

CONTRIBUTIONS TO THE BOTANY OF KAMRUP DISTRICT (SOUTHERN PART), ASSAM

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A B S T R A C T

This is an account of the vegetation and an enumeration of the vascular plants of the southern part of Kamrup district, Assam, the area lying between the Khasi Hills and the Brahmaputra river, based upon a three weeks' collection and study in June and October.

South Kamrup is approximately between Lat. $25^{\circ}35'-26^{\circ}04'$ and Long. $91^{\circ}-92^{\circ}$. It is bounded in the north by the Brahmaputra river, in the south by the Khasi Hills, in the east by Nowgong district and in the west by Goalpara district.

Three rivers, *Digaru* in the east, *Kulsi* in the middle and *Singra* in the west flow through the area and empty into the Brahmaputra river. All these water-courses customarily swell and overflow during the monsoon.

The surface features of the area are generally described as the 'plains' but there are scattered low hills bordering the Khasi Hills. The highest hill in the area studied (Sattargaon) had an elevation of about 300 m. A feature of the region happens to be scattered extensive marshy areas, locally referred to as '*Bils*'.

The climate is warm and humid. The rainfall in the different parts of the area varies from 80 to 200 cm per year, the monsoon rains being particularly heavy in the late summer months.

Botanically the area is not well known. C. B. Clarke collected here, as also Gustav Mann and U. N. Kanjilal of the Assam Forest Service. These were cursory collections. In a reconnoitring exploration of the whole of Kamrup district by Dr. G. Panigrahi, one or two small localities (Rani, Rajapara, Kulsi and Boko) of the southern part were briefly visited for plant collections.

The present account is based on about three weeks' collection and study of vegetation at several points throughout southern Kamrup in June and October of 1964 and 1965.

The vegetation covering the low hills resembles that of the bordering Khasi Hills. It varies from evergreen to semi-evergreen in the higher elevations tapering off into deciduous forests of Bamboo-Teak. In the plains there are large areas covered with sal forest, so uniform in their growth as to appear like a plantation. The '*Bils*' and their surrounding water-logged swampy areas support a lush grassland and mixed aquatic growth. In the very open areas and adjacent to cultivated lands

there are scattered patches of scrub. The evergreen and semi-evergreen forest on the hilly areas are dense with many species of tall trees and large lianes. Outstanding species are *Albizia lucida* Benth., *Amoora wallichii* King, *Mesua ferrea* L., *Terminalia myriocarpa* Muell., *Schima wallichii* Chois., *Duabanga grandiflora* Walp., *Dysoxylum binectariferum* Hk. f., *Ficus rumphii* Bl., *Castanopsis armata* Spach.

In semi-evergreen forests are *Stereospermum chelonoides* DC., *Anthocephalus cadamba* Miq., *Zanthoxylum rhetsa* DC., *Engelhardtia spicata* Bl., *Artocarpus chaplasha* Roxb. and *Dysoxylum procerrum* Hiern. The deciduous forests, which stretch out imperceptibly from the evergreen and semi-evergreen belts, include *Lagerstroemia speciosa* Pers., *Cassia fistula* L., *Gmelina arborea* L., *Dillenia pentagyna* Roxb. and scattered clumps of bamboos, *Dendrocalamus hamiltonii* Nees & Arn. and *Arundinaria* sp. There are a few trees of *Tectona grandis* L. here and there.

The sal forests have a mixture of tree species: *Lagerstroemia speciosa* Pers., *Ficus geniculata* Kurz, *Garuga pinnata* Roxb., *Spondias mangifera* Willd., *Dalbergia assamica* Benth., *Michelia oblonga* Wall. and *Talauma phellocarpa* King are some of the most frequent associates.

In all these forests there appear to be a rather abrupt transition from the tall tree tier to the shrub tier. There are no intermediate medium or short trees. The short trees mixing up with the dense shrubs obscure a clear demarcation of the two tiers. In this stratum also are to be found many stragglers and climbers which overgrow their supporting hosts and form dense, impenetrable thickets.

Saurauja roxburghii Wall., *Antidesma diandrum* Roth, *Xeromphis spinosa* Keay, *Pavetta indica* L., *Ixora villosa* Roxb., *Maesa montana* DC., *Holarhena antidysenterica* Wall. are some of the common species in this zone of short trees and shrubs. Amongst the climbers and creepers are to be mentioned *Vitis trifolia* L., *Derris cuneifolia* Benth.,

Cryptolepis elegans Wall., *Stephania hernandifolia* Walp., *Pericampylus glaucus* Merr., *Cissampelos pareira* L. and *Piper thomsonii* Hk. f. Other prominent epiphytic climbers are *Rhaphidophora decursiva* Schott., *Scindapsus officinalis* Schott. and *Pothos scandens* L., *Hoya arnottiana* Wight, *H. parasitica* Wall., *Dischidia rafflesiana* Wall. *Loranthus* sps. on trees and shrubs and *Cuscuta reflexa* Roxb. on shrubs and undershrubs are also found.

Epiphytic orchids and ferns are frequent in these forests. The orchid association is represented by *Dendrobium moschatum* Wall., *D. fimbriatum* Hk. f., *D. pierardii* Roxb., *D. densiflorum* Wall., *D. formosum* Roxb., *Cymbidium aloifolium* Sw., *Vanda teres* Lindl., *Rhynchostylis retusa* Bl. and many others.

The forest floor is dense with herbs mainly *Impatiens tripetala* Roxb., *Biophytum sensitivum* DC., *Pouzolzia indica* Gaud., *Sarcochlamys pulcherrima* Gaud., *Ophiorrhiza oppositiflora* Hk. f., *Molinieria recurvata* Nel. and *Chlorophytum arundinaceum* Baker together with large patches of *Phrynium capitatum* Willd. in shaded places and along the banks of streams in the hill tract.

Other associations of similar type, composed of *Curcuma angustifolia* Roxb., *C. aromatica* Salisb. and *Boesenbergia longiflora* (Wall.) Ktze. (*Gastrochilus longiflora* Wall.) are found in large patches in moist parts of the forest, along paths. This association has been commonly found not only in the evergreen and semi-evergreen sections of the forest but also in deciduous sal forest. But the growth of such an association is more vigorous in the sal forest due probably to availability of more light. There is again another type of association which is predominant on the slopes of hills and in shaded wet places of hill tracts especially in the semi-evergreen forest and in the evergreen pockets. The composition of this type of association is represented by *Hedyctum coccineum* Smith, *Alpinia allughas* Rosc., *A. bracteata* Roxb. and *Ammum linguiforme* Benth.

Throughout south Kamrup, *Costus speciosus* Smith and *Zingiber zerumbet* Smith are met along with *Polygala chinensis* L., *P. longifolia* Poir., *P. glomerata* Lour., *Anotis wightiana* Hk. f., *Hedyotis vestita* R. Br., *H. scandens* Roxb., *Gloriosa superba* L., *Murdannia elata* (Wall.) Brueckn., *Pollia secundiflora* (Bl.) Baker, *Commelina paludosa* Bl., *Murdannia nudiflora* (L.) Bren., *Setaria palmifolia* (Koen.) Stapf, *Oryza granulata* Steud. and *O. officinalis* Wall.

Large associations of *Forrestia mollissima* var. *hispida* Baker are found sporadically in shaded and

wet sandy soil along stream banks with *Colocasia antiquorum* Schott. and *Homalomena aromatica* Schott.

Ferns occur profusely in shaded moist areas along roads and path sides and margins of watercourses. *Cyathea* sp. catches the eye even from distances, due to its crown of elegantly spreading large fronds. Next to the *Cyathea*, another large fern is *Angiopteris* occurring frequently near streams. Most of the other ferns belong to the Polypodiaceae. *Helminthostachys* and *Ophioglossum* sp. have also been collected amidst other herbaceous growth.

Amongst the fern allies, *Equisetum debile* Roxb. forming wiry clumps amidst branches of some supporting shrub, is not uncommon. *Lycopodium cernuum* L. is frequent with *Gleichenia* and *Blechnum* on old road cuttings. *Lycopodium phlegmaria* L. is seen now and then with some epiphytic orchids and ferns on large trees.

Liverworts including *Marchantia*, *Riccia*, *Targionia*, *Plagiochasma* and *Dumortiera* form dense green mats over boulders and stones within streams and on banks.

The 'Bils' have an aquatic vegetation composed of *Eichhornia crassipes* Solms., *Nymphoides cristatum* Ktze., *Monochoria hastata* Presl, *Trapa quadrispinosa* Roxb., *Ludwigia adscendens* Hara, *Nymphaea lotus* L., *Nelumbo nucifera* Gaertn., *Ottelia alismoides* Pers., *Utricularia aurea* Lour. and *Leersia hexandra* Sw. forming sluggish floating masses.

At the edge of water, the following species grow abundantly: *Polygonum orientale* L. and *P. barbatum* L. in association with several grasses like *Panicum proliferum* Lamk., *Arundinella arvenacea* Munro, *Phragmites communis* Trin., *Thysanolaena agrostis* Nees, *Saccharum spontaneum* L., *Leersia hexandra* Sw., *Paspalum orbiculare* Forst. and *Schumannianthus dichotomus* Gagnep.

The following trees and shrubs occur along banks: *Syzygium oblatum* Cowan (*Eugenia oblata* Roxb.), *Cleistocalyx operculata* Merr., *Ardisia khasiana* Clarke, *Trewia nudiflora* L., *Dracaena spicata* Roxb., *Duabanga grandiflora* Walp., *Lagerstroemia speciosa* Pers. and *Alpinia bracteata* Roxb.

Grasslands are scattered largely in deciduous forests and in open scrub forests. The most common representatives are *Imperata arundinacea* Cyrill., *Andropogon iwarancusa* Jones, *Panicum assamicum* Hk. f., *Isachne australis* R. Br., *Saccharum naranga* Ham., *Paspalum scrobiculatum* L., *Echinochloa colanum* Link., *Vetiveria zizanioides* Nash., *Cyperus brevifolius* (Rottb.) Hassk. (*Kyllinga*

brevifolia Rottb.), *Polytoca digitata* Druce and *Setaria glauca* Beauv.

In the enumeration that follows only the vascular plants have been included. An analysis indicates about 420 species in 315 genera belonging to 103 families. The collections on which this account is based are in the "Kanjilal Herbarium" of the Botanical Survey of India, Shillong (ASSAM).

ENUMERATION

EQUISETACEAE

Equisetum debile Roxb.

LYCOPODIACEAE

Lycopodium phlegmaria L.

OPHIOGLOSSACEAE

Helminthostachys zeylanica (L.) Hk. f.

Ophioglossum costatum R. Br.

MARATTIACEAE

Angiopteris evecta (Forst.) Hoffm.

SCHIZAEACEAE

Lygodium flexuosum (L.) Sw.

L. japonicum (Thunb.) Sw.

PTERIDACEAE

Adiantum philippense L.

Cheilanthes tenuifolia (Burm.) Sw.

Pteris cretica L.

P. ensiformis Burm.

CYATHEACEAE

Cyathea gigantea (Wall.) Holtt.

ASPIDIACEAE

Heterogonium pinnatum (Copel.) Holtt.

Thelypteris multilineata (Wall. ex Holtt.) Mort.

ASPLENIACEAE

Asplenium nidus L.

POLYPODIACEAE

Leptochilus axillaris (Cav.) Klf.

Pyrrosia heteractis (Mett.) Ching

SALVINIACEAE

Salvinia cucullata Roxb.

Azolla sp.

CYCADACEAE

Cycas pectinata Griff.

GNETACEAE

Gnetum montanum Markg.

RANUNCULACEAE

Naravella zeylanica DC.

DILLENACEAE

Dillenia indica L.

D. pentagyna Roxb.

MAGNOLIACEAE

Magnolia pterocarpa Roxb.

ANNONACEAE

Annona squamosa L.

Desmos longiflorus (Roxb.) Safford

Melodorum wallichii Hk. f. & Th.

Polyalthia jenkinsii Hk. f. & Th.

MENISPERMACEAE

Cissampelos pareira L.

Pericampylus glaucus (Lamk.) Merr.

Stephania japonica (Thunb.) Miers.

Tinospora malabarica Miers.

CAPPARACEAE

Cleome viscosa L.

Crataeva nurvala Buch.-Ham.

BIXACEAE

Bixa orellana L.

Casearia vareca Roxb.

POLYGALACEAE

Polygala longifolia Poir.

P. chinensis L.

P. glomerata Lour.

Salomonina cantoniensis Lour.

CARYOPHYLLACEAE

Drymaria cordata (L.) Willd.

CLUSIACEAE (Guttiferae)

Garcinia cowa Roxb.

TERNSTROEMIACEAE

Saurauja roxburghii Wall.

S. panduana Wall.

Schima wallichii Chois.

Thea sinensis L.

DIPTEROCARPACEAE

Vatica lanceaefolia Bl.

MALVACEAE

Abelmoschus moschatus Medic.

Sida rhombifolia var. *rhomboidea* Roxb.

Urena lobata L.

STERCULIACEAE

Sterculia roxburghii Wall.

TILIACEAE

Grewia glabra Bl.

G. macrophylla G. Don

G. serrulata DC.

Triumfetta bartramia L.

MALPIGHIACEAE

Aspidopterys indica (Willd.) Hochr.

GERANIACEAE

Biophytum sensitivum DC.

BALSAMINACEAE

- Impatiens tripetala* Roxb.
Hydrocera triflora W. & A.

RUTACEAE

- Acronychia pedunculata* (L.) Miq.
Aegle marmelos Corr.
Murraya koenigii Spreng.
Zanthoxylum rhetsa DC.

MELIACEAE

- Chisocheton paniculatus* Hiern.
Toona ciliata Roem.

OLACACEAE

- Anacolosia ilicoides* Mast.

AQUIFOLIACEAE

- Ilex sulcata* Wall.

CELASTRACEAE

- Celastrus paniculatus* Willd.

HIPPOCRATEACEAE

- Reissantia indica* (Willd.) N. Halle
Salacia roxburghii Wall.

RHAMNACEAE

- Gouania tiliaefolia* Lamk.
Zizyphus mauritiana Lamk.

VITACEAE

- Ampelocissus barbata* (Wall.) Planch.
Cayratia pedata (Vahl) Gagnep.
Cissus adnata Roxb.
C. repanda Wall.
C. repens Lamk.
Leea alata Edgew.
L. edgeworthii Santapau
L. crispa Willd.
L. aequata Wall.
L. indica (Burm. f.) Merr.
Tetrastigma lanceolarium Planch.
Vitis japonica Thunb.

SAPINDACEAE

- Aesculus assamica* Griff.
Allophyllus cobbe Bl. var. *glaber* Hiern.
Cardiospermum halicacabum L.
Turpinia pomifera DC.

SABIACEAE

- Meliosma simplicifolia* Roxb.
M. plunnata Roxb.

ANACARDIACEAE

- Drimycarpus racemosus* Hk. f.
Semecarpus anacardium L.

FABACEAE

- Abrus pulchellus* Wall.
Canavalia ensiformis DC.
Dalbergia assamica Benth.
D. stipulacea Roxb.

- Derris cuneifolia* Benth.
Desmodium motorium (Houtt.) Merr.
D. pulchellum Benth.
D. triquetrum DC.
D. velutinum (Willd.) DC.
Dysolobium grande Prain
Eriosema chinense Vogel
Millettia pachycarpa Benth.
Moghania semialata (Roxb.) Mukherjee
M. strobilifera (L.) St. Hill. ex Jacks
Pueraria phasioloides Benth.
P. subspicata Benth.
Tephrosia candida DC.
T. purpurea Pers.
Uraria crinata Desv.
Vigna pilosa Baker

CAESALPINIACEAE

- Bauhinia acuminata* L.
B. malabarica Roxb.
B. purpurea L.
Cassia fistula L.
C. tora L.
Tamarindus indica L.

MIMOSACEAE

- Acacia pennata* Willd.
Albizia lucida Benth.
Mimosa himalayana Gamble

ROSACEAE

- Rubus lucens* Focke

COMBRETACEAE

- Combretum acuminatum* Roxb.
Terminalia belerica Roxb.
T. citrina Roxb.

MYRTACEAE

- Cleistocalyx operculata* (Roxb.) Merr.
Eugenia formosa Wall. var. *ternifolia* Roxb.
Psidium guyava L.
Syzygium oblatum (Roxb.) Wall. ex Cowan
S. balsameum Wall. ex Wt.

MELASTOMACEAE

- Melastoma malabathricum* L.
Osbeckia nepalensis Hk. f.
O. rostrata D. Don var. *pulchella* Benth.
Sonerila maculata Roxb.

LYTHRACEAE

- Duabanga grandiflora* (Roxb. ex DC.) Walp.
Lagerstroemia speciosa (L.) Pers.
L. parviflora Roxb.

ONAGRACEAE

- Ludwigia adscendens* (L.) Hara
L. hyssopifolia (G. Don) Excell.
L. octavalvis subsp. *sessiliflora* Raven

TRAPACEAE

Trapa quadrispinosa Roxb.

PASSIFLORACEAE

Passiflora foetida L.

CUCURBITACEAE

Benincasa hispida Cogn.**Bryonopsis laciniosa** L.**Cucumis melo** L.**Luffa aegyptiaca** Mill.**Melothria heterophylla** (Lour.) Cogn.**M. maderaspatana** (L.) Cogn.**Momordica dioica** Roxb.**Thaladiantha cordifolia** (Bl.) Cogn.**Trichosanthes bracteata** (Lamk.) Voigt**T. cordata** Roxb.

BEGONIACEAE

Begonia roxburghii A. DC.

AIZOACEAE

Mollugo pentaphylla L.

APIACEAE

Eryngium foetidum L.**Hydrocotyl javanica** Thunb.

ARALIACEAE

Schefflera venulosa (W. & A.) Harms.

CORNACEAE

Alangium chinense (Lour.) Rehder

RUBIACEAE

Anotis wightiana Hk. f.**Anthocephalus cadamba** Miq.**Coffea bengalensis** Roxb.**Hedyotis hispida** Retz.**H. scandens** Roxb.**H. vestita** R. Br.**Hyptianthera stricta** W. & A.**Ixora villosa** Roxb.**Knoxia corymbosa** Willd.**Lasianthus tubiferus** Hk. f.**Morinda angustifolia** Roxb.**Mussaenda incana** Wall.**M. roxburghii** Hk. f.**Oldenlandia auricularia** (L.) K. Schum.**O. corymbosa** L.**O. diffusa** Roxb.**O. nudicaulis** Roth.**Ophiorrhiza oppositiflora** Hk. f.**Paederia foetida** L.**Pavetta indica** L.**P. indica** L. var. **tomentosa** Roxb.**P. subcapitata** Hk. f.**Plectronia rheedii** Bedd. var. **angustifolia** Gamble**Prismatomeris albidiflora** Thw.**Psychotria denticulata** Wall.**P. fulva** Buch-Ham. ex Wall.**Randia longiflora** Lamk.**Richardia scabra** L.**Uncaria sessilifructus** Roxb.**Vangueria spinosa** Roxb.**Xeromphis spinosa** (Thunb.) Keay**X. uliginosa** (Retz.) Mahesh.

ASTERACEAE

Ageratum conyzoides L.**Eclipta prostrata** (L.) L.**Elephantopus scaber** L.**Synedrella nodiflora** Gaertn.**Vernonia cinerea** Less.

MYRSINACEAE

Ardisia paniculata Roxb.**A. thomsonii** (Clarke) Mez.**Maesa indica** Wall.**M. montana** A. DC.

SAPOTACEAE

Mimusops elengi L.

STYRACACEAE

Styrax serrulatum Roxb.

APOCYNACEAE

Allamanda cathartica L.**Alstonia scholaris** R. Br.**Chonemorpha fragrans** (Moon) Alston**Holarrhena antidysenterica** Wall.**Ichnocarpus frutescens** R. Br.**Rauvolfia serpentina** Benth.**Tabernaemontana coronaria** Willd.**Ervatamia ceronaria** Stapf

ASCLEPIADACEAE

Calotropis gigantea Ait.**Cryptolepis buchanani** R. & S.**C. elegans** Wall.**Dischidia rafflesiana** Wall.**Hoya arnottiana** Wight**H. parasitica** Wall.

GENTIANACEAE

Nymphoides cristatum (Roxb.) O. Kuntze

BORAGINACEAE

Cordia myxa L.**Cynoglossum glochidiatum** Wall.**Heliotropium indicum** L.**Tournefortia viridiflora** Wall.

CONVOLVULACEAE

Argyrea roxburghii Chois.**A. wallichii** Chois.**Evolvulus nummularius** L.**Ipomoea linifolia** Bl.**I. obscura** Ker-Gawl.**I. paniculata** (L.) R. Br.**I. quamoclit** L.**I. uniflora** R. & S.

SOLANACEAE

- Physalis minima* L.
Solanum khasianum Clarke var. *chatterjeeanum*
 Sengupta

SCROPHULARIACEAE

- Limnophila conferta* Benth.
Lindernia ciliata (Colsm.) Pennell
L. crustacea (L.) F. v. Muell.
L. ruellioides (Colsm.) Pennell
L. verbenaeifolia (Colsm.) Pennell
Scoparia dulcis L.

LENTIBULARIACEAE

- Utricularia auria* Lour.

PEDALIACEAE

- Sesamum laciniatum* Klein.

BIGNONIACEAE

- Oroxylon indicum* (L.) Vent.
Stereospermum chelonoides (L. f.) DC.

ACANTHACEAE

- Andrographis paniculata* Nees
Hygrophila phlomoides Nees
Rungia parviflora Nees

THUNBERGIACEAE

- Thunbergia grandiflora* Roxb.

VERBENACEAE

- Callicarpa longifolia* Lamk. var. *lanceolaria* (Roxb.)
 Clarke
Clerodendrum hastatum Lindl.
C. indicum (L.) Kuntze
C. lasiocephalum Clarke
C. viscosum Vent.
Gmelina arborea L.
Holmskioldia sanguinea Retz.
Lippia geminata H. B. K.
Premna bengalensis Clarke
P. coriacea Clarke
P. latifolia Roxb. var. *mucronata* Clarke
Vitex glabrata R. Br.
V. negundo L.
V. peduncularis Wall.

LAMIACEAE

- Acrocephalus indicus* (Burm. f.) O. Ktze.
Anisomeles ovata R. Br. var. *mollissima* Benth.
Dysophylla auricularia Bl.
Hyptis suaveolens Poit.
Ocimum basilicum L.

AMARANTHACEAE

- Achyranthes aspera* L.
Alternanthera sessilis (L.) R. Br.
Amaranthus spinosa L.
A. viridis L.
Celosia argentea L.

- Cyathula prostrata* (L.) Bl.
Deeringia amaranthoides (Lamk.) Merrill

CHENOPODIACEAE

- Basella alba* L.
Chenopodium ambrosioides L.

POLYGONACEAE

- Polygonum chinense* L.
P. hydropiper var. *flaccidum* (Mcissn.) Steward
P. microcephalum D. Don
P. praetermissum Hk. f.
P. strigosum R. Br.
P. tomentosum L.

PIPERACEAE

- Houttuynia cordata* Thunb.
Peperomia pellucida H. B. & K.
Piper thomsonii Hk. f.
P. attenuatum Buch.-Ham.

LAURACEAE

- Litsaea sebifera* Pers. var. *glabraria* (A. Juss.) Hk. f.
L. salicifolia Roxb.
Phoebe lanceolata Nees

LORANTHACEAE

- Helixanthera ligustrina* (Wall.) Danser.
Securula parasitica L.

EUPHORBIACEAE

- Alchornea tiliacifolia* Muell.-Arg.
Aleurites fordii Hemsl.
Antidesma diandrum Roth
A. ghaesembilla Gaertn.
Aporosa dioica (Roxb.) Muell.-Arg.
Baccaurea sapida Muell.-Arg.
Bridelia stipularis Bl.
B. tomentosa Bl.
Chaetocarpus castanocarpus Thw.
Croton caudatus Geisel.
Glochidion coccineum Muell.-Arg.
G. multiloculare Muell.-Arg.
G. zeylanicum A. Juss
Jatropha gossypifolia L.
Macaranga denticulata Muell.-Arg.
M. indica Wight
Mallotus albus Muell.-Arg.
M. roxburghianus Muell.-Arg.
Melanthesa turbinata (Koen. ex Roxb.) Oken.
Phyllanthus debilis Klein ex Willd.
P. reticulatus Poir.
P. urinaria L.
Securinega virosa (Roxb. ex Willd.) Pax & Hoffm.
Sapium baccatum Roxb.
Trewia nudiflora L.

URTICACEAE

- Boehmeria malabarica* Wedd.
Pouzolzia bennettiana Wight

Pouzolzia indica Gaud.

P. viminea Wedd.

Sarcochlamys pulcherrima Gaud.

CANNABACEAE

Cannabis sativa L.

MORACEAE

Artocarpus lakoocha Roxb.

Broussonetia papyrifera Vent.

Cudrania cochinchinensis (Lour.) Kudo & Masam.

Ficus altissima Bl.

F. curtipes Corner

F. fistulosa Reinw.

F. hispida L. f.

F. rumphii Bl.

JUGLANDACEAE

Engelhardtia spicata Bl.

FAGACEAE

Castanopsis armata Spach.

Quercus lanceaefolia Roxb.

ORCHIDACEAE

Bulbophyllum careyanum Spreng.

Peristylus goodyeroides Lindl.

Vanda teres Lindl.

ZINGIBERACEAE

Alpinia allughas Rosc.

A. bracteata Roxb.

Amomum linguiforme Benth.

Costus speciosus Smith

Curcuma angustifolia Roxb.

Kaempferia involucrata King

Boesenbergia longiflora (Wall.) Ktze.

Hedychium coccineum Buch.-Ham. ex Sm.

Zingiber zerumbet Rosc. ex Sm.

MARANTACEAE

Phrynium capitatum Willd.

Schumannianthus dichotomus (Roxb.) Gagnep.

HAEMODORACEAE

Peliosanthes teta Andr.

AMARYLLIDACEAE

Molineria recurvata (Dryand.) Nel.

DIOSCOREACEAE

Dioscorea alata L.

D. bulbifera L.

D. daemona Roxb.

D. glabra Roxb.

D. hamiltonii Hk. f.

D. pentaphylla L.

LILIACEAE

Chlorophytum arundinaceum Baker

Dracaena spicata Roxb

Gloriosa superba L.

SMILACEAE

Smilax macrophylla Roxb.

PONTEDERIACEAE

Eichhornia crassipes (Mart.) Solms.

Monochoria hastata (L.) Solms.

COMMELINACEAE

Commelina appendiculata Clarke

C. benghalensis L.

C. diffusa Burm. f.

C. paludosa Bl.

Cyanotis cristata Schult. f.

Forrestia mollissima (Bl.) Koorders var. **hispida**
(A. Rich.) Baker

Murdannia elatum (Vahl) Bruckn.

M. terminalis (Wt.) Rolla et Kammathy

M. nudiflora (L.) Brenan

Pollia secundiflora (Bl.) Baker

ARECACEAE

Calamus floribundus Griff.

Licuala peltata Roxb.

Phoenix humilis Royle

ARACEAE

Lasia spinosa (L.) Thw.

Pothos scandens L.

Rhaphidophora decursiva (Roxb.) Schott.

Scindapsus officinalis Schott.

Typhonium trilobatum Schott.

CYPERACEAE

Cyperus brevifolius (Rottb.) Hassk.

C. iria L.

C. pilosus Vahl

C. pumilus L.

C. silletensis Nees

C. tenuispica Steud.

Eleocharis atropurpurea (Retz.) Presl

Fimbristylis dichotoma (L.) Vahl

F. littoralis Gaud.

Fuirena umbellata Roth

Lipocarpa chinensis (Osb.) Korn.

Rhynchospora rubra (Lour.) Makino

Scirpus juncoides Roxb.

S. mucronatus L.

S. terrestris (L.) Fassett

S. levis Retz.

POACEAE

Apluda mutica L.

Arundinella bengalensis (Spreng.) Druce

Centrotheca lappacea Desv.

Dactyloctenium aegyptium (L.) P. Beauv.

Dendrocalamus hamiltonii Nees & Arn.

Digitaria adscendens (H. B. K.) Hern.

Echinochola colonum Link

Eragrostis unioloides Nees

Hymenachne assamica Hitch.

Isachne dispar Trin.

Leersia hexandra Sw.

Oplismenus compositus Beauv.

Oryza granulata Nees & Arn. ex Steud.

O. sativa var. **fatua** Prain

Ottochloa nodosa (Kunth) Dandy.

Panicum auritum Presl. ex Nees

P. humidorum Buch.-Ham. ex Hk. f.

P. montanum Roxb.

Paspalum distichum L.

Paspalidium flavidum (Retz.) A. Camus

Polytoca digitata (L. f.) Druce

Rotthoellia exaltata L. f.

Sacciolepis interrupta (Willd.) Stapf

Sclerostachya fusca (Roxb.) A. Camus

Setaria palmifolia (Koen.) Stapf

Sporobolus indicus (L.) R. Br.

Themeda villosa Don et Jack

Vetiveria zizanioides (L.) Nash.