPHULARIACEAE-LENTIBULARIACEAE-GESNERACEAE.



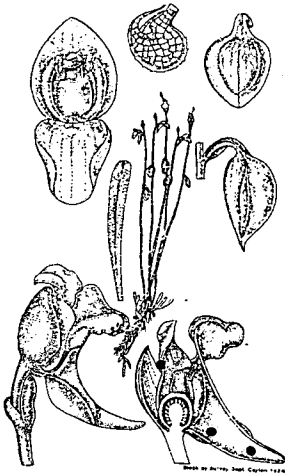
Made by Harry S. G. Carter

325. RAZUMOVIA INDICA Alst.  
*Dutu-satutu*, S.



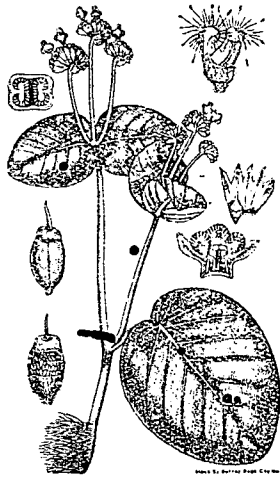
Made by Harry S. G. Carter

326. UTRICULARIA COERULEA Linn.  
*Nil-monocessa*, S.



Made by Harry S. G. Carter

327. UTRICULARIA BIFIDA Linn.



Made by Harry S. G. Carter

328. EPITHEMA CARNOSUM Benth.

BIGNONIACEAE-ACANTHACEAE.



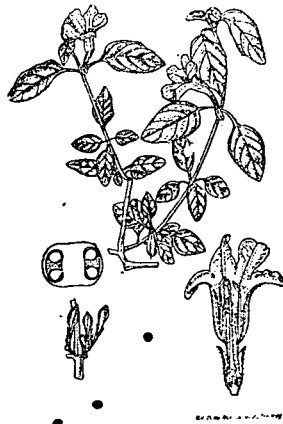
329. STEREOSPERMUM TETRAGONUM DC.  
*Lanu-madala, Dunu-madala, S., Padri, T.*



330. ELYTRARIA ACAULIS Lindau



331. PHAYLOOPSIS IMBRICATA Sweet



332. RUELLIA RINGENS Linn.  
*Nil-puruk, S.*

ACANTHACEAE.



333. *DAEDALACANTHUS FASTIGIATUS* Alst.



334. *RUNGIA PECTINATA* Nees.  
*Tavachi-murunkai, Punakap-purru, T.*

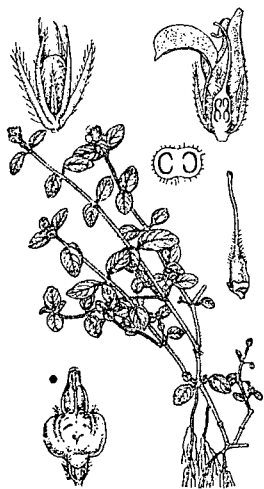


335. *JUSTICIA BETONICA* Lindl.  
*Sudu-puruk, S.*

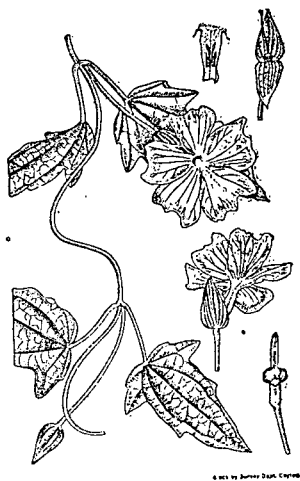


336. *JUSTICIA HOOKERIANA* T And.

ACANTHACEAE-VERBENACEAE.



337. *JUSTICIA PROCUMBENS* Linn.  
Mayani, S.



338. *THUNBERGIA FRAGRANS* Roxb.

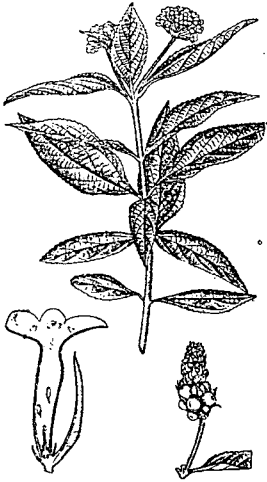


339. *THUNBERGIA ALATA* Boj.

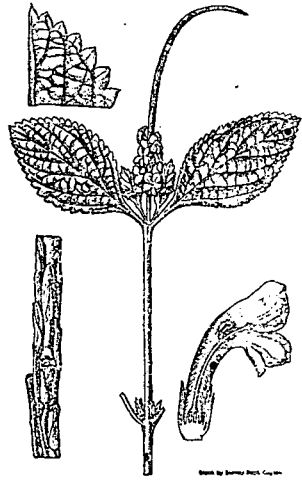


340. *LANTANA ACULEATA* Linn.  
Rata-hinguru, Ganda-pana, S.

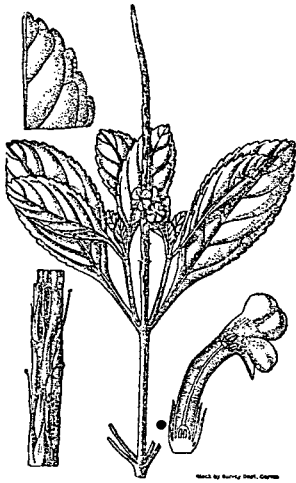
• VERBENACEAE.



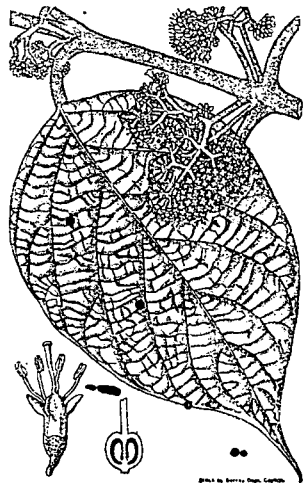
341. LANTANA TRIFOLIA Linn.



342. STACHYTARPHETA JAMAICENSIS Vahl



343. STACHYTARPHETA INDICA Vahl  
*Balu-nakuta*, S., *Nay-uranchi*, T.



344. CALLICARPA TOMENTOSA Linn.  
*Illa*, S.

VERBENACEAE-LABIATAE.



345. GMELENA ARBOREA Roxb.  
*Et-demat*, S., *Kainadi*, T.



346. CLERODENDRON SERRATUM Moon  
*Ken-henda*, S., *Chirutekku*, *Vatamadakki*, T.

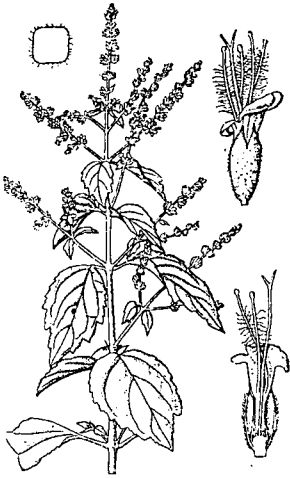


347. VITEX PINNATA Linn.  
*Milla*, *Miyam-milla*, *Sapu-milla*, S.,  
*Kudda-manakku*, T.



348. OCIMUM GRATISSIMUM Linn.  
*Gas-tala*, *O-tala*, *Kiri-tala*, S., *Etumich-*  
*cham-tulachi*, T.

LABIATAE-PANDANACEAE.



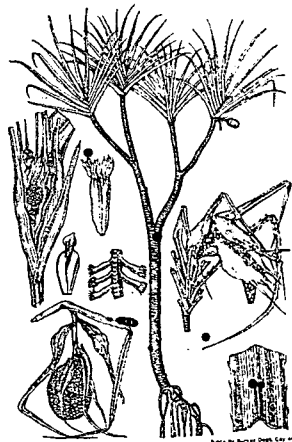
349. *POGOSTEMON HEYNEANUS* Benth.  
*Gan-kollan-kola*, S.



350. *LEUCUS BIFLORA* R. Br.  
*Tuakba*, S., *Pey-tumpai*, T.

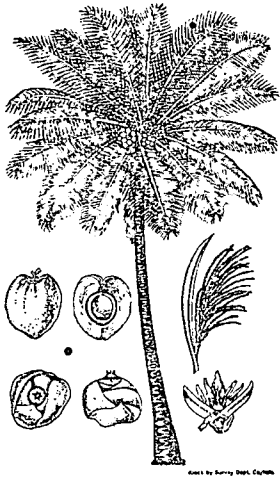


351. *LEUCUS ZEYLANICUS* R. Br.  
*Geta-lumba*, S., *Mudi-tumpai*, T



352. *PANDANUS ZEYLANICUS* Solms.  
*Screw pine*, E., *O-keyiya*, S., *Talai*, T.

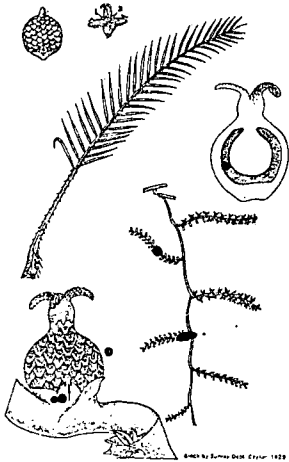
PALMACEAE.



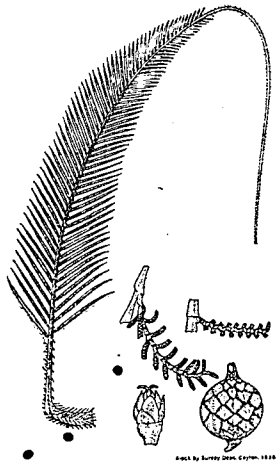
353. *COCOS NUCIFERA* Linn.  
*Coconut palm*, E., Pol., S., Tennai, T.



354. *CALAMUS THWAITESII* Becc.  
*Maha-vevel*, S., *Periya-pirampu*, T.

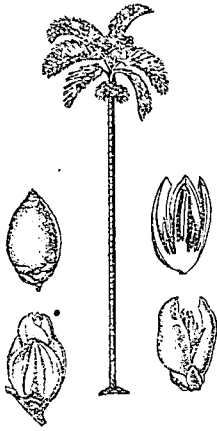


355. *CALAMUS PSEUDO-TENUIS* Becc.  
*Hin-vevel*, S.



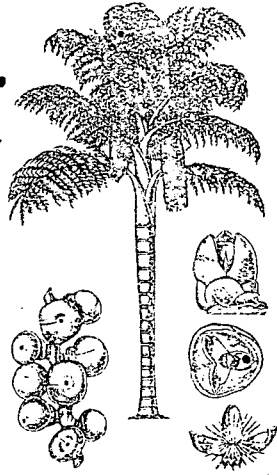
356. *CALAMUS ZEYLANICUS* Becc.  
*Tudarana*, S.

PALMACEAE-ARACEAE.



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357. *ARECA CATECHU* Linn.  
*Puvak*, S., *Kamuku*, *Palaku*, T.



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358. *CARYOTA URENS* Linn.  
*Toddie palm*, C., *Kitul*, S., *Tippitipanai*, T.



© 1911 by Luther S. Black, Chicago.

359. *POTHOS SCANDENS* Linn.  
*Pota-vel* S., *Anaikkurinja*, T.



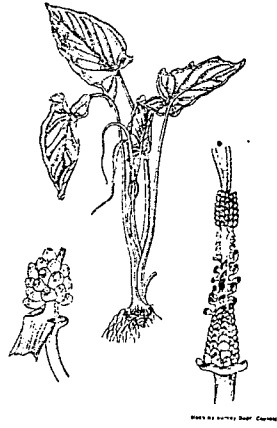
© 1911 by Luther S. Black, Chicago.

360. *TYPHONIUM TRILOBATUM* Schott  
*Panugala*, S.

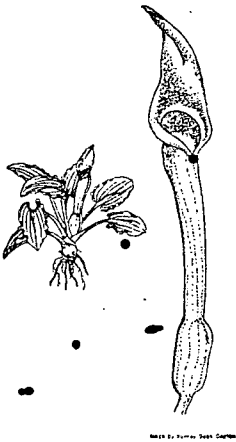
ARACEAE.



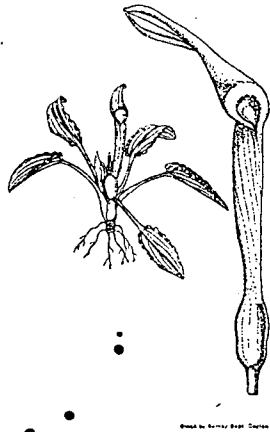
361. *TYPHONIUM ROXBURGHII* Schott  
*Polon-ala, S.*



362. *TYPHONIUM CUSPIDATUM* Dcne.

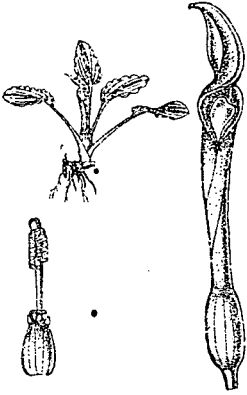


363. *CRYPTOCORYNE BECKETTII* Thw.  
*Atiudayan, S. & T.*



364. *CRYPTOCORYNE LUTEA* Alst.  
*Atiudayan, S. & T.*

• ARACEAE.



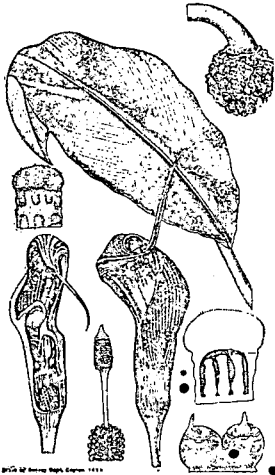
From the drawing of P. L. C. Schott

365. *CRYPTOCORYNE WALKERI* Schott  
*Atiudayan, S. & T*



From the drawing of P. L. C. Schott

366. *CRYPTOCORYNE NEVILLII* Trim.



From the drawing of P. L. C. Schott

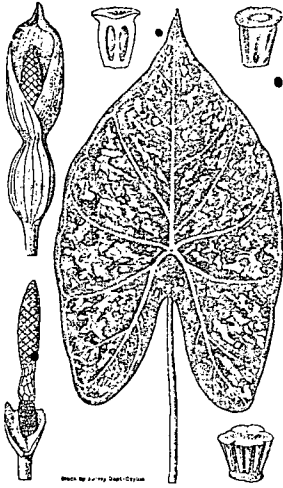
367. *LAGENANDRA OVATA* Thw.  
*Vetala, S.*



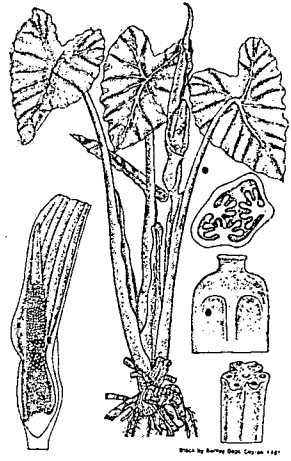
From the drawing of P. L. C. Schott

368. *AGLAONEMA OBLONGIFOLIUM* Kunth.

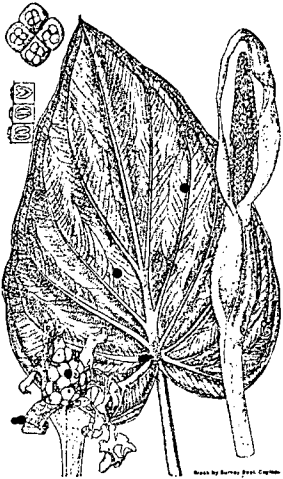
ARACEAE.



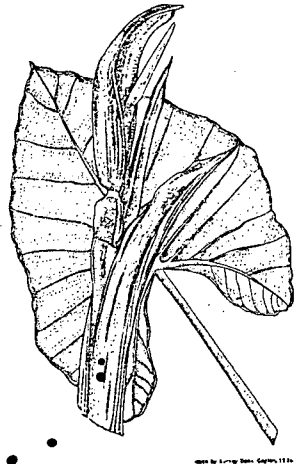
369. CALADIUM BICOLOR Vent.



370. COLOCASIA ESCULENTA Vent.  
*Gahala, S.*



371. ALOCASIA CUCULLATA Schott  
*Panu-habarala, S.*



372. ALOCASIA MACRORRHIZA Schott  
*Habarala, S.*

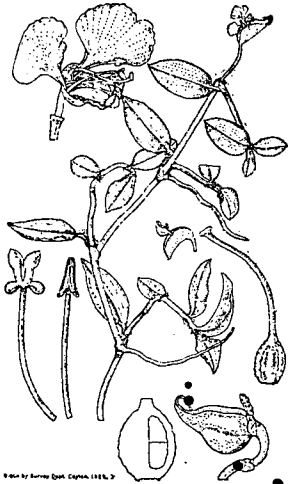
COMMELINACEAE.



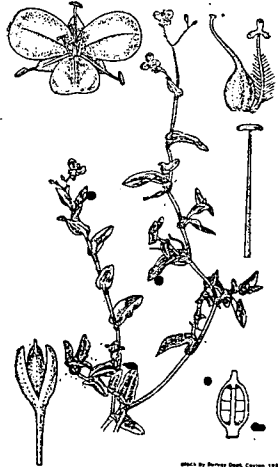
373. *CYANOTIS ZEYLANICA* Hassk.



374. *CYANOTIS FASCICULATA* Schultes f.



375. *COMMELINA NUDIFLORA* Linn.  
*Girapala*, S. *Amalaip-pillu*, T.

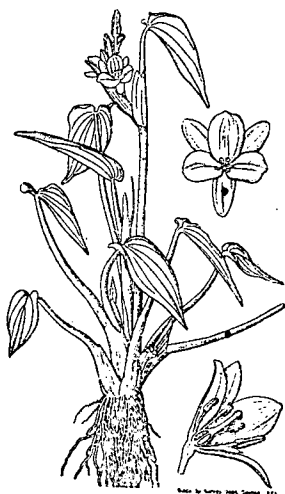


376. *ANEMILEMA SPIRATUM* R. Br.

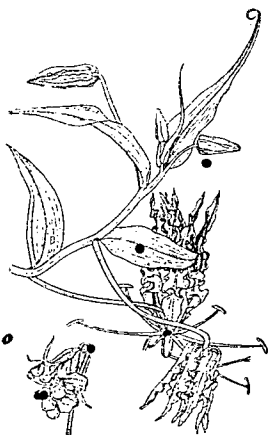
COMMELINACEAE-PONTEBERIACEAE-LILIACEAE.



377. ANELLEMA MALABARICUM Merr.



378. MONOCHORIA VAGINALIS Presl.  
*Habarala, S.*



379. GLORIOSA SUPERBA Linn.  
*Niyalga, S., Karttikaik-kilangu,  
Ventondi, T.*

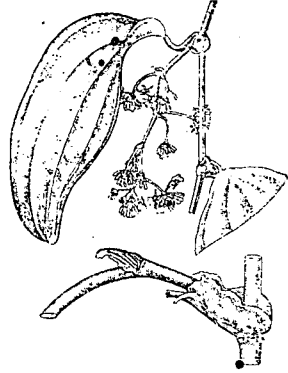


380. DRACAENA THWAITESII Regel

LILIACEAE.



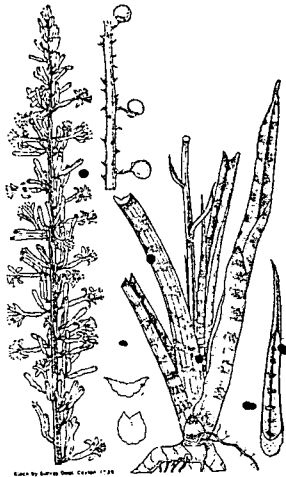
381. *DIAKELLA ENSIFOLIA* Redouté  
*Monara-petan*, S.



382. *SMILAX PROLIFERA* Ronb.  
*Maha-kabarasa*, S.

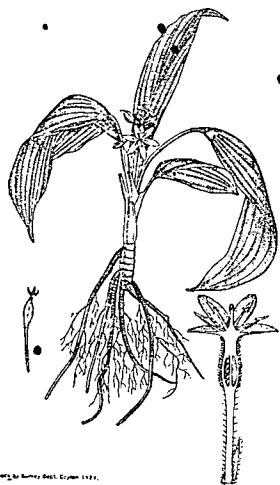


383. *ASPARAGUS FALCATUS* Linn.  
*Hatavariya*, S.

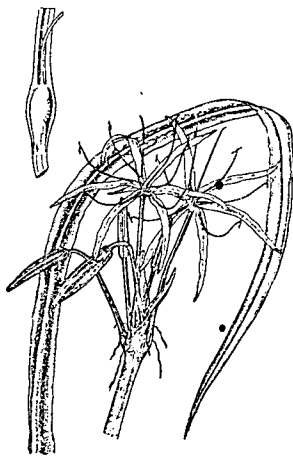


384. *SANSEVIERIA ZEYLANICA* Willd.  
*Niyanda*, S., *Magal*, T.

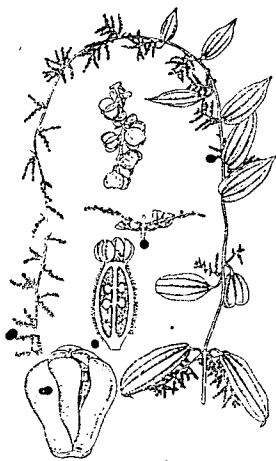
AMARYLLIDACEAE-DIOSCOREACEAE.



385. *CURCULIGO LEPTOSTACHYA* Alst.  
*Maha-bintal*, S.



386. *CRINUM DEFIXUM* Ker.  
*Hin-tolabo*, S.



387. *DIOSCOREA SPICATA* Roth.  
*Gon-ala*, S.



388. *DIOSCOREA PENTAPHYLLA* Linn.  
*Katwala*, S., *Allai*, T.

DIOSCOREACEAE-ZINGIBERACEAE



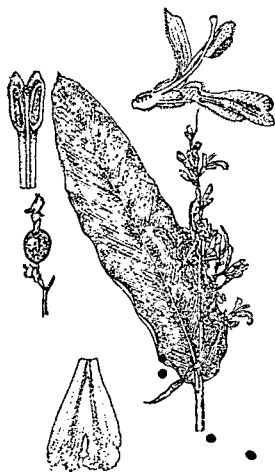
Blatt. de Berlin Bot. Garten 1818

389. *DIOSCOREA TOMENTOSA* Heyne  
*Uyala, S.*



Blatt. de Berlin Bot. Garten 1818

390. *COSTUS SPECIOSUS* Linn.  
*Tebu, S.*



Blatt. de Berlin Bot. Garten 1818

391. *LANGUAS CHINENSE* Koenig.  
*Atu-gas, S.*



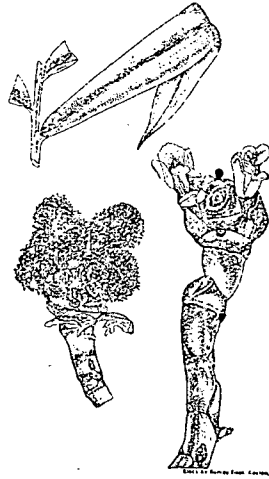
Blatt. de Berlin Bot. Garten 1818

392. *AMOMUM MASTICATORIUM* Thw.

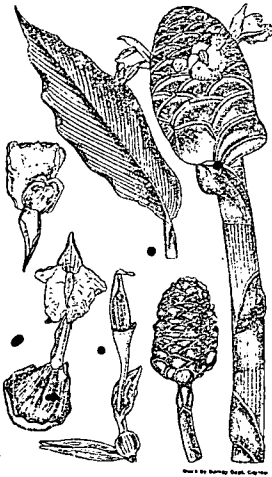
ZINGIBERACEAE-CANNACEAE.



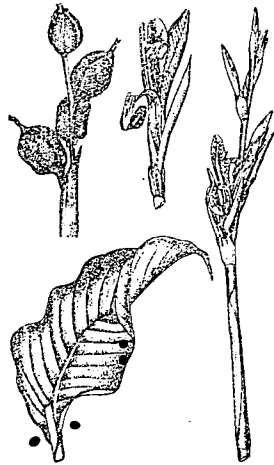
393. *AMOMUM HYPOLEUCUM* Thw.



394. *AMOMUM ECHINOCARPUM* Alst.

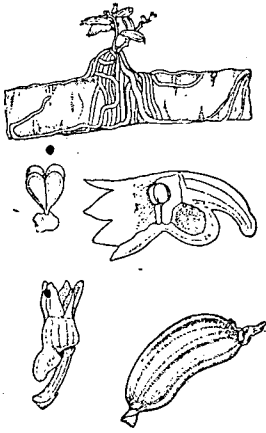


395. *ZINGIBER ZERUMBET* Sm.  
*Val-inguru, S., Kaddu-inchi, T.*

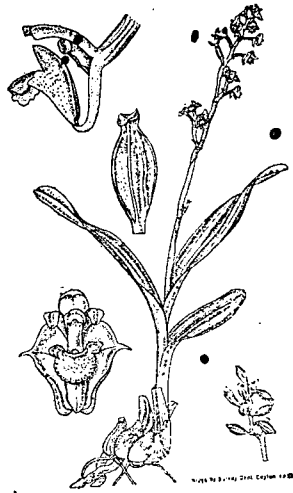


396. *CANNA INDICA* Linn.  
*But-sarana, S.*

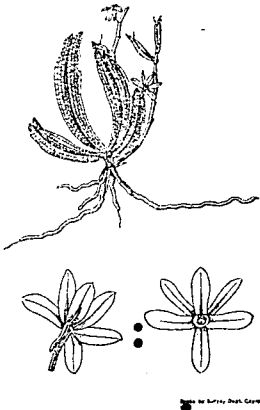
ORCHIDACEAE.



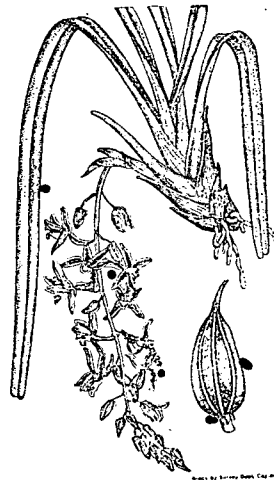
397. *TACHYPHYLLUM ALWISI* Lindl.



398. *POLYSTACHYA ZEYLANICA* Lindl.



399. *ANGRAECUM HOLOGLOTTIS* Schltr.



400. *CYMBIDIUM BICOLOR* Lindl.

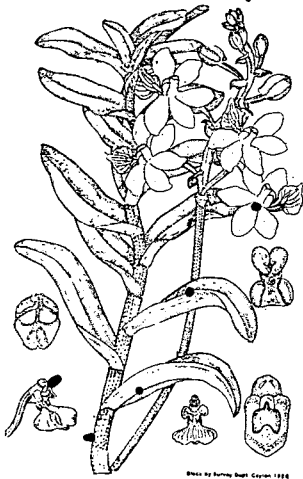
ORCHIDACEAE.



401. *LUSIA TERETIFOLIA* Gaud.



402. *VANDA TESTACEA* Reichb. f.



403. *VANDA SPATHULATA* SPRENG.



404. *DENDROCOLLA PULCHELLA* Thw.