

A PRELIMINARY SURVEY OF THE FLORA OF VYARA FORESTS IN SOUTH GUJARAT

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ABSTRACT

An enumeration of flowering plants, collected from the forests in vicinity of Mirpur, Chakdhara, Ambapani, Chinchbordi, Ubharat and Danti in Vyara forest range in December 1967 and September 1968 to March 1969, is given. In all about 470 plants have been collected of which 380 are dicotyledons and 90 monocotyledons. An account of the general pattern of vegetation is also given.

INTRODUCTION

Though the flora of Gujarat State is now better known through the works of Saxton and Sedgwick (1918), Santapau (1954-1955, 1962), Shah (1963, 1964a, 1964b, 1967, 1969), Chavan and Oza (1966), Shah and Suryanarayana (1967) etc. it appears there are many areas which are still botanically unexplored. The Vyara forest range in South Gujarat is one such area. Since one of us (Shah) studied the flora of Dangs forest and as the Vyara forest range is adjacent to Dangs forest, their boundaries meeting at Bheshkatri, it was thought reasonable to explore this range also. Since the vegetational aspects of the Vyara forests are somewhat different from those of Dangs, an enumeration of plants from Vyara forests, along with a short account of vegetation is given in this paper. The paper is based on collections made from the forests in vicinity of Mirpur, Chakdhara, Ambapani, Chinchbordi, Ubharat and Danti in December 1967 and in September 1968 to March 1969 from the first four areas and field notes taken during the outings. The names adopted in the list are mostly those of Cooke (1958) but where the name is changed in light of recent researches in taxonomy, the correct name is first given, followed by the one in Cooke's Flora in synonymy. The entire collection from the areas explored is housed in the herbarium of the Botany Department of Sardar Patel University, Vallabh Vidyanagar.

The area explored is almost a plain country traversed by Purna river and its tributaries. The river flows east to west in the area. The river beds at Chakdhara and Ambapani are rocky, the rocks being light black or greyish.

Vyara is a small railway station about 61 km east of Surat on Surat-Bhusaval broad gauge line of the Western Railway. Surat is a railway junc-

tion on Bombay-Ahmedabad line, 262 km north of Bombay. Regular State Transport buses also ply between Surat and Vyara. Mirpur is about 10 km from Vyara and the State Transport buses ply only in fair season between Vyara and Dangs forest, touching Mirpur, Chakdhara and Ambapani. Chinchbordi is in the interior and no buses go there. In monsoon the buses run only up to Kanjarvel, a village about 2 km off Mirpur. Mirpur forest chowki was used as the camping place by the authors during outings to different parts. Ubharat and Danti are small villages on sea coast under the jurisdiction of Vyara forest range. State Transport buses ply between Maroli, a small railway station on Bombay-Surat line, about 21 km north of Surat, and Ubharat and Danti villages.

GENERAL PATTERN OF VEGETATION

The forests at Mirpur, Chakdhara, Ambapani and Chinchbordi are dry deciduous. The vegetation of the forest can arbitrarily be divided into three layers: The top layer is made of trees 8 m and above in height. *Butea monosperma* Taub., *Tectona grandis* Linn. f. and *Terminalia crenulata* Roth form a dominant community. Other common, but not dominant, trees are *Acacia polyacantha* Willd., *Adina cordifolia* Hook. f. ex Brand., *Albizia lebbek* Benth., *Anogeissus latifolia* Bedd., *Dalbergia latifolia* Roxb., *Garuga pinnata* Roxb., *Lagerstroemia parviflora* Roxb., *Mitragyna parvifolia* Korth., *Wrightia tinctoria* R. Br. etc. Occasional ones are *Bombax ceiba* Linn., *Bridelia retusa* Spreng., *Elaeodendron roxburghii* Wt. & Arn., *Emblica officinalis* Gaertn., *Kydia calycina* Roxb., *Madhuca indica* Gmel., *Ougeinia oogeimensis* Hochr. and *Pterocarpus marsupium* var. *acuminatus* Prain. The rare trees are *Albizia procera* Benth., *Careya arborea* Roxb., *Cassia fistula* Linn., *Diospyros mela-*

noxylon Roxb., *Grewia tiliaefolia* Vahl, *Mallotus philippensis* Muell., *Schleichera oleosa* Oken, *Sterculia urens* Roxb. etc. The middle layer is composed of *Alangium salvifolium* Wang., *Gardenia turgida* Roxb., *Holarrhena antidysenterica* DC. and *Morinda tomentosa* Heyne which are common. Rare ones are *Bauhinia racemosa* Lamk., *Flacourtia indica* Merr. and *Xeromphis spinosa* Keay. The undergrowth of the forests in fair season consists of the seedlings of a number of tree and shrub species varying from 0.6-2 m tall, scattered or subgregarious. To mention a few, they are *Adina cordifolia* Hook. f. ex Brand., *Butea monosperma* Taub., *Holarrhena antidysenterica* DC., *Moghania strobilifera* Hil. ex Jacks., *Tectona grandis* Linn. f. and *Terminalia crenulata* Roth. At some places *Adina cordifolia* Hook. f. ex Brand. and *Moghania strobilifera* Hil. ex Jacks. are so common and abundant that they seem to form a dominant undergrowth. Along river sides *Corchorus capsularis* Linn., *Eranthemum roseum* R. Br. and *Hygrophila auriculata* Heine are fairly common and abundant. The other common components of the undergrowth flora are *Achyranthes aspera* var. *porphyristachya* Hook. f., *Blumea membranacea* DC., *Cassia tora* Linn., *Haplanthus neilgherryensis* Wt., *Hemigraphis latebrosa* var. *heyneana* Bremek., *Spilanthes paniculata* Wall. ex DC. etc. *Asparagus racemosus* var. *javanicus* Baker, *Biophytum sensitivum* DC., *Cynodon mitreola* Britt., *Indigofera trita* Linn. and *Trachyspermum stictocarpum* Wolff are rare.

A number of climbers are found in the forests, belonging to several families such as Combretaceae, Convolvulaceae, Dioscoreaceae, Menispermaceae, Papilionaceae, Ranunculaceae, Rhamnaceae etc., of which *Combretum ovalifolium* Roxb., *Milletia racemosa* Benth., *Ventilago denticulata* Willd. and *Zizyphus rugosa* Lamk. are worth mentioning.

The forest composition along river sides is the same as described above, but *Alangium salvifolium* Wang. and *Dendrocalamus strictus* Nees are more common and abundant along river sides. *Calotropis gigantea* R. Br., *Pongamia pinnata* Pierr., *Securinega virosa* Bail., *Trema orientalis* Lour. and *Woodfordia fruticosa* Kurz are rather common, forming a middle layer on hilly slopes along river banks.

VEGETATION OF RIVER BEDS

In the stony river beds *Homonoia riparia* Lour., *Syzygium cumini* (Linn.) Skeels, *S. heyneana* Wall. ex Wt. & Arn. and *Tamarix ericoides* Rottl. are

very common and abundant, often forming dense thickets, 1.5-4 m high. *Rotula aquatica* Lour. is common in the stony ground and rock crevices along water courses, often forming pure patches. *Rotula serpyllifolia* Bremek. occurs in large patches on flat rocks and is often conspicuous by the masses of reddish purple plants. *Cryptocoryne retrospiralis* Kunth forms very large patches in water-logged stony soil. In alluvial moist soil in river beds and along water courses *Ageratum conyzoides* Linn., *Ammannia baccifera* Linn., *Blumea eriantha* DC., *Canscora diffusa* R. Br., *Cardamine trichocarpa* Hochst., *Eclipta prostrata* Linn., *Hydrolea zeylanica* Vahl, *Glinus lotoides* Linn., *Salvia plebeia* R. Br., *Sphaeranthus indicus* Linn. and *Stemodia viscosa* Roxb. are very common and abundant, often in pure or mixed patches. Occasional ones are *Amaranthus spinosus* Linn., *Argemone mexicana* Linn., *Caesulia axillaris* Roxb., *Corchorus fascicularis* Lamk., various members of Cyperaceae, *Polygonum plebeium* R. Br., *Solanum surattense* Burm. f., etc. *Blumea mollis* Don, *Cleome chelidonii* Linn. f., *Heliotropium ovalifolium* Forsk., *Vahlia digyna* O. Kuntze, *Sutera dissecta* Walp. and *Verbascum chinense* Sant. are rare.

WEEDS OF CULTIVATED FIELDS

The following plants are extensively cultivated in the area: *Cajanus cajan* Millsp., *Cyamopsis tetragonoloba* Taub., *Dolichos lablab* Linn., *Hibiscus sabdariffa* Linn., *Oryza sativa* Linn., *Solanum melongena* Linn. and *Sorghum vulgare* Pers. *Crotalaria juncea* is also cultivated at some places on a small scale. From these fields after harvest, a number of weeds were collected. *Ammannia baccifera* Linn., *Blumea eriantha* DC., *B. oxyodonta* DC., *Caesulia axillaris* Roxb., *Celosia argentea* Linn., *Cyperus difformis* Linn., *Dicanthium annulatum* Stapf, *Eragrostis diarrhena* Steud., *Sphaeranthus indicus* Linn., and *Tridax procumbens* Linn. are very common and abundant, often in pure or mixed patches. At Ubharat *Alhagi pseudalhagi* Desv. and *Cressa cretica* Linn. are dominant weeds in cultivated fields, occurring by themselves or mixed, sometimes covering entire fields. The occasional plants are *Berghia ammannioides* Roxb. ex Roth, *Corchorus tridens* Linn., *Crotalaria albida* Heyne ex Roth, *C. triquetra* Dalz., *Dentella repens* Forst., *Rungia repens* Nees etc. Plants like *Chrozophora prostrata* Dalz., *Corchorus fascicularis* Lamk., *Desmostachya bipinnata* Stapf and *Enicostema hyssopifolium* Verd. are but rare.

VEGETATION ALONG SEA-SHORE AT
UBHARAT AND DANTI

Casuarina equisetifolia Forst. has been extensively cultivated along sea-shore by the forest department for the last seven years as a sand binder. *Prosopis juliflora* DC. is also introduced for the same purpose and it thrives well. The sand vegetation is rather poor consisting of a few plants like *Cyperus arenarius* Retz., *Fimbristylis falcata* Kunth, *Indigofera cordifolia* Heyne ex Roth, *Ipomoea pes-caprae* Sw., *Launaea sarmentosa* Alst. and *Phyla nodiflora* Greene, occur in small or large, pure or mixed, patches. At some places *Cenchrus* sp. and *Aristida* sp. are very common and abundant often forming very dense patches, and at times difficult to walk through. *Borassus flabellifer* Linn. is the only tree common on sandy shores. *Phoenix sylvestris* Roxb. occurs as a bush at some places.

The vegetation near about the villages is of a scrub forest type, the dominant tree being *Acacia nilotica* ssp. *indica* Brenan and the bushes of *Euphorbia nerifolia* Linn., *Zizyphus mauritiana* Lamk. and *Z. nummularia* Wt. & Arn. Scattered along road sides are patches of *Alhagi pseudalhagi* Desv. and *Malachra capitata* Linn.

Capparis sepiaria Linn., *Clerodendrum multiflorum* O. Kuntze, *Salvadora oleoides* Decne. and *S. persica* Linn. form dense hedges along road sides. On these hedges *Abrus precatorius* Linn., *Canavalia gladiata* DC., *Coccinia indica* Wt. & Arn., *Ctenolepis cerasiformis* Hook. f., *Maerua oblongifolia* A. Rich., *Leptadenia reticulata* Wt. & Arn. and *Pergularia daemia* Chiov. are found.

Along mud flats near water courses the only mangrove seen is *Avicennia marina* var. *acutissima* Stapf & Mold. which forms dense thickets. On mud flats proper *Sesuvium portulacastrum* Linn. and *Suaeda fruticosa* Forsk. are occasionally met with.

ENUMERATION

RANUNCULACEAE

Clematis hedysarifolia DC.

ANNONACEAE

Annona squamosa Linn.

Miliusa tomentosa (Roxb.) Sincl.

Saccopetalum tomentosum Hk. f. & Th.

MENISPERMACEAE

Cissampelos pareira Linn.

Cocculus hirsutus (Linn.) Diels

C. villosus DC.

Tinospora cordifolia (Willd.) Hook. f. & Thoms.

NYMPHAEACEAE

Nymphaea sp.

PAPAVERACEAE

Argemone mexicana Linn.

BRASSICACEAE (CRUCIFERAE)

Cardamine trichocarpa Hochst. ex A. Rich.

C. subumbellata Hk. f. & Th.

CAPPARACEAE

Capparis sepiaria Linn.

Cleome chelidonii Linn. f.

Crataeva nurvala Buch.-Ham.

C. religiosa auct. non Forst.

Maerua oblongifolia A. Rich.

M. ovalifolia Camb.

FLACOURTIACEAE

Casearia graveolens Dalz.

Flacourtia indica (Burm. f.) Merr.

F. latifolia Cooke

CARYOPHYLLACEAE

Polycarpon prostratum (Forsk.) Aschers. & Schweinf.

P. loeflingiae Bth.

TAMARICACEAE

Tamarix ericoides Rottl.

PORTULACACEAE

Portulaca oleracea Linn.

ELATINACEAE

Bergia ammannioides Roxb. ex Roth

B. odorata Edgew.

MALVACEAE

Abelmoschus esculentus (Linn.) Moench.

Hibiscus esculentus L.

A. manihot (Linn.) Medic.

Hibiscus tetraphyllus Roxb.

Abutilon indicum (Linn.) Sw.

A. glaucum (Cav.) Sw.

A. muticum G. Don

Azanza lampas (Cav.) Alef.

Thespesia macrophylla Bl.

Gossypium herbaceum Linn.

Hibiscus cannabinus Linn.

H. lobatus (Murr.) O. Kuntze

H. solandra L' Her.

H. sabdariffa Linn.

H. vitifolius Linn.

Kydia calycina Roxb.

Malachra capitata Linn.

Pavonia zeylanica Cav.
Sida mysorensis Wt. & Arn.
S. glutinosa auct.
S. orientalis Cav.
S. rhombifolia var. *rhomboidea* Mast.
S. retusa Linn.
S. rhombifolia var. *retusa* Mast.
S. spinosa Linn.
S. veronicaefolia Lamk.
Thespesia populnea (Linn.) Soland. ex Corr.
Urena lobata Linn.

BOMBACACEAE

Adansonia digitata Linn.
Bombax ceiba Linn.
B. malabaricum DC.

STERCULIACEAE

Helicteres isora Linn.
Melochia corchorifolia Linn.
Sterculia urens Roxb.

TILIACEAE

Corchorus aestuans Linn.
C. acutangulus Lamk.
C. capsularis Linn.
C. fascicularis Lamk.
C. olitorius Linn.
C. trilobularis Linn.
C. tridens Linn.
Grewia tiliaefolia Vahl
G. tenax (Forsk.) Fiori
G. populifolia Vahl
Triumfetta pentandra A. Rich.
T. rhomboides Jacq.
T. rotundifolia Lamk.

BALSAMINACEAE

Impatiens kleinii Wt. & Arn.

OXALIDACEAE

Biophytum sensitivum (Linn.) DC.

RUTACEAE

Aegle marmelos (Linn.) Corr.

SIMAROUBACEAE

Allanthus excelsa Roxb.

BURSERACEAE

Garuga pinnata Roxb.

MELIACEAE

Azadirachta indica A. Juss.
Melia composita Willd.
Soymida febrifuga A. Juss.

CELASTRACEAE

Elacodendron roxburghii Wt. & Arn.
E. glaucum auct. non Pers.

RHAMNACEAE

Ventilago denticulata Willd.
V. calyculata Tulas.
Zizyphus mauritiana Lamk.
Z. jujuba Lamk. non Mill.
Z. nummularia (Burm. f.) Wt. & Arn.
Z. rotundifolia Lamk.
Z. rugosa Lamk.
Z. xylopyrus Willd.

VITACEAE

Cayratia carnosia (Lamk.) Gagnep.
Vitis trifolia auct. non Linn.
Cissus repanda Vahl
Vitis repanda Vahl
Leca indica (Burm. f.) Merr.
L. sambucina Willd.
L. macrophylla Roxb. ex Hornem.

SAPINDACEAE

Cardiospermum halicacabum Linn.
Schleichera oleosa (Lour.) Oken
S. trijuga Willd.

ANACARDIACEAE

Lannea coromandelica (Houtt.) Merr.
Odina wodier Roxb.
Mangifera indica Linn.

MORINGACEAE

Moringa concanensis Nimmo
M. oleifera Lamk.
M. pterygosperma Gaertn.

PAPILIONACEAE

Abrus precatorius Linn.
Aeschynomene indica Linn.
Alhagi pseudalhagi (Bieb.) Desv.
A. camelorum Fisch.
Alysicarpus bupleurifolius (Linn.) DC.
A. longifolius (Spreng.) Wt. & Arn.
A. procumbens (Roxb.) Schindl.
A. hamosus Edgew.
A. scariosus Grah. ex Thw.
A. rugosus var. *heyneanus* Baker
A. vaginalis (Linn.) DC.
Arachis hypoeaga Linn.
Butea monosperma (Lamk.) Taub.
B. frondosa Koen. ex Roxb.
Cajanus cajan (Linn.) Millsp.
C. indicus Spreng.

Canavalia gladiata (Jacq.) DC.
C. ensiformis auct. non DC.
Cicer arietinum Linn.
Clitoria ternatea Linn.
Crotalaria albida Heyne ex Roth
C. juncea Linn.
C. leptostachya Benth.
C. linifolia Linn. f.
C. mysorensis Roth
C. nana Burm. f.
C. triquetra Dalz.
Cyamopsis tetragonoloba (Linn.) Taub.
C. psoraloides DC.
Cylista scariosa Roxb.
Dalbergia latifolia Roxb.
D. paniculata Roxb.
D. volubilis Roxb.
Desmodium gangeticum (Linn.) DC.
D. dichotomum (Klein ex Willd.) DC.
D. diffusum DC.
D. laxiflorum DC.
D. triangulare var. **congestum** (Prain) Sant.
D. cephalotes var. **congestum** Prain
D. triflorum (Linn.) DC.
D. velutinum (Willd.) DC.
D. latifolium DC.
Dolichos lablab Linn.
Erythrina suberosa Roxb.
Indigofera astragalina DC.
I. hirsuta auct. non Linn.
I. cordifolia Heyne ex Roth
I. glandulosa Roxb. ex Willd.
I. linnaei Ali
I. enneaphylla auct. non Linn.
I. prostrata Willd.
I. trita Linn.
Melilotus indica All.
Milletia racemosa Benth.
Moghania strobilifera (Linn.) St.-Hil. ex Jacks
Mucuna prurita Hook. f.
M. pruriens auct. non DC.
Ougeinia oogeinensis (Roxb.) Hochr.
O. dalbergioides Bth.
Phaseolus radiatus Linn.
P. sublobatus Roxb.
Pongamia pinnata (Linn.) Pier.
P. glabra Vent.
Pterocarpus marsupium Roxb. var. **acuminatus** Prain
Rhynchosia minima DC.
Sesbania bispinosa (Jacq.) W. F. Wight
S. aculeata (Willd.) Pers.

S. bispinosa (Jacq.) W. F. Wight var. **cannabina** Sant.
Smithia conferta Sm.
Tephrosia purpurea (Linn.) Pers.
Teramnus labialis (Linn. f.) Spreng.
Uraria picta Desv.
U. rufescens (DC.) Schindl.
Vigna unguiculata (Linn.) Walp.
V. catjang Walp.
Zornia gibbosa Span.
Z. diphylla auct. non Pers.

CAESALPINIACEAE

Bauhinia purpurea Linn.
B. racemosa Lamk.
Cassia fistula Linn.
C. pumila Lamk.
C. siamea Lamk.
C. tora Linn.
Delonix elata (Linn.) Gamble
Poinciana elata Linn.
D. regia (Boj.) Raf.
Poinciana regia Boj.
Piliostigma foveolatum (Dalz.) Thoth.
Bauhinia foveolata Dalz.
Tamarindus indica Linn.

MIMOSACEAE

Acacia chundra (Roxb.) Willd.
A. catechu var. **sundra** Prain
A. nilotica (Linn.) Willd. ssp. **indica** (Benth.) Brenan
A. arabica auct. non (Lamk.) Willd.
A. pennata (Linn.) Willd.
A. polyacantha Willd.
A. suma Buch.-Ham. ex Voigt
Albizia lebbeck (Linn.) Benth.
A. odoratissima (Linn. f.) Benth.
A. procera (Roxb.) Benth.
Leucaena leucocephala (Lamk.) de Wit
Leucaena glauca Bth.
Prosopis juliflora DC.
Samanea saman (Jacq.) Merr.
Pithecolobium saman Bth.

VAHLIACEAE

Vahlia digyna (Retz.) O. Kuntze
V. viscosa Roxb.

COMBRETACEAE

Anogeissus latifolia (Roxb.) Bedd.
Combretum ovalifolium Roxb.
Terminalia bellirica (Gaertn.) Roxb.

Terminalia crenulata Roth*T. tomentosa* auct. non Wt. & Arn.

MYRTACEAE

Syzygium cumini (Linn.) Skeels*Eugenia jambolana* Lamk.**S. heyneana** Wall. ex Wt. & Arn.*Eugenia heyneana* Duthie

LECYTHIDACEAE

Careya arborea Roxb.

LYTHRACEAE

Ammannia baccifera Linn.**Lagerstroemia parviflora** Roxb.**Lawsonia inermis** Linn.**Rotala indica** (Willd.) Koehne*Ammannia peploides* Spreng.**R. serpyllifolia** (Roth) Bremek.*Ammannia tenuis* Clke.**Woodfordia fruticosa** (Linn.) Kurz*W. floribunda* Salisb.

ONAGRACEAE

Ludwigia perennis Linn.*L. parviflora* Roxb.

CARICACEAE

Carica papaya Linn.

MOLLUGINACEAE

Glinus lotoides Linn.*Mollugo hirta* Thunb.**Mollugo pentaphylla** Linn.

AIZOACEAE

Sesuvium portulacastrum Linn.

CUCURBITACEAE

Citrullus colocynthis (Linn.) Schrad.**Ctenolepis cerasiformis** (Stocks) Hook. f.*Blastania fimbristipula* Fenzl.**Cucumis callosus** (Rottl.) Cogn. ex Cogn. & Harms.*C. trigonus* Roxb.**Cucurbita maxima** Duch.**Diplocyclos palmatus** (Linn.) Jeffrey*Bryonopsis laciniosa* auct. non Naud.**Lagenaria leucantha** (Linn.) Rusby*L. vulgaris* Ser.**Luffa acutangula** Roxb.**L. cylindrica** (Linn.) M. Roem.*L. aegyptiaca* Mill.**Momordica charantia** Linn.**Mukia maderaspatana** (Linn.) Roem.*Melothria maderaspatana* Cogn.

APIACEAE (UMBELLIFERAE)

Trachyspermum stictocarpum Wolff. var. **stictocarpum***Carum stictocarpum* Clarke

ALANGIACEAE

Alangium salvifolium (Linn. f.) Wang.*A. lamarekii* Thw.

RUBIACEAE

Adina cordifolia (Roxb.) Hook. f. ex Brandis**Borreria articularis** (Linn. f.) F. N. Will.*Spermacoce hispida* Linn.**B. stricta** (Linn. f.) Schum.*Spermacoce stricta* Linn. f.**Dentella repens** Forst.**Gardenia turgida** Roxb.**Meyna laxiflora** Robyns**Mitragyna parvifolia** Korth.**Morinda tomentosa** Heyne ex Roth*M. tinctoria* var. *tomentosa* Hk. f.**Oldenlandia corymbosa** Linn.**Xeromphis spinosa** (Thunb) Keay*Randia dumetorum* Lamk.

ASTERACEAE (COMPOSITAE)

Ageratum conyzoides Linn.**Amberboa ramosa** (Roxb.) Jafri*Volutarella divaricata* Bth.**Blainvillea acmella** (Linn.) Philip*B. rhomboidea* Cass.**Blumea bifoliata** DC.**B. eriantha** DC.**B. membranacea** DC.**B. mollis** (Don) Merr.**B. oxydonta** DC.**Caesulia axillaris** Roxb.**Cyathocline purpurea** (Don) O. Kuntze*C. lyrata* Cass.**Echinops echinatus** Roxb.**Eclipta prostrata** (Linn.) Linn.*E. erecta* Linn.**Emilia sonchifolia** (Linn.) DC.**Gnaphalium indicum** Linn.**Goniocaulon indicum** (Klein ex Willd.) Clarke*G. glabrum* Cass.**Grangea maderaspatana** (Lamk.) Poir.**Launaea fallax** (Jaub. & Spach.) O. Kuntze*L. nudicaulis* Hook. f.**L. sarmentosa** (Willd.) Alst.*L. pinnatifida* Cass.**Sphaeranthus indicus** Linn.

Spilanthes paniculata Wall. ex DC.

S. acmella auct. non Murr.

Tagetes sp.

Tridax procumbens Linn.

Vernonia anthelmintica (Linn.) Willd.

V. cinerea Less.

Vicoa indica (Willd.) DC.

Wedelia urticaefolia DC.

Xanthium strumarium Linn.

CAMPANULACEAE

Lobelia alsinoides Lamk.

L. trigona Roxb.

SAPOTACEAE

Madhuca indica Gmel.

Bassia latifolia Roxb.

EBENACEAE

Diospyros melanoxylon Roxb.

APOCYNACEAE

Carissa congesta Wt.

C. carandas auct. non Linn.

Holarrhena antidysenterica (Heyne ex Roth) A. DC.

Nerium indicum Mill.

Wrightia tinctoria R. Br.

W. tomentosa Roem. & Schult.

ASCLEPIADACEAE

Calotropis gigantea (Linn.) R. Br.

Holostemma annularium (Roxb.) K. Schum.

H. rheedianum auct. non Spreng.

Leptadenia reticulata W. & A.

Marsdenia tenacissima (Roxb.) Moon

Pentstemon spiralis (Forsk.) Decne.

P. cynanchoides R. Br.

Pergularia daemia (Forsk.) Chiov.

Daemia extensa R. Br.

PERIPLOCEAE

Cryptolepis buehneri Roem. & Schult.

Hemidesmus indicus (Linn.) Schult.

LOGANIACEAE

Cynoctonum mitreola (Linn.) Britt.

Mitreola oldenlandioides Wall.

SALVADORACEAE

Salvadora oleoides Decne.

S. persica Linn.

GENTIANACEAE

Canscora diffusa (Vahl) R. Br.

Centaurea roxburghii (Don) Druce

Erythraea roxburghii Don

Enicostema hyssopifolium (Willd.) I. C. Verd.

E. littorale Bl.

HYDROPHYLLACEAE

Hydrolea zeylanica (Linn.) Vahl

BORAGINACEAE

Coldenia procumbens Linn.

Cordia dichotoma Forst. f.

C. myxa auct. non Linn.

C. gharaf (Forsk.) Ehrenb. ex Asch.

C. rothii R. & S.

Heliotropium ovalifolium Forsk.

H. supinum Linn.

Rotula aquatica Lour.

Rhabdia lycioides Mart.

Trichodesma zeylanicum (Burm. f.) R. Br.

CONVOLVULACEAE

Convolvulus microphyllus Sieb.

Cressa cretica Linn.

Cuscuta reflexa Roxb.

Evolvulus alsinoides (Linn.) Linn.

Ipomoea aquatica Forsk.

I. fistulosa Mart. ex Choisy

I. carnea auct. non Jacq.

I. hederifolia Linn.

Quamoclit coccinea auct. non Moench.

I. mauritiana Jacq.

I. digitata L.

I. nil (Linn.) Roth

I. hederacea auct. non Jacq.

I. pescaprae (Linn.) Sw.

L. sepiaria Roxb.

Merremia aegyptia (Linn.) Urb.

M. pentaphylla Hall. f.

M. gangetica (Linn.) Hall. f.

M. emarginata Hall. f.

M. quinquefolia (Linn.) Hall. f.

M. vitifolia (Burm. f.) Hall. f.

Operculina turpethum (Linn.) Silva-Manso

Rivea hypocrateriformis Choisy

SOLANACEAE

Capsicum annum Linn. var. **acuminatum** Fing.

Datura innoxia Mill.

D. metel Linn.

Lycopersicon lycopersicum (Linn.) Sant.

Physalis minima Linn.

Solanum melongena Linn.

S. surattense Burm. f.

S. xanthocarpum Schrad. & Wendl.

SCROPHULARIACEAE

- Bacopa monnieri** (Linn.) Penn.
Moniera cuneifolia Mich.
Limnophila indica (Linn.) Druce
L. gratioloides R. Br.
L. racemosa Bth.
Lindenbergia muraria (Roxb.) P. Bruchl
L. urticaefolia Lehm.
Lindernia ciliata (Colsm.) Penn.
Bonnaya brachiata L. & O.
L. crustacea (Linn.) F. Muell.
Vandellia crustacea Bth.
L. oppositifolia (Retz.) Muk.
Bonnaya oppositifolia Spreng.
L. parviflora (Roxb.) Haines
Ilysanthes parviflora Bth.
Sopubia delphinifolia (Roxb.) G. Don
Stemodia viscosa Roxb.
Striga angustifolia (Don) Sald.
S. euphrasioides Bth.
S. lutea Lour.
Sutera dissecta (Del.) Walp.
S. glandulosa Bth.
Verbascum chinense (Linn.) Sant.
Celsia coromandeliana Vahl

BIGNONIACEAE

- Dolichandrone falcata** Seem var. **lawii** (Seem)
Haines
Heterophragma quadriloculare (Roxb.) K. Schum.
H. roxburghii A. DC.
Oroxylum indicum (Linn.) Vent
Stereospermum personatum (Hassk.) Chatt.
S. chelonoides auct. non nisi partian DC.

PEDALIACEAE

- Pedaliium murex** Linn.
Sesamum indicum Linn.

MARTYNIACEAE

- Martynia annua** Linn.

ACANTHACEAE

- Barleria prattensis** Sant.
Blepharis repens (Vahl) Roth
B. molluginifolia Pers.
Carvia callosa (Nees) Bremek.
Dicliptera roxburghiana Nees
Dipteracanthus prostratus (Poir.) Nees
Ruellia prostrata var. *dejecta* Clke.
Eranthemum roseum (Vahl) R. Br.
Daedalacanthus roseus T. Anders.
Haplanthus neilgherryensis Wt.
H. tentaculatus Nees

- H. verticillata** (Roxb.) Nees
Hemiadelpus polyspermus Nees
Hygrophula polysperma T. Anders.
Hemigraphis latebrosa Nees var. **heyneana** Bremek.
Hygrophila auriculata (Schum.) Heine
Asteracantha longifolia Nees
H. serpyllum (Nees) T. Anders.
Lepidagathis trinervis Wall. ex Nees
Neuracanthus sphaerostachyus (Nees) Dalz.
Peristrophe bicalyculata (Retz.) Nees
Rungia pectinata (Linn.) Nees
R. parviflora var. *pectinata* Clke.
R. repens (Linn.) Nees

VERBENACEAE

- Avicennia marina** Vierh. var. **acutissima** Stapf & Mold.
A. alba Bl.
Clerodendrum multiflorum (Burm. f.) O. Kuntze
C. phlomidis Linn. f.
Gmelina arborea Roxb.
Lantana camara Linn. var. **aculeata** Mold.
L. camara auct. non Linn.
Phyla nodiflora (Linn.) Greene
Lippia nodiflora A. Rich.
Tectona grandis Linn. f.
Vitex negundo Linn.

LAMIACEAE (LABIATAE)

- Acrocephallus indicus** (Burm. f.) O. Kuntze
A. capitatus Bth.
Anisomeles heyneana Benth.
A. indica (Linn.) O. Kuntze
A. ovata R. Br.
Leonotis nepetifolia R. Br.
Leucas aspera (Willd.) Spreng.
L. biflora R. Br.
Ocimum canum Sm.
Pogostemon parviflorus Benth.
Salvia plebeia R. Br.

NYCTAGINACEAE

- Borhavia diffusa** Linn.
Bougainvillea spectabilis Willd.

AMARANTHACEAE

- Achyranthes aspera** Linn.
A. aspera Linn. var. **porphyristachya** Hook. f.
Aerva monsoniae (Linn. f.) Mart.
A. sanguinolenta (Linn.) Blume
A. scandens Wall.
Alternanthera sessilis (Linn.) R. Br.
A. triandra Lamk.

Amaranthus hybridus Linn. ssp. **cruentus** (Linn.)

Thell. var. **paniculatus** (Linn.) Thell.

A. paniculatus Linn.

A. spinosus Linn.

Celosia argentea Linn.

C. cristata Linn.

Gomphrena globosa Linn.

Pupalia lappacea (Linn.) Juss.

CHENOPODIACEAE

Suaeda nudiflora Forsk. ex Gmel.

POLYGONACEAE

Polygonum barbatum Linn. var. **gracile** Steward

P. serrulatum Lagasc.

P. glabrum Willd.

P. plebeium R. Br.

LORANTHACEAE

Dendrophthoe falcata (Linn. f.) Ettings. var. **coccinea**

(Talb.) Santapau

Loranthus longiflorus var. **coccineus** Talb.

EUPHORBIACEAE

Baliospermum montanum (Willd.) Muell.-Arg.

B. axillare Bl.

Bridelia retusa (Linn.) Spreng.

Chrozophora prostrata Dalz.

C. rottleri (Geis.) Juss. ex Spreng.

C. plicata Voigt

Emblica officinalis Gaertn.

Phyllanthus emblica Linn.

Euphorbia hirta Linn.

E. pilulifera auct. non Linn.

E. nerifolia Linn.

E. orbiculata H. B. K.

E. microphylla Heyne

E. parviflora Linn.

E. hypericifolia var. **parviflora** Prain

E. thymifolia Linn.

E. tirucalli Linn.

Homonoia riparia Lour.

Jatropha curcas Linn.

Kirganelia reticulata (Poir.) Baill.

Phyllanthus reticulatus Poir.

Mallotus philippensis (Lamk.) Muell.-Arg.

Phyllanthus asperulatus Hutchins.

P. niruri auct. non Linn.

P. maderaspatensis Linn.

P. simplex Retz.

P. urinaria Linn.

Securinega virosa (Roxb. ex Willd.) Pax & Hoffm.

Fluggea virosa Bl.

ULMACEAE

Holoptelea integrifolia (Roxb.) Planch.

Trema orientalis (Linn.) Blume

URTICACEAE

Distemon indicum Wedd.

MORACEAE

Ficus amplissima Sm.

F. tsiela Roxb.

F. arnottiana Miq.

F. asperrima Roxb.

F. benghalensis Linn.

F. hispida Linn. f.

F. racemosa Linn.

F. glomerata Roxb.

CASUARINACEAE

Casuarina equisetifolia Forst.

HYDROCHARITACEAE

Vallisneria spiralis Linn.

ORCHIDACEAE

Vanda tessellata (Roxb.) Hook. f. ex G. Don

V. roxburghii R. Br.

MUSACEAE

Musa paradisiaca Linn.

ZINGIBERACEAE

Costus speciosus (Koen.) Sm.

AMARYLLIDACEAE

Crinum pratense Herbert

AGAVACEAE

Agave sp.

DIOSCOREACEAE

Dioscorea bulbifera Linn.

D. oppositifolia Linn.

LILIACEAE

Allium cepa Linn.

Aloe barbadensis Mill.

Asparagus racemosus Willd. var. **javanicus** Baker

COMMELINACEAE

Commelina benghalensis Linn.

C. diffusa Burm. f.

C. nudiflora auct. non Linn.

C. hasskarlii Clarke

C. kurzii Clarke

C. paludosa Blume

ARECACEAE (PALMAE)

Borassus flabellifer Linn.

Phoenix sylvestris (Linn.) Roxb.

ARACEAE

- Amorphophallus commutatus** (Schott) Engler
Colocasia esculenta (Linn.) Schott
C. antiquorum Schott
Cryptocoryne retorspiralis Kunth

ALISMACEAE

- Limnophyton obtusifolium** (Linn.) Miq.

ERIOCAULACEAE

- Eriocaulon** sp.

CYPERACEAE

- Bulbostylis barbata** Kunth
Stenophyllus barbata Cooke
Cyperus alulatus Kern
C. arenarius Retz.
C. difformis Linn.
C. iria Linn.
C. michelianus (Linn.) Link. ssp. **pygmaeus** (Rottb.)
 Aschers. & Graebn.
C. pygmaeus Rottb.
C. pangorei Rottb.
C. pseudokyllingioides Kuenth.
Courtoisia cyperoides Nees
C. pumilus Linn.
C. rotundus Linn.
Fimbristylis bisumbellata (Forsk.) Bub.
F. dichotoma auct. non Vahl
F. falcata (Vahl) Kunth
F. junciformis Kunth
F. miliacea (Linn.) Vahl
F. quinquangularis Kunth
Scirpus articulatus Linn.
S. littoralis Schrad. var. **subulatus** (Vahl) Chiov.
S. littoralis auct. non Schrad.
S. maritimus Linn.
S. roylei (Nees) Parker
S. quinquefarius Ham.

POACEAE (GRAMINEAE)

- Aeluropus lagopoides** (Linn.) Trin.
A. villosus Trin.
Apluda mutica Linn.
A. varia ssp. **aristata** Hack.
Aristida sp.
Arthraxon lancifolius (Trin.) Hochst.
A. prionodes (Steud.) Dandy
A. lanceolatus Hack.
Arundinella metzii Hochst. ex Miq.
Brachiaria ramosa (Linn.) Stapf
Panicum ramosum Linn.

- Capillipedium hugelii** (Hack.) Stapf
Andropogon hugelii Hack.
Cenchrus sp.
Chloris virgata Sw.
Coix lachryma-jobi Linn.
Cynodon dactylon (Linn.) Pers.
Dactyloctenium aegyptium (Linn.) P. Beauv.
Eleusine aegyptiaca Desf.
Dendrocalamus strictus Nees
Desmostachya bipinnata (Linn.) Stapf
Eragrostis cynosuroides Beauv.
Dicanthium annulatum (Forsk.) Stapf
Andropogon annulatus Forsk.
D. caricosum (Linn.) A. Camus
Digitaria adscendens (H. B. K.) Henr. var. **criniformis** Henr.
D. sanguinalis var. *ciliaris* Prain
D. cruciata (Nees) A. Camus
Digitaria stricta Roth ex Roem. & Schult. var. **stricta**
D. royleana Prain
Dinebra retroflexa (Vahl) Panz.
D. arabica Jacq.
Echinochloa colonum (Linn.) Linn.
Panicum colonum Linn.
E. frumentacea (Roxb.) Link.
Panicum frumentaceum Trin.
Eleusine coracana (Linn.) Gaertn.
E. indica (Linn.) Gaertn.
Elytrophorus spicatus (Willd.) A. Camus
E. ariculatus Beauv.
Eragrostis ciliaris (Linn.) R. Br.
E. diarrhena (Schult.) Steud.
E. interrupta acut. non R. Br.
E. japonica (Thunb.) Trin.
E. tenella (Linn.) Beauv. ex Roem. & Schult. var. **tenella**
E. viscosa (Retz.) Trin.
E. tenella var. *viscosa* Stapf
E. unioloides (Retz.) Nees ex Steud.
Hackelochloa granularis (Linn. f.) O. Kuntze
Manisuris granularis Linn. f.
Heteropogon contortus (Linn.) Beauv. ex Roem. & Schult.
Andropogon contortus Beauv.
Isachne globosa (Thunb.) O. Kuntze
Ischaemum indicum (Houtt.) Merrill
I. aristatus auct. non Linn.
I. rugosum Salisb.
Oplismenus burmannii P. Beauv.
Oryza sativa Linn.
Panicum psilopodium Trin.

Paspalidium flavidum (Retz.) A. Camus
Panicum flavidum Retz.
Paspalum scrobiculatum Linn.
Pennisetum typhoides (Burm. f.) Stapf & Hubb.
P. typhoideum Burm. f.
Saccharum officinarum Linn.
S. spontaneum Linn.
Setaria pallide-fusca (Schum.) Stapf & Hubb.
Sorghum vulgare Pers.
Spodiopogon rhizophorus (Steud.) Pilger.
S. albidus Bth.
Sporobolus diander (Retz.) P. Beauv.
Tetrapogon tenellus (Roxb.) Chiov.
Chloris tenella Roxb.
T. villosus Desf.
Chloris villosa Pers.
Themeda quadrivalvis (Linn.) O. Kuntze

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