74

ENUMERATION OF PLANTS

MAGNOLIACEAE

Michelia Linn.

Michelia champaca Linn. Sp. Pl. 536, 1753; FBI. 1: 42; C. 1: 8; Benthall, Trees Calc. 5; Maheshwari, 51.

A tall evergreen tree. Leaves ovate-lanceolate, acute-acuminate, glabrous above and slightly pubescent beneath. Flowers yellow, fragrant, solitary, axillary. Fruit an etaerio of follicles. (Fl. Fr. April - August).

Local name - Pilo champo

PPB. 1180, 1182.

Cultivated for its sweet-scented flowers and evergreen foliage. Noted only in some private gardens at Valsad, Tithal and Dumas.

Eastern sub-Himalayan tracts and lower hills upto 1000 meters; Assam, Western Ghats, South India.

Burma, Malaya.

ANNONACEAE

Petals thick, fleshy and not spreading from the base :
Flowers with hooked peduncle;
petals saccate at the base .....Artabotrys

Flowers without hooked peduncles;
petals not saccate at the base .....Annona

Petals not thick; spreading widely
from the base .....Polyalthia

Artabotrys R. Br.

Artabotrys hexapetalus (Linn. f.) Bhandari, in Baileya 12 (4): 149, 1964.

Annona hexapetala Linn. f. Suppl. 270, 1781.

A. uncinata Lamk. Encycl. 2: 127, 1790.

Artabotrys odoratissimus R. Br., in Bot. Reg. t. 423, 1920; King, in Ann. Roy. Bot. Gard. 4: 44, t. 55, 1823; FBI. 1: 54; C.I : 10; Bailey, Man. Cult. Pl. 420.

An evergreen shrub. Leaves oblong-lanceolate, shortly acuminate, glabrous, shining. Flowers green fragrant, solitary or in pairs; one of the peduncles hooked. Fruit an etaerio of one-seeded berries. (Fl. Fr. June - October).

Local name - Lilo champo

PPB. 1181, 1183.

Cultivated in a few private gardens at Nargol and Umargam.

Not indigenous, but cultivated for its fragrant flowers; reported to be wild in S. India.

Ceylon, Java, S. China.

Annona Linn.

Annona squamosa Linn. Sp. Pl. 537, 1753; FBI. 1: 78; C. 1: 15; G. 3; D. G. Suppl. p. 2; Saur. 1: 2; Maheshwari, 51; Chavan and Pedate, in Indi. For. 86(4): 210, 1960.

A small tree. Leaves oblong, lanceolate, acute, obtuse or sub-acuminate, dark green, nearly glabrous. Flowers solitary; leaf opposed on short extra-axillary branchlets. Fruit a globose, fleshy syncarp. (Fl. Fr. May - July).

Local name - Sitafel

PPB. 1154.

Fairly common; observed near habitation, at Nargol, Umargam, along the coast.

Cultivated and becoming naturalised throughout India.

Tropical America, Africa and Asia.

Polyalthia Bl.

Polyalthia longifolia (Sonner.) Thw. Enum. 398, 1864; FBI. 1: 63; C. 1: 13; Benthall, Trees Calc. 9; Saur. 1: 3; Santapau and Wagh, in Bull. Bot. Surv. India 5: 108;

Padate, in JMSU. 18(3): 102, 1968 & 69.

A medium size roadside tree with long, cylindric straight, mast like stem. Leaves narrowly lanceolate, glabrous, acuminate with undulating margins. Flowers green in umbellate clusters. Fruit an etaerio of one seeded berries. (Fl. Fr. Febroary - July).

Local name - Asopelav.

PPB. 1184.

Observed in some private and public gardens in the backshore areas at Valsad, Daman.

A native of Ceylon, grown on large scale throughout India as a roadside tree.

MENISPERMACEAE

Stamens connate, anthers in a ring;
carpels solitary .....Cissampelos

Stamens free, carpels 3 or more :

Leaves sub-cordate, hairy,
apex mucronate .....Cocculus

Leaves deeply cordate, glabrous .....Tinospora

Cissampelos Linn.

Cissampelos pareira Linn. var. hirsuta (Buch. ex DC.) Forman, in Kew Bull. 22 (3): 356, 1968.

Cissampelos pareira Linn. Sp. Pl. 1031, 1753; FBI. 1: 103; C. 1: 24; Sant. 4; Maheshwari, 52; Fl. Pavagadh, 30.

A weak, twining shrub. Leaves ovate, broadly cordate or sub-orbicular, long-petioled. Male flowers whitish-green, minute, in axillary, branched cymes. Female flowers in the axils of foliaceous bracts, on pendulous racemes. (Fl. Fr. August - December).

PPB. 980.

Noted as a climber on hedges and old structures along seacoast.

Tropical and sub-tropical India from Sind and Punjab to Ceylon and Singapore.

Cosmopolitan in warm regions.

Cocculus DC.

Cocculus hirsutus (Linn.) Diels in Pfreich. 46: 236, 1910; Sant. 4: Chavan & Padate, in Ind. For. 86(4): 210, 1960; Maheshwari, 52; Rao et al. Bull. Bot. Surv. India 8(1): 20, 1966.

Menispermum hirsutum Linn. Sp. Pl. 341, 1753.

Cocculus villosus DC. Syst. 1: 525, 1818; FBI. 1: 101; C. 1: 22.

A twining, perennial shrub. Leaves triangularly broad, sub-cordate. Flowers pale-green, minute; female flowers in the axils of conspicuous bracts. (Fl. Fr. September - October).

Local name - Vevadi.

PPB. 1001.

Observed commonly in hedges and trees along seacoast.

Throughout tropical and sub-tropical India.

Burma, Trop. Africa.

Tinospora Miers.

Tinospora cordifolia (Willd.) Miers, in Ann. & Mag. Nat. Hist. Ser. 2 (7): 38, 1851; FBI. 1: 97; C. 1: 20; Chavan & Padate, in Indi. For. 86(4): 210, 1960; Rao et al. loc. cit. 6 (2.4): 180, 1964.

Menispermum cordifolium Willd. Sp. Pl. 4: 826, 1806.

Cocculus cordifolius DC. Syst. 1: 518, 1818; Wt. Icon. tt. 285 & 486.

An extensive climber with corky stems. Leaves cordate,

petiolate, membranous. Flowers, when there are no leaves on it. Flowers yellow, male fascicled, female usually solitary. (Fl. Fr. August - February).

Local name - Galo.

PPB. 1000.

Noted on hedges at Khambhat, Tithal, Meh Dungri.

Very common throughout Tropical India, Burma and Ceylon.

NYMPHAEACEAE

Nymphaea Linn. (nom. cons.)

Leaves densely pubescent on lower side; stigmatic rays with clavate appendages ..... pubescens

Leaves glabrous on both the sides; stigmatic rays without appendages ..... nouchali

Nymphaea pubescens Willd. Sp. Pl. 2: 1154, 1799; G. 34; Blatter, 34: 294 pro parte; P. Van Royan, in Nova Guinea 8, 1967; Fl. Raj. 18;Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

Nymphaea nouchali auct. (non Burm. f.); Subramanyam, in Aquat. Angios. 6.

Nymphaea lotus var. pubescens Hk. f. and Thoms. Fl. Ind. 241, 1855; FBI. 1: 114; C. 1: 27; NG. 243.

A floating herb. Leaves peltate, orbicular, sinuate-dentate, glabrous above and velvety-pubescent beneath. Flowers solitary, red, white or pink on long peduncles. Fruit a globose, fleshy, berry. (Fl. Fr. August - April).

Local name - Poina

PPB. 1055.

Noted in ponds near the seacoast at Tithal, Meh Dungri and Dumas.

Common all over the warmer parts of India and north Andamans.

Africa, Java, Philippines.

Nymphaea nouchali Burm. f. Fl. Ind. 120, 1768; P. Van Royan loc. cit. 8, 1967.

Nymphaea stellata Willd. Sp. Pl. 2: 1153, 1758; FBI. 1: 114; C. 1: 27; Chavan & Padate, in Ind. For. 86(4): 210, 1960; Maheshwari, 54.

A floating herb. Leaves peltate, glabrous, orbicular, obtusely sinuate-dentate or entire; flowers white, pink or blue, sweet-scented. Fruit globular. (Fl. Fr. August - April).

PPB. 1054.

Noted in ponds at Hajira and Dumas along seacoast.

Common throughout the warmer parts of India and Andamans.

Africa.

NELUMBONACEAE

Nelumbo Adans.

Nelumbo nucifera Gaertn. Fruct. 1: 73, t. 19, f. 2, 1788; Sant. 6; Fl. Saur. 1: 7; Aquat. Angios. 6.

Nelumbium speciosum Willd. Sp. Pl. 2: 1258, 1800; FBI. 1: 116; C. 1: 28; Chavan & Padate, in Ind. For. 86(4): 210, 1960; Maheshwari, 54.

A large aquatic herb with slender, elongate, branched, creeping stems rooting at the nodes. Leaves large, membranous, orbicular, prominantly veined from the centre, entire, raised above the surface of water; petiole spiny. Flowers large, solitary, fragrant, white or rosy. Seeds with spongy seed-coats. (Fl. Fr. April - September).

PPB. 1151.

Common in tanks at Dumas, Hajira.

Cultivated and often spontaneous in tanks throughout the warmer parts of India.

Persia, Malaya, China, Japan, Trop. Australia.

PAPAVERACEAE

Argemone Linn.

Argemone mexicana Linn. Sp. Pl. 508, 1753; FBI. 1: 117; C. 1: 27; Sant. 6; Fl. Dang, 14; Fl. Pavagadh, 32.

An erect, prickly herb. Leaves semi-amplexicaul, sinuate-pinnatifid, sessile. Flowers yellow. Fruit a many-seeded, spiny capsule. (Fl. Fr. Throughout the year, rare during the rains).

Local name - Darudi.

PPB. 238, 663.

Common at many places along the coast.

Tropical America, but naturalised in most warm countries.

BRASSICACEAE (CRUCIFERAE)

Flowers yellow ..... Brassica

Flowers never yellow :

Fruits many-seeded; roots fleshy ..... Raphanus

Fruits two-seeded; roots not as above :

Flowers regular ..... Lepidium

Flowers irregular ..... Iberis

Brassica Linn.

Slender herbs with narrow leaves :

Siliqua over 5 cm. long, cylindrical and spreading ..... juncea

Siliqua about 3 cm. long, 4-genus and appressed ..... nigra

Stout herbs, with broad crumpled leaves in large bud ..... oleracea var. capitata

Brassica juncea (Linn.) Czern. & Coss.; Czern. Consp. Pl. Chark. 8, n. 5, 1859; Coss. in Bull. Soc. Bot. France 6: 609, 1859; FBI. 1: 157; C. 1: 37; Fl. Saur. 1: 12.

Synopsis juncea Linn. Sp. Pl. 668, 1753; excl. Syn. Herm.

Brassica juncea Hook. f. & Thoms. in JLS. 5: 170, 1861, in part.

A tall, erect, branching annual. Leaves petiolate, upper entire, lower lyrate. Flowers bright yellow, in naked racemes. Siliqua long, spreading. (Fl. Fr. October - April).

Local name - Rai

PPB. 626, 1105.

Noted as a weed in cultivated fields, along the seacoast at many places.

Cultivated more or less throughout India.

Distributed from South Europe to China, also in America.

—

Brassica nigra Koch; in Roehl. Deutsch.; Fl. 4: 713, 1833; FBI. 1: 156; C. 1: 36; Fl. Saur. 1: 11; Maheshwari, 62; Rao et al. loc. cit. 8(1): 20, 1966.

A much-branched, erect, annual herb. Leaves petiolate; lower lyrate, upper entire. Flowers bright yellow, in terminal racemes. Fruit a siliqua, appressed to the stem, torulose. (Fl. Fr. November - March).

Local name - Kali Rai.

PPB. 1219.

Rare; seen in cultivation only.

Throughout India, Tibet, Eurasia.

Brassica oleracea Linn. var. capitata Linn. Sp. Pl. 667, 1753; Blatter, in JBNHS. 34: 297, 1930; Fl. Saur. 1: 12; Maheshwari, 60.

A small, annual herb. Lower leaves lyrate, stalked, upper sessile, fleshy, closely packed into a large bud. (Fl. Fr. January - February).

Local name - Kobi

PPB. 242.

Cultivated.

Cultivated throughout India.

Native of Europe and Asia.

Raphanus Linn.

Siliqua 5 cm. long ..... sativus

Siliqua 60 cm. long or more ..... var. caudatus

Raphanus sativus Linn. Sp. Pl. 669, 1753; FBI. 1: 166; Bailey, Man. Cult. Pl. 439, 1960; C. 1: 37; Watt. Dict. Econ. Prod. 6: 393; Sant. Fl. Saur. 1: 12, 1962.

Annual herbs with fleshy roots. Leaves variable, radicle and cauline, 30-40 cm. long, lyrate, pinnatifid. Flowers showy, pink, blue or white in long terminal racemes. Fruit siliqua, fleshy, indehiscent, 5 cm. long. (Fl. Fr. December - January).

PPB. 1187.

Cultivated as a vegetable at Kavi along the Mahi estuary.

It is a native of Europe and Asia but not found in wild state.

Raphanus sativus Linn. var. caudatus Linn.

A much-branched shrub. Leaves lyrate. Flowers purple in terminal racemes. Fruit siliqua, indehiscent, 60 cm. or more in length, purple. (Fl. Fr. December - January).

PPB. 1188.

Cultivated for its fruits along the Mahi estuary at Kavi, Dhuvaran.

India, Java.

Lepidium Linn.

Lepidium sativum Linn. Sp. Pl. 644, 1753; FBI. 1: 159; C. 1: 37; Bailey, Man. Cult. Pl. 441; Fl. Saur. 1: 13; Maheshwari, 62.

An erect, small, glabrous herb. Radical leaves pinnatifid, toothed; cauline ones often entire. Flowers small, white, in long racemes. (Fl. Fr. January - May).

PPB. 113, 1093.

Observed as a weed in cultivated fields.

Cultivated throughout India.

Considered to have been originated primarily in the hilly region of Ethiopia and Eritrea; Europe and Western

Asia are regarded as secondary centres of origin. Often as an escape in America.

Iberis umbellata Linn. Bailey, Man. Cult. Pl. 441, 1960.

A garden herb, glabrous, 20-30 cm. high. Leaves 2.5 - 5 cm., lanceolate, lower ones serrate, upper entire. Flowers purple or white in umbels. Fruit silicula, obovoid, compressed, 2-lobbed. (Fl. Fr. February - April).

PPB. 1189.

Cultivated in gardens along the Mahi estuary at Kavi, Dhuvaran.

Italy, North Africa, Spain, South Europe, West Asia.

CLEOMACEAE

Cleome Linn.

Flowers white, stemens 6 ..... gynandra

Flowers yellow, stamens 10 or more ..... viscosa

Cleome gynandra Linn. Sp. Pl. 671, 1753; Iltis, in Brittonia, 12(4): 279-294, 1960; Sant. 9; Fl. Males. 6(1): 100; Fl. Pavagadh, 34; Rao et al. loc. cit. 8(1): 20, 1966.

C. pentaphylla Linn. Sp. Pl. 983, 1762.

Gynandropsis pentaphylla (Linn.) DC. Prodr. 1: 238, 1824; FBI. 1: 171; C. 1: 42.

G. gynandra (Linn.) Brig., in Ann.Cons. Jard. Bot. Geneve 17: 382, 1914; Fl. Saur. 1: 15.

An erect, much-branched, annual herb, clothed with glandular hairs. Leaves digitately 3-5-foliolate; long-petioled. Flowers white or creamy white, in corymbose racemes. Capsule striate, tapering at both ends. (Fl. Fr. June - September).

Local name - Tanmani, Safed Tanmani.

PPB. 132.

A common weed of cultivated fields and sandy banks.

Throughout the warm parts of India and all tropical countries.

The genus Gynandropsis has been merged with Cleome following Jacob (Fl. Males. Ser. I, 6 (1): 100-101, 1960).

Cleome viscosa Linn. Sp. Pl. 672, 1753; Wt. Ic. t. 2; FBI. 1: 170; C. 1: 41; Sant. 8; Fl. Dang, 15; Fl. Saur. 1: 15; Maheshwari, 63; Fl. Pavagadh, 34; Rao et al. loc. cit. 6(2) : 180, 1964.

An erect, glandular, hairy annual. Leaves 3-5-foliolate.

Flowers yellow, axillary. Capsule sticky-pubescent, erect, short-beaked. (Fl. Fr. July - October).

Local name - Pili talavani.

PPB. 736.

Observed as a weed in cultivated fields at Dumas, Tithal.

Throughout tropical and warmer regions of India and the rest of the world.

CAPPARACEAE

Plants armed ..... Capparis

Plants unarmed :

Climbing shrub, fruit a moniliform berry..Maerua

Erect shrub, fruit not as above :

Leaves simple, fruit a cylindric capsule .....Cadaba

Leaves 3-foliolate, fruit a globose, woody berry .....Crateva

Capparis Linn.

Matured stems or branches leafless; flowers orange-red .....decidua

Matured stems and branches leafy;
flowers white ..... sepiaria

Capparis decidua (Forsk.) Edgew., in JLS. 6: 184, 1862; Pax, in Engl. & Prantl., Nat. Pfam. 3(2): 230, 231, f. 139, 1891; Fl. Saur. 1: 18; Maheshwari, 65; Rao et al. loc. cit. 8(1): 20, 1966.

Sodada decidua Forsk. Fl. Aeg.-Arab. 81, 1775.

Capparis aphylla Roth, Nov. Pl. Sp. 238, 1821; FBI. 1: 174; C. 1: 49.

A much-branched, erect, armed shrub with green, zigzag branches. Leaves small, linear or oblong, deciduous. Flowers orange-red, in lateral corymbs. Berry globose, red when ripe. (Fl. Fr. January - August).

Local name - Kerda, Keida.

PPB. 674, 1033.

Fairly common and abundant throughout the area. Throughout the drier regions of the Western India; Punjab, Deccan, Kornatak.

Arabia, Egypt, N. Trop. Africa, Pakistan (Sind).

Capparis sepiaria Linn. Syst. Nat. ed. 10, 1071, 1759; FBI. 1: 177; C. 1: 51; Sant. 9; Fl. Saur. 1: 19; Maheshwari, 65; Fl. Pavagadh, 36; Rao et al. loc. cit. 6(2.4): 180, 1964.

A large, much-branched, armed, climbing shrub. Leaves simple, entire, with stipular spines.Flowers muddy-white, in many-flowered, short-peduncled, umbels; ovary raised on long, filiform gynophore. Fruit a globose berry. (Fl. Fr. March - May).

Local name - Kathar.

PPB. 233, 305.

Observed in hedged.

More or less throughout the drier parts of India.

Pakistan (Sind), Burma, Ceylon, Malaysia, Philippines, S.E. China extending to Australia.

Maerua Forsk.

Maerua oblongifolia A. Rich. Tent. Fl.Abyss. 1: 32, t. 5, 1847; Santapau & Janardhanan, 8.

M. areneria (DC.) Hook. f. & Thoms. in FBI. 1: 171, 1872; G. 30; Maheshwari, 64; Fl. Pavagadh, 35.

M. ovalifolia Camb. in Jacquemont. Voy. Bot. 22, t. 24, 1844; C. 1: 43.

A climbing shrub with divaricate branches and smooth, pale bark. Leaves elliptic-oblong, obtuse. Flowers greenish-white, in terminal or lateral corymbs. Fruit a

fleshy, elongate, irregularly moniliform berry. (Fl. Fr. October - May).

PPB. 602, 1032.

Not common; noted on hedges at Ganguva, Dahej.

Western Himalaya, Central India, Gujarat, Konkan, Deccan, S.M. country.

Tropical Africa and Arabia.

Cadaba Forsk.

Cadaba fruticosa (Linn.) Druce, in Rep. Bot. Exch. Cl. Brit. Isles, 1913(3): 415, 1932; Saur. 1: 17; Fl. Pavagadh, 35; Rao et al. loc. cit. 6(2.4): 180, 1964.

Cleome fruticosa Linn. Sp. Pl. 671, 1753.

Cadaba farinosa Forsk. Fl. Aeg.-Arab. 68, 1775; FBI.1: 173; C. 1: 46.

C. indica Lamk. Encycl. 1: 554, 1783; FBI. 1: 172; C. 1: 45.

A much-branched, straggling shrub. Leaves simple, elliptic-oblong, obtuse. Flowers greenish-white, in few-flowered, terminal, 1-sided racemes. Fruits cylindrical, dehiscent. (Fl. Fr. October - April).

PPB. 165, 265.

Observed in hedges at Dhuvaran, Kavi.

Gujarat, Konkan, Deccan, S.M. country, Punjab, Rajasthan.

Pakistan (Sind), Ceylon, Africa, Central and South Arabia, Baluchistan.

Crateva Linn.

Crateva adansonii DC. ssp. odora (Buch.-Ham.) Jacobs in Blumea 12(12): 177-384, 1964.

Crateva religiosa Hook. f. & Thoms. (non Forsk. f.) in FBI. 1: 172; C. 1: 44.

A small or middle-sized tree. Leaves 3-foliolate; leaflets ovate-lanceolate, abruptly acuminate. Flowers white or yellowish-white in terminal cymes. (Fl. Fr. January - May).

Local name - Vaivarno.

PPB. 1220.

Cultivated at number of places throughout the area.

Gujarat, Konkan, Malabar, Kanara; cultivated elsewhere in India. Trop. Africa.

VIOLACEAE

Hybanthus Jacq. (nom. cons.)

Hybanthus enneaspermus (Linn.) F.Muell. Fragm. Phyt. Aust. 10: 81, 1877; Fl. Dang, 16; Tennant, in Kew Bull. 16(3): 431, 1963; Maheshwari, 66; Fl. Pavagadh, 33.

Viola enneasperma Linn. Sp. Pl. 937, 1753.

Viola suffruticosa Linn. Sp. Pl. 937, 1753.

Ionidium suffruticosum (Linn.) Roem. & Schult. Syst. Veg. 5: 394, 1819; FBI. 1: 185.

I. heterophyllum Vent, Jard. Malm. in Addn. Sub. t. 27, 1803; C. 1: 55.

A small, erect or prostrate herb. Leaves alternate, linear-lanceolate, acute. Flowers pink orlight purple, solitary, axillary; sepals keeled; petals unequal. Fruit a subglobose capsule. (Fl. Fr. July - February).

PPB. 435.

Fairly common among grasses at Dhuvaran.

More or less throughout India.

Ceylon, Tropical Asia, Africa and Australia.

POLYGALACEAE

Polygala Linn.

Flowers pink or purple; wings obtuse .....eriopters

Flowers yellow, wings acute ..... arvensis

Polygala erioptera DC. Prodr. 1: 326, 1824; FBI. 1: 203; C. 1: 63; Sant. 12; Chavan & Padate, in Ind. For. 86(4): 211, 1960; Fl. Saur. 1: 22; Fl. Pavagadh, 38; Rao et al. loc. cit. 8(1): 21, 1966.

An erect or suberect, annual herb. Leaves narrow, linear to obovate. Flowers pink or rose, in axillary or extra-axillary few-flowered racemes; lateral sepals expanded into obtuse wings with green midrib. Fruit a 2-seeded capsule; seeds with galeate, slightly hairy strophiole. (Fl. Fr. August - October).

PPB. 436.

Observed as a weed in cultivated fields, at Dhuvaran along the coastline.

PLATE NO.17.

Gujarat, Deccan, Konkan, W. Peninsula, Punjab, Bihar. Pakistan (Sind), Burma, Arabia, Trop. Asia, Africa.

Polygala arvensis Willd., Sp. Pl. 3(2): 876, 1802; Burtt, Notes Roy. Bot. Gard. Edinburgh 32: 404, 1973; Saldanha & Nicolson, 410.

Polygala chinensis Linn. Sp. Pl. 704, 1753; FBI. 1: 204; C. 1: 64; Fl. Dang, 16; Fl. Saur. 1: 22; Maheshwari, 67.

A stout, diffuse, branching herb, 8-30 cm. long. Leaves



Polygala erioptera DC.

PLATE No. 17.

linear-oblong, obovate. Flowers yellow, in axillary or extra-axillary, few-flowered racemes; sepals expanded into a acute wing, petaloid. Capsule hairy; seeds oblong, silky. (Fl.Fr. July - September).

PPB. 764.

Commonly observed in open grasslands and as a weed in cultivated fields. Not reported from Saurashtra coast.

Tropical Asia and Australia.

CARYOPHYLLACEAE

Leaves thin; sepals keeled ..... Polycarpon

Leaves thick, fleshy; sepals not keeled ..... Polycarpaea

Polycarpon Linn.

Polycarpon prostratum (Forsk.) Aschers. & Schweinf. in Oesterr. Bot. Zeitschr. 39: 128, 1889 in Observ.; Sant. 12; Fl. Saur. 1: 25: Fl. Pavagadh, 39.

Polycarpon loeflingiae Benth. & Hook. Gen. Pl. 1: 153, 1862; FBI. 1: 245; C. 1: 69.

A prostrate or suberect, apparently dichotomously branched herb. Leaves small, opposite, acute. Flowers greenish-yellow to white in dichotomous cymes. Fruit a

many-seeded, thin capsule. (Fl. Fr. September - March).

PPB. 1185, 1186.

Noted on grassy slopes of banks of ponds at several places at Dumas, Tithal and Meh Dungri, not reported from Saurashtra coast.

Throughout the hotter parts of India.

Temperate and warm regions of both hemispheres.

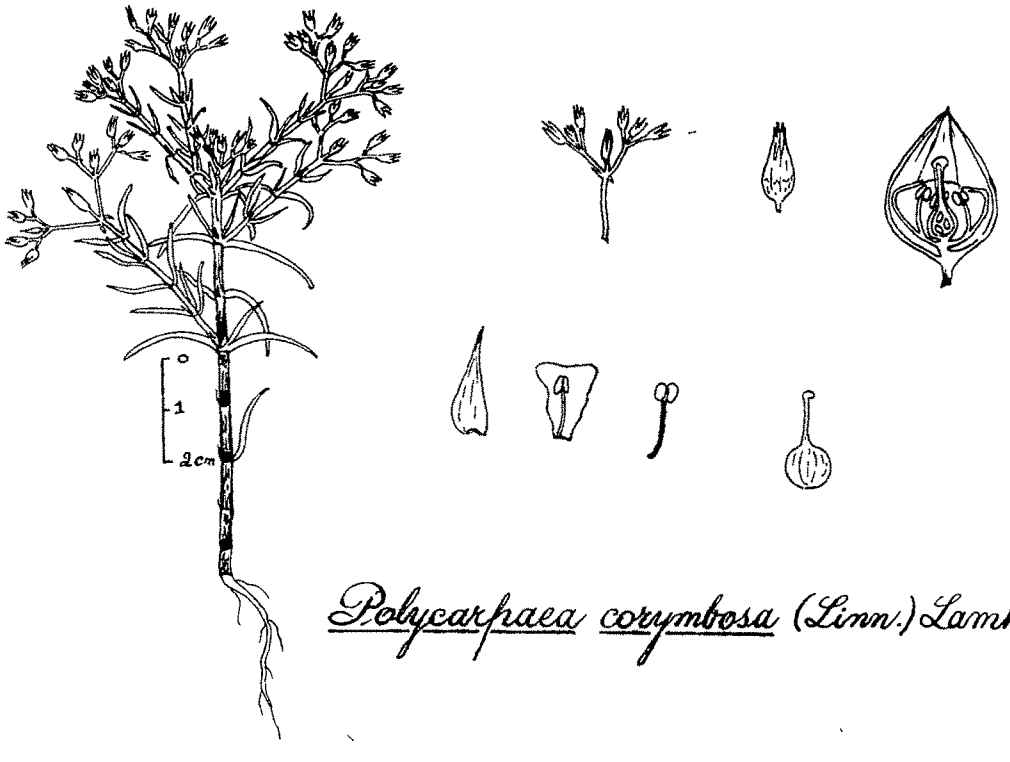
Usually this plant is seen in association with Polygonum plebejum R. Br., which is similar to this plant in general appearance and habit. But it can be very easily identified from P. plebejum because the latter has alternate leaves and bright red or pink flowers.

Polycarpaea Lamk. (nom. cons.)

Polycarpaea corymbosa (Linn.) Lamk. Talb. Encycl. 2: 129, 1791; FBI. 1: 245; C. 1: 70; Wt. Icon. t. 712; D. & G. 16; Fl. Saur. 1: 24; Maheshwari, 70; Fl. Pavagadh, 38; Rao et al. loc. cit. 8(1): 63, 1966.

Achyranthes corymbosa Linn. Sp. Pl. 205, 1753.

An erect, annual herb, 15-40 cm. high. Leaves narrow, linear, stipulate, clustered or crowded. Flowers silvery white, shining, arranged in compound terminal cymes; sepals



Polycarpaea corymbosa (Linn.) Lamk.

PLATE No. 18.

chaffy; fruit a small capsule. (Fl. Fr. September - January).

PPB. 856.

Commonly observed among grasses during monsoon, also on dry sandy banks at Tithal.

PLATE NO. 18.

Western Himalayas, N.W. India, Central India, Gujarat, Maharashtra, Karnatak, Madras, Bengal, Bihar and Orissa.

Ceylon, Burma, Trop. Africa, Australia and America.

PORTULACACEAE

Portulaca Linn.

Flowers yellow; not multipetalous :

Nodes without hairs ..... oleracea

Nodes with a ring of hairs ..... quadrifida

Portulaca oleracea Linn. Sp. Pl. 445, 1753; FBI. 1: 246; C. 1: 72; Sant. 13; Fl. Saur. 1: 26; Maheshwari, 71; Fl. Pavagadh, 39; Rao et al. loc. cit. 8(1): 21, 1966.

A succulent, prostrate herb. Leaves fleshy, obovate or spathulate. Flowers yellow, in terminal clusters, surrounded by a whorl of leaves. Fruit a pyxidium. (Fl. Fr. October - May).

PPB. 405.

Common all over the area in moist sandy soils.

Throughout India.

All warmer countries.

Portulaca quadrifida Linn. Man. 1: 73, 1767; FBI. 1: 247; C. 1: 72; Sant. 13; Fl. Saur. 1: 26; Maheshwari, 70; Fl. Ravagadh, 40; Padate, in JMSU. 17 & 18(3): 102, 1968 & 69; Rao et al. loc. cit. 8(1): 21, 1966.

A small, prostrate, succulent herb, rooting at nodes. Leaves fleshy, ovate to ovate-lanceolate. Flowers small, yellow, solitary, terminal. Fruit a conical capsule; seeds tubercled. (Fl. Fr. September - December).

PPB. 1053.

Commonly observed in moist places.

N. W. and Western India, or more or less everywhere.

Tropical Asia and Africa.

TAMARICACEAE

Tamarix Linn.

Shrub ..... ericoides

Tree ..... gallica

Tamarix ericoides Rottl. FBI. 1: 249; C. 1: 76; Sant. Fl. Saur. 1: 28; Talb. 87, t. 56; Rao & Mukherjee, Proc.

I. A. Sci. LXXVI (B): 204, 1972.

Trichaurus ericoides Wt. & Arn. Prodr. 40, 1834; Gr. 11; D. & G. 14.

A gregarious, evergreen shrub; 1-2 m. tall, branches purple and shining. Leaves scaly, persistent, amplexicaul, acuminate. Flowers pinkish white, in 15-20 cm. long, terminal racemes. (Fl. Fr. October - January).

PPB. 1190, 1192.

Found along the Mahi Estuary at Chokari.

India, Pakistan, Ceylon.

Tamarix gallica Linn. Sp. Pl. 270, 1753; FBI. 1: 248; C. 1: 75.

T. gallica W. & A. Prodr. 40; Trim. Fl. Ceyl. 1: 91; Talb. Trees, Bomb. 14; Woodr. in JBNHS. 11: 125, 1897; Watt. Dict. Econ. Prod. 6(3): 411.

A shrub with slender, erect or pendulous branches. Leaves subulate-acute from a triangular semi-amplexicaul base, at first imbricate, afterwards distant. Flowers bisexual, numerous, crowded in slender lateral and terminal panicled spike-like racemes. Capsule glabrous, seeds with a plume of white hairs. (Fl. Fr. December - April).

PPB. 614, 696.

Observed along the seacoast.

Throughout India from the N.W. Himalaya to Burma and Ceylon.

W. & S. Shores of Europe, N. and Tropical Africa, S. Asia.

ELATINACEAE

Bergia Linn.

Stamens 10 ..... odorata

Stamens 5 or less ..... ammannioides

Bergia odorata (Edgew., in JASB. 7: 765, 1838; FBI. 1: 251; C. 1: 77; Blatter, in JBNHS. 34: 623; 1930; Fl. Saur. 1: 29; Chavan and Padate, in Ind. For. 86(4): 211, 1960; Fl. Raj. 27; Fl. Pavagadh, 40; Rao et d. loc. cit. 8(1): 21, 1966.

A decumbent herb with woody stem. Leaves elliptic, obtuse, sub-sessile, very variable in size. Flowers white with a pinkish tinge, axillary, solitary or in fascicles. Fruit a capsule. (Fl. Fr. August - May).

Local name - Lavariyu.

PPB. 587, 741.

Observed as a weed in cultivated fields and on sandy areas.

In hotter regions of Gujarat, Rajasthan, Punjab, Andhra. Pakistan (Sind), Trop. Africa, Persia, Egypt.

Bergia ammannioides Roxb. ex Roth, Nov. Pl. Sp. 219, 1821; FBI. 1: 251; C. 1: 77; Wt. Icon. t. 25; Blatter, in JBNHS. 34, 623, 1930; Sant. 13; Fl. Saur. 1: 30; Padate, in JMSU. 17 & 18(3): 102, 1968 & 69.

Elatine ammannioides Wt. & Arn. Prodr. 41, 1834; Gr. 12.

An erect, glandular, hairy annual herb. Leaves small, sessile, entire, linear-lanceolate, sharply serrate, stipules subulate, hairy. Flowers red, minute, in dense axillary fascicles. Capsule subglobose. (Fl. Fr. September - March).

PPB. 294, 588.

Commonly found growing in moist places, not reported from Saurashtra coast.

More or less throughout India on plains.

Ceylon, Afghanistan, Persia, Tropical Asia, Africa, Australia.

MALVACEAE

Fruits schizocarpic :

Stigmatic branches as many as carpels :

Carpels 5 - , dehiscing like a slit, 2-seeded ..... Abutilon

Carpels 5-10, dehiscing irregularly, 1-seeded ..... Sida

Stigmatic branches twice as many as carpels :

Ripe carpels glochidiate ..... Urena

Ripe carpels 1-3 aristate or naked, not glochidiate ..... Pavonia

Fruits capsular :

Calyx cupular, truncate ..... Thespesia

Calyx not cupular or truncate :

Involucral bracts 3 or none :

Bractioles 3, foliaceous .....Gossypium

Bractioles absent ..... Hibiscus (in part)

Involucral bracts 5 or more :

Calyx persistent in fruits ..... Hibiscus (in part)

Calyx deciduous in fruits ..... Abelmoschus

Abutilon Gaertn.

Carpels pointed or with a distinct mucro :

Carpels ⅓ - ½ in. long ..... indicum

Carpels ½ - ⅔ in. long ..... bidentatum

Carpels obtuse, with a mucro ..... pannosum

Abutilon indicum (Linn.) Sweet, Hort. Brit. 54, 1826; FBI. 1: 326; C. 1: 102; Fl. Saur. 1: 40; Chavan and Padate, in Ind. For. 86(4): 211, 1960; Maheshwari, 75; Fl. Pavagadh, 45; Rao et al. loc. cit. 8(1): 21, 1966.

Sida indica Linn. Cent. Pl. 2: 26, 1756 & Sp. Pl. (ed. 2) 964, 1763.

Abutilon asiaticum (Linn.) Sweet, Hort. Brit. 53, 1826; FBI. 1: 326; C. 1: 102.

An erect, much-branched, undershrub. Leaves ovate to orbicular-cordate, crenate, acute. Flowers yellowish-orange, axillary, solitary. Fruit covered with hooked bristles, carpels black at maturity; seeds brown, tubercled. (Fl. Fr. May - December).

Local name - Kansaki.

PPB. 185, 488.

Commonly noted along the Mahi estuary.

Throughout tropical and sub-tropical India.

Ceylon, Tropics generally.

Abutilon bidentatum Hochst. ex A. Rich. Fl. Abyss. 1: 68, 1847; FBI. 1: 326, C. 1: 102.

An erect perennial. Leaves cordate, ovate, acuminate, toothed. Panicles axillary. Ripe carpels 20, smooth,

exceeding the calyx; awns spreading. (Fl. Fr. October - March).

PPB. 681, 1045.

Noted at Dhuvaran, Meh Dungri, Bhimpore in association with Abutilon indicum.

Tropical Africa, Arabia.

Abutilon pannosum (Forst. f) Schlect; Bot. Zeit. 9: 828, 1851; Saldanha & Nicolson, 149; Bhandari, 62.

Abutilon glaucum (Cav.) Sweet, Hort. Brit. 54, 1827; G. Don, Gen. Syst. 1: 104, 1831; Fl. Saur. 1: 40; Maheshwari, 76; Fl. Pavagadh, 45; Padate, in JMSU. 17 & 18(3): 102, 1968 & 69.

Sida glauca Cav. Ic. 1: 8, t. 11, 1791.

Abutilon muticum Sweet, Hort. Brit. (ed. 2) 65, 1830; FBI. 1: 327; C. 1: 102.

An erect, hairy shrub. Leaves broadly ovate-cordate, acute, irregularly toothed. Flowers yellowish-orange, axillary, solitary. Fruit globose. Carpels about 20, awnless, shorter than the calyx. (Fl. Fr. October - February).

Local name - Kansaki.

PPB. 681, 1044.

Commonly noted at Nargol and Umargam along the coast.

Gujarat, Deccan, Konkan, W. Peninsula.

Ceylon, Pakistan, Afghanistan, Egypt, Tropical Africa.

Sida Linn.

Spreading or straggling herbs ..... cordata

Erect or suberect herbs or undershrubs :

Leaves rhomboid .....rhombifolia

Leaves not rhomboid :

Spiny herbs .....alba

Herbs spineless :

Awn short .....acuta

Awn long, equal to carpel or more ...cordifolia

Sida cordata (Burm. f.) Borss. in Blumea 14: 182, 1966.

Melochia cordata Burm. f. Fl. Ind. 143.

Sida veronicaefolia Lamk. Encycl. 1: 5, 1783; C. 1: 97; Fl. Saur. 1: 37; Santapau and Wagh, in Bull. Bot. Surv. India 5: 108, 1963; Maheshwari, 74; Fl. Pavagadh, 42; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

A much-branched, prostrate or straggling herb,

generally covered with straight, spreading hairs. Leaves elliptic, obtuse, crenate. Flowers yellow, solitary, axillary or two together. Carpels 5. (Fl. Fr. September - January).

Local name - Bhonyabala.

PPB. 508.

Observed along canal banks at Dhuvaran.

Gujarat, Maharashtra, Karnatak, Madras; almost throughout the hotter parts of India.

In tropical and sub-tropical regions of the world.

Sida rhombifolia Linn. var. retusa Masters in FBI. 1: 324; 1874; C. 1: 99; Sant. 20.

S. retusa Sp. Pl. (ed. 2): 961, 1762; Gr. 16; D. & G. 17.

A small undershrub. Leaves 2-4 cm. long, obovate, rhomboid, retuse; pedical very short. Flowers yellow, axillary, solitary. Seeds black. (Fl. Fr. October - December).

PPB. 1193, 1196.

A common weed in the area.

India.

Sida alba Linn. Sp. Pl. (ed. 2) 2: 960, 1762; Fl. Saur. 1:36.

Sida spinosa Linn. Sp. Pl. 683, 1753; DC. Prodr. 1: 460; FBI. 1: 323; C. 1: 98; Fl. Pavagadh, 43; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, much-branched, rigid, pubescent herb. Leaves elliptic, crenate, rounded, obtuse; petiole spiny at base. Flowers yellow, clustered in the axil of leaves or solitary. Carpels 3-5. (Fl. Fr. October - May).

Local name - Kantalobala.

PPB. 264, 584.

Common all over the area in open fields or near hedges.

Throughout the hotter parts of India from N.W. Provinces to Ceylon.

Tropical and Sub-tropical regions of both the hemispheres. Native of Tropical America.

Sida acuta Burm. Fl. Ind. 147, 1768; C. 1: 98; Blatt. in JBNHS. 34: 628, Sant. 19.

An erect, much-branched, hairy herb, 30-40 cm. high. Leaves 4-5 cm. long, lanceolate, margin serrate; petiole 0.75 cm. long. Flowers yellow, 1-2, in axillary cymes. (Fl. Fr. October - January).

Local name - Bala, Jangali methi.

PPB. 1191, 1194.

Found near hedges of cultivated fields.

In India, Ceylon, Malaya, Philippines, Formosa and China.

Sida cordifolia Linn. Sp. Pl. 684, 1753; FBI. 1: 324; C. 1: 99; Fl. Saur. 1: 38; Fl. Pavagadh, 44; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Rao et al. loc. cit. 8(1): 63, 1966.

An erect undershrub, covered all over with soft, branched hairs. Leaves ovate-cordate, crenate, obtuse or subacute. Flowers pale-yellow, axillary, solitary or a few together; carpels 10. (Fl. Fr. August - December).

Local name - Mahabala, Bala.

PPB. 1052.

Common in the backshore at Dahej.

Gujarat, Maharashtra, Karnatak, Madras and the tropical and sub-tropical parts of India.

Tropical and sub-tropical regions of both the hemispheres.

Urena Linn.

Urena lobata Linn. Sp. Pl. 692, 1753; FBI. 1: 329 (excl. Syn. U. palmata); C. 1: 106; Sant. 17; Fl. Dang, 20;



PLATE No. 19.

111

Fl. Saur. 1: 54; Maheshwari, 77; Fl. Pavagadh, 46; Rao et al. loc. cit. 63.

U. sinuata Linn. Sp. Pl. 692, 1753; FBI. 1: 329; C. 1: 106; Blatter, in JBNHS. 34: 631, 1931.

An erect, much-branched, undershrub. Leaves entire or variously lobed, dark above and pale beneath. Flowers pink, axillary, solitary. Capsule covered with hooked bristles. (Fl. Fr. October -December).

Local name - Vagdo Bhindo.

PPB. 311.

Common in moist places.

PLATE NO. 19.

Gujarat, Konkan, Deccan, Karnatak, Madras; hotter parts of India.

Tropics of both the hemispheres.

Pavonia Cav. (nom. cons.)

Pavonia zeylanica Cav. Diss. 3: 134, t. 48, f. 2, 1787; FBI. 1: 331; C. 1: 108; Blatter, in JBNHS. 34: 631, 1931; Fl. Saur. 1: 52; Maheshwari, 77; Fl. Pavagadh, 46; Sastry & Rao, loc. cit. 96, 1973.

An erect, much-branched, glandular, hairy undershrub. Leaves small, 3-lobed, long-peticled. Flowers axillary,

solitary, pink, on long pedicels; involucral bracts 8-12, linear, ciliolate. Carpels pale-brown, glabrous, slightly winged. (Fl. Fr. August - January).

PPB. 998.

A semierect herb near hedges at Tithal, Meh Dungri.

Gujarat, Deccan, W. Peninsula.

Pakistan, Tropical Africa, Mauritius.

Thespesia Soland.

Thespesia populnea (Linn.) Soland. ex Corr., in Ann. Mus. Hist. Nat. Paris 9: 290, 1807; FBI. 1: 345; C. 1: 121; Blatt. & Mill. Beaut. Ind. Trees (ed. 2) 141, t. 31, Fl. Saur. 1: 32; Maheshwari, 82; Rao et al. loc. cit. 6(2.4): 180,1964.

Hibiscus populneus Linn. Sp. Pl. 694, 1753.

A medium-sized tree. Leaves broadly ovate, cordate at the base. Flowers large, yellow turning mauve; staminal tube toothed at the top. Capsule globose. (Fl. Fr. August - March).

Local name - Paras bhindi, Paras piplo.

PPB. 990.

Wild along the sea-shore at Tithal, Meh Dungri, Hajira.

Coastal forests in India.

Burma, Tropical Asia, Africa and Pacific Islands.

Gossypium Linn.

Shrubs, flowers purple ..... arboreum

Herbs, flowers yellow ..... herbaceum

Gossypium arboreum Linn. Sp. Pl. 693, 1753; FBI. 1: 347; C. 1: 125; Watt. 81, t. 8, Sant. Fl. Saur. 57; Rao et al. loc. cit. 8(1): 21, 1966.

A much-branched shrub, branches purplish and black dotted. Leaves simple, palmately lobed, stipules lanceolate, green. Flowers purple, yellow, solitary or 2-4 flowered cymes. Capsule globose, 3-valved. (Fl. Fr. December - March).

Local name - Kapas.

PPB. 1195, 1197.

Cultivated in villages along the Mahi estuary.

Grown throughout India, especially in Bengal, Central India, Rajasthan and North West Provinces.

Gossypium herbaceum Linn. Sp. Pl. 693, 1753; FBI. 1: 346, in part; C. 1: 35; Fl. Pavagadh, 48; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, hairy undershrub. Leaves palmately divided. Flowers large, yellow with purple centre; bracteoles 3,

large, entire or toothed. Capsule ovate. (Fl. Fr. September - January).

Local name : Kapas.

PPB. 270, 650, 1113.

Cultivated in the backshore areas.

Extensively cultivated throughout Gujarat, Mahrashtra and many other warmer parts of India.

Hibiscus Linn.

1. Involucral bracts present :

2. Calyx red, fleshy, edible ..... sabdariffa

2. Calyx not as above :

3. Plants cultivated :

4. Petals fringed and much recurved ..... schizopetalus

4. Petals not fringed or recurved..... rosa-sinensis

3. Plants truly wild or escapes from cultivation :

5. Herbs or undershrubs :

6. Capsules beaked, very hairy ..... cannabinus

6. Capsules globose, glabrous ..... ovalifolius

7. Seeds muricated, involucral bracts connate at the base ..... punctatus

7. Seeds shaggy, involucral bracts spathulate ..... panduraeformis

5. Trees, found wild only near the sea... tiliaceus

1. Involucral bracts absent ..... lobatus

Hibiscus sabdariffa Linn. Sp. Pl. 695, 1753; FBI. 1: 340; C. 1: 117; Watt, Dict. Econ. Prod. 4: 243; Fl. Saur. 1: 45; Maheshwari, 79.

An erect shrub with reddish stems. Leaves entire or 3-lobed. Flowers yellow; calyx succulent, red, edible. Capsule ovoid, shorter than the calyx. (Fl. Fr. October - February).

Local name - Lal Ambadi.

PPB. 1199, 1201.

often cultivated in the interior areas at Tithal and Meh Dungri.

Throughout Gujarat and Maharashtra; in almost all the hotter parts of India.

Java, West Indies and other warm tropical countries.

Hibiscus schizopetalus (Mast.) Hook. f., in Bot. Mag. t. 6524, 1880; Bailey, Man. Cult. Pl. 665; Bor & Raizada, 236,

f. 136 & t. 87; Fl. Saur. 1: 48; Maheshwari, 80; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

A large, glabrous shrub with drooping branches. Flowers light scarlet or red, pendulous on long peduncles; petals fringed and very much recurved; staminal tube much exserted. (Fl. October - April).

PPB. 1198, 1200.

Commonly cultivated in gardens for its beautiful flowers in the back shore areas.

A native of Trop. Africa; common in gardens throughout the country.

Hibiscus rosa-sinensis Linn. Sp. Pl. 694, 1753; FBI. 1: 344; C. 1: 120; Bailey, Man. Cult. Pl. 665; Bor & Raizada, 237; F. 137 & t. 88; Fl. Saur. 1: 47; Maheshwari, 80; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

A shrub. Leaves glabrous; stipules linear. Flowers large, solitary, axillary, red or scarlet; involucral bracts 7-9, linear; staminal tube red, exserted. (Fl. Almost throughout the year).

Local name - Jasundi.

PPB. 1203.

Commonly grown in public and private gardens at Dumas,

Bhimpore and Umrat.

Probably a native of China, now commonly cultivated in all warm countries.

Hibiscus cannabinus Linn. Syst. ed. 10, 1149, 1759; FBI. 1: 339; C. 1: 116; Fl. Saur. 1: 46; Maheshwari, 79; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Rakshit & Kundu, in Bull. Bot.Surv. India (1-4): 64, 1970.

An erect, tall, undershrub. Stems at times prickly. Lower leaves unlobed and upper deeply, palmately 5-7-lobed. Flowers large, yellow, solitary, axillary or in terminal racemes. Capsule ovoid, beaked, hairy (Fl. Fr. October - January).

Local name : Ambadi.

PPB. 446, 652.

Cultivated.

Cultivated in most tropical countries.

Hibiscus ovalifolius (Forsk.) Vahl, Syst. Bot. 1: 50, 1790; Santapau and Janardhanan, in Bull. Bot. Surv. India 8: 11, 1966.

Urena ovalifolia Forsk. Aegypt.-Arab. 124, 1775.

Hibiscus micranthus Linn. f. 308, 1781; FBI. 1: 335; C. 1: 113; Sant. 18; Fl. Saur. 1: 44; Maheshwari, 80;

Rao et al. loc. cit. 8(1): 21, 1966.

An erect, often unbranched shrub. Leaves small, ovate or oblong, obtuse, serrate, scabrid and hairy. Flowers axillary, pink; capsule glabrous, seeds cottony. (Fl. Fr. July - October).

Local name : Chanak Bhindo.

PPB. 288, 441.

Very common along the hedges at Kavi and Dhuvaran.

Throughout the hotter parts of India.

Ceylon, Pakistan, Tropical Africa and Arabia.

Hibiscus punctatus Dalz. in D. & G. Bombay Fl. 20, 1861; FBI. 1: 340; C. 1: 116; Santapau, Pl. Saur. 70; Fl. Saur. 1: 47; Fl. Pavagadh, 47.

An erect herb or undershrub. Leaves pellucido-punctate, ovate, obtuse, unequally 3-lobed (the mid-lobe very long), sinuate-dentate. Flowers white, with a pinkish tinge or rose-coloured. Seeds muricated, black. (Fl. Fr. October - January).

PPB. 579.

In the drier parts of N.W. and W. India; Sind, Gujarat; Multan.

Hibiscus panduraeformis Burm. Fl. Ind. 151, 1768; FBI. 1: 338; C. 1: 115; Tandulingh & Narayana, Handbook South Ind. Weeds, 113, t. 44; Fl. Dang, 18; Rakshit & Kundu, loc. cit. 172.

An annual herb; stem and branches clothed with rigid hairs. Leaves cordate, variously lobed, irregularly toothed, both surfaces covered with silky hairs. Flowers yellow, axillary, solitary; peduncles very short, jointed, hairy; involucral bracts 6-9, almost free, densely ciliate. Capsule ovoid, very hairy. (Fl. Fr. October - December).

PPB. 604, 687.

Observed as a weed in cultivated fields at Ganguva, Dahej along the seacoast.

Tropical Africa, Australia, Ceylon.

Hibiscus tiliaceus Linn. Sp. Pl. 694, 1753; FBI. 1: 343; Trim. Fl. Ceyl. 1: 157; Woodr. in JBNHS. 11: 128, 1897; Watt, Dict. Econ. Prod. 4: 247; C. 1: 119; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

Paritium tiliaceum St.-Hil.; W. & A. Prodr. 52; Gr. 14; D.& G. 19.

A tree; young parts pubescent. Leaves cordate, abruptly acuminate, stipules subulate. Flowers in terminal racemes.

Involucral bracts 10, connate above the middle, shorter than the calyx, tomentose. Seeds subreniform, black. (Fl. Fr. January - March).

PPB. 421.

Found wild only near the seacoast at Valsad.

All tropical regions.

Hibiscus lobatus (Murr.) O. Kuntze, Rev. Gen. 3: 519, 1898; Fl. Saur. 1: 43; Maheshwari, 80; Fl. Pavagadh, 46; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Rakshit & Kundu, loc. cit. 169.

Solandra lobata Murr., in Comm. Gotting 6: 21, t. 1, 1785.

Hibiscus solandra L'Her. Stirp. 1: 103, t. 49, 1786; FBI. 1: 336; C. 1: 114.

An erect, annual herb. Leaves variable, usually lower palmately-lobed, upper entire. Flowers white, in terminal lax racemes. Capsule ovoid, beaked, hairy. (Fl. Fr. August - November).

PPB. 970.

Observed in hedges at Tithal, Meh Dungri.

Gujarat, Bombay and many other hotter parts of India.

Ceylon, Burma, Tropical Africa.

Abelmoschus Medik.

Plants cultivated; involucral bracts more than 5; capsules more than 10 cm. long ..... esculentus

Plants wild; involucral bracts 3-6; capsules less than 5 cm. long ..... manihot

Abelmoschus esculentus (Linn.) Moench. Meth. 617, 1794; Gr. 14; Sant. 19; Fl. Saur. 1: 49; Maheshwari, 81; Bates, in Baileya, 16(3): 99-112, 1968.

Hibiscus esculentus Linn. Sp. Pl. 696, 1753; FBI. 1: 343; C. 1: 119.

An erect, coarsely hairy shrub or undershrub. Leaves cordate, 3-5-lobed, scabrous. Flowers large, creamy-yellow with purple centre. Capsule ribbed, hairy at first and glabrous later. (Fl. Fr. June - October).

Local name : Bhindo.

PPB. 418, 528.

Cultivated.

Naturalized or cultivated in most tropical countries.

Abelmoschus manihot (Linn.) Medic. Malv. Fam. 46, 1787; Sant. 18; Fl. Dang, 17; Fl. Saur. 1: 50; Fl. Pavagadh, 47; Bates, in Baileya 16(3): 99-112, 1968.

Hibiscus manihot Linn. Sp. Pl. 696, 1753.

H. tetraphyllus Roxb. Hort. Beng. 52, 1814, nom. nud. and Fl. Ind. 3: 211, 1832; FBI. 1: 341; C. 1: 118.

A tall, perennial shrub. Leaves entire or deeply 3-lobed, covered with stiff hairs. Flowers yellow with purple throat, solitary, axillary or clustered at the end of branches. Capsules with stiff hairs. (Fl. Fr. October - November).

Local name : Jangali Bhindo.

PPB. 365.

Konkan, Karnatak, Gujarat, Bengal.

Tropical regions of both the hemispheres.

BOMBACACEAE

Trees; armed, at least when young; flowers red;
fruit a capsule ..... Salmalia

Trees; unarmed; flowers white;
fruit an amphisarca ..... Adansonia

Salmalia Schott & Endl.

Salmalia malabarica (DC.) Schott. & Endlicher, Melet. Bot. 35, 1832; Sant. 19; Blatt. & Mill. Beaut. Ind. Trees, 22, t. 26; Maheshwari, 83; Fl. Saur. 1: 59; Saldanha and Nicolson, 145.

B. malabaricum DC. Prodr. 1: 479, 1824; FBI. 1: 349; C. 1:127.

A large, deciduous tree, forming a spreading crown. Trunk and branches covered with sharp, conical prickles. Leaves palmately compound; leaflets lanceolate. Flowers large, red, very attractive; polyadelphous. Capsules 5-valved. (Fl. Fr. February - April).

Local name : Shimlo.

PPB. 1204.

Common, though not abundant; sparsely distributed throughout the area; mostly cultivated.

Throughout the hot, forest region of India.

Burma, Ceylon, Java, Sumatra, Malaya.

Adansonia Linn.

Adansonia digitata Linn. Sp. Pl. 1190, 1753; FBI. 1: 348; C. 1: 126; Chavan & Padate, in Ind. For. 86(4): 211, 1960; Fl. Saur. 1: 58.

A large tree; trunk very thick at the base, gradually narrowing upwards, leaves deciduous, glabrous; leaflets 3-9. Flowers solitary, axillary, pendulous, long peduncled. Fruits large, amphisarcas. (Fl. Fr. October - April).

Local name : Gorakh Amli.

PPB. 535, 669, 942.

A tree on steep banks in the coastal areas at Dhuvaran, Tithal, Hajira.

Gujarat, Maharashtra, Karnatak, Andhra, Madras.

Endemic in tropical Africa; Ceylon.

STERCULIACEAE

Fruit a spirally twisted capsule ..... Helicteres

Fruit not as above :

Flowers yellow ..... Waltheria

Flowers rose-pink or purplish ..... Melochia

Helicteres Linn.

Helicteres isora Linn. Sp. Pl.963, 1753; FBI. 1: 365; C. 1: 136; D. & G. 22; Talb. 1: 146; t. 89; Wt. Icon. t. 180; Fl. Saur. 1: 62; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

A much-branched, large shrub. Leaves ovate-oblong, hairy on both sides. Flowers in axillary clusters, purple-red to orange-red. Capsule septicidal, spirally twisted; seeds wrinkled. (Fl. Fr. August - February).

Local name : Mardasing.

PPB. 1205, 1208.

Rare but locally abundant; observed at Dhuvaran, Tithal, Bhimpore, Nargol.

Almost throughout Gujarat, Maharashtra, Karnatak, Madhya Pradesh forests.

Waltheria Linn.

Waltheria americana Linn. Sp. Pl. 673, 1753; Backer & Bakh. f. Fl. Java 1: 406, 1963; Saldanha & Nicolson, 144.

W. indica Linn. Sp. Pl. 673, 1753; FBI. 1: 374; C. 1: 144; Gr. 246; D. & G. 23; Fl. Saur. 1: 64; Fl. Pavagadh, 49; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, much-branched, softly pubescent herb about a meter high. Leaves elliptic-ovate with crisped margin. Flowers yellow, in dense, axillary heads. Fruit a small, 1-seeded capsule. (Fl. October - November).

PPB. 854.

Noted on waste lands throughout the coastal area.

More or less throughout the hotter parts of India.

Ceylon and tropical warmer regions of the world.

Note : Waltheria americana L. is the lectotype species of the genus (Saldanha & Nicolson, 1976).

Melochia Linn.

Melochia corchorifolia Linn. Sp. Pl. 675, 1753; FBI. 1: 374; C. 1: 142; Fl. Saur. 1: 63; Maheshwari, 86; Fl. Pavagadh, 50; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, much-branched herb or undershrub. Leaves ovate-oblong, acute, serrate. Flowers pink to purple, in terminal clusters. Capsule globose, 5-valved; seeds many. (Fl. Fr. September - January).

PPB. 1206, 1209.

A marsh-loving plant, very commonly observed on the banks of ponds; also noted as a weed in cultivated fields. Common throughout the area.

Throughout the hotter parts of India, Gujarat, Kanara; from Kumaon to Sikkim.

Malacca, Ceylon, Tropics generally.

TILIACEAE

Trees or large erect shrubs :

Flowers less than 3 cm. across ..... Grewia

Herbs or undershrubs :

Fruit globose or ovoid, prickly or spiny ... Triumfetta

Fruit much elongate, not prickly or spiny... Corchorus

Grewia Linn.

Inflorescence leaf-opposed, leaves
glabrous or nearly so ..... tenax

Inflorescence axillary, leaves usually
hoary at least beneath .....asiatica

Grewia tenax (Forsk.) Fiori; Fl. Egypt: 234; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

G. populifolia Vahl, Symb. 1: 33, 1790; FBI. 1: 385; Trim. Fl. Ceyl. 1: 178; Woodr. JBNHS. 11: 130, 1897; Watt, Dict. Econ. Prod. 4: 182.

An undershrub. Leaves broadly ovate or suborbicular, coarsely dentate. Flowers pure white, peduncles usually solitary. Drupes smooth, orange-yellow (Fl. Fr. August - December).

PPB. 450.

Noted in the estuarine areas at Kavi, Dhuvaran and Ganguva.

Arabia, S. Persia, Afghanistan, Baluchistan, Tropical Africa, Mauritius, Ceylon.

Grewia asiatica Linn., Mantiss. 1: 122, 1767; FBI. 1: 386; C. 1: 150; Parker, For. Fl. 55; Maheshwari, 87.

A small tree; young parts stellately pubescent. Leaves

ovate or suborbicular, coarsely toothed. Flowers yellow, in umbellate cymes. Drupes fleshy, globose, dark purple. (Fl. Fr. March - June).

PPB. 748.

Noted at Tithal, Bhimpore and Meh Dungri.

Extensively cultivated throughout the Presidency, largely in Gujarat; Trop. East Africa.

Triumfetta Linn.

Lower leaves more or less lobed :

Capsule with glabrous spines ..... rhomboidea

Capsule with hispid spines ..... pentandra

Lower or all leaves orbicular ..... rotundifolia

Triumfetta rhomboidea Jacq. Enum. Pl. Carib. 22, 1760; FBI. 1: 395; C. 1: 156; Fl. Saur. 1: 79; Fl. Pavagadh, 52; Raizada, in Ind. For. 92(5): 325, 1966; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

Triumfetta bortramia Linn. Syst. (ed. 10) 1044, 1759 (nomen. illegit.); Roxb. Fl. Ind. 2: 463; Santapau, in RBSI. 16(1): 24, 1960.

A stout, erect, undershrub. Leaves variable, lower 3-lobed,

upper entire. Flowers yellow, in dense, terminal or leaf-opposed cymes. Capsule pubescent. Spines of the capsule glabrous, minutely hooked. (Fl. Fr. August - February).

Local name : Jhipati.

PPB. 783.

Common weed on open waste places in the coastal areas during monsoon.

Tropical and sub-tropical India, ascending to Himalaya.

Ceylon, Malay Islands, China, Tropical Africa and America.

Triumfetta pentandra A. Rich. in Guill. and Per. Fl. Seneg. 93, t. 19, 1930-33; G. 1: 120; Blatter, in JBNHS. 34: 890, 1931; Vartak, in JBNHS. 56(2): 365-366, 1959.

T. neglecta Wt. & Arn. Prodr. 1: 75, 1834; FBI. 1: 396; Haines, 1: 89.

An erect, stiff, much-branched, annual herb. Leaves ovate or rhomboid, serrate, acuminate, lower ones ovate, 3-lobed. Flowers yellow, small, in lateral extra-axillary clusters. Capsule ellipsoid, beset with spines which are hispid. (Fl. Fr. October - January).

PPB. 955.

Observed as a weed in cultivated fields at Tithal, Meh Dungri, along the coast.

Gujarat, North Western India; Western Peninsula, Punjab, Madras, Bihar and Orissa, Tinnevelly.

Ceylon, Abyssinia, Senegal.

Triumfetta rotundifolia Lamk. Encycl. 3: 421, 1789; FBI. 1: 395; C. 1: 157; Fl. Saur. 1: 73; Fl. Pavagadh, 53; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, stout, undershrub. Leaves orbicular, toothed, stellately hairy above and grey tomentose beneath. Flowers yellow, in interrupted racemes. Spines of the capsule pubescent. (Fl. Fr. August - February).

Local name : Jipto.

PPB. 334, 955.

Common on the sandy banks at Cambay, Dahej.

Gujarat, and the entire peninsula; Bundelkhand to Central India.

Pegu.

Corchorus Linn.

1. Capsule elongated, cylindrical :

2. Beak entire :

3. Capsule less than 3 cm. long ..... fascicularis

3. Capsule more than 3 cm. long :

4. Capsule stout, glabrous ..... olitorius

4. Capsule slender, scabrid ..... trilocularis

2. Beak distinctly trifid ..... aestuans

1. Capsule spherical, muricated ..... capsularis

Corchorus fascicularis Lamk. Encycl. 2: 104, 1786; FBI. 1: 398; D. & G. 24; C. 1: 159; Sant. 25; Fl. Saur. 1: 71; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect or suberect, much-branched undershrub, branching from the base. Leaves elliptic-oblong, obtuse, serrate. Flowers small, yellow, in leaf-opposed cymes. Capsules short, 3-valved, in fascicles. (Fl. Fr. September - December).

Local name : Bahuphalli.

PPB. 496, 700, 1039.

In sandy backshore at Dahej, Tithal, Meh Dungri.

On the hotter plains of India.

Ceylon, Tropical Africa, Australia.

Corchorus olitorius Linn. Sp. Pl. 529, 1753; FBI. 1: 397; C. 1: 158; D. & G. 25; Sant. 25; Fl. Saur. 1: 71; Maheshwari, 88; Fl. Pavagadh, 54; Rao et al. loc. cit. 64, 1966.

An erect, much-branched herb or undershrub, 30-70 cm. tall. Leaves ovate-lanceolate, serrate with two long, filiform appendages near the base of the lamina. Flowers yellow, capsule glabrous, cylindrical, 3-5 cm. long, ribbed and beaked. (Fl. Fr. September - December).

Local name : Chhunchha.

PPB. 313, 556.

Noted as a weed in cultivated fields, in open waste places near villages at Chokari, Kavi, Ganguva, Dabka and in moist places throughout the area.

Gujarat, Maharashtra. Indigenous in many parts of India.

All tropical regions.

Corchorus trilocularis Linn. Mant. 77, 1767; FBI. 1: 397; C. 1: 158; D. & G. 25; Maheshwari, 89; Rao et al. loc. cit. 8(1): 21, 1966.

A hairy herb or undershrub, branching from the base. Leaves ovate or elliptic. Flowers yellow, in short cymes. Capsule 5-8 cm. long, scabrous, straight with a short beak; seeds black. (Fl. Fr. September - February).

PPB. 395, 699.

Rare in the area, noted at Tithal, Umrat and Nargol.

Gujarat, Maharashtra, Madras, Rajasthan.

Tropical Africa, Afghanistan, Pakistan.

Corchorus aestuans Linn. Syst. (ed. 10) 1079, 1759 (non Forsk.); Blatter, in JBNHS. 34: 892, 1931; Sant. 27; Fl. Dang, 21; Fl. Saur. 1: 72; Maheshwari, 89; Fl. Pavagadh, 53; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

C. acutangularis Lamk. Encycl. 2: 104, 1786; FBI. 1: 398; C. 1: 160.

An erect or ascending herb or undershrub. Leaves ovate, serrate with filiform appendages on either side near the base of the lamina. Flowers yellow, in leaf-opposed cymes. Capsule stout, elongate, winged. (Fl. Fr. August - October).

Local name : Jitali.

PPB. 572, 895.

An erect undershrub near hedges at Cambay.

Throughout the hotter parts of India.

Trop. Africa, Australia, Ceylon, West Indies.

Corchorus capsularis Linn. Sp. Pl. 529, 1753; FBI. 1: 397; C. 1: 157; Sant. 26; Fl. Dang, 21; Fl. Saur. 1: 70; Fl. Pavagadh, 54.

An erect undershrub. Leaves lanceolate, acute, serrate. Flowers yellow, in short cymes. Capsule subglobose, warty. (Fl. Fr. September - January).

Local name : Moti chhunchh, Shana.

PPB. 374, 516.

Observed in hedges at Dhuvaran, Kavi.

"Probably introduced from China or Cochinchina"; now under cultivation in E. India, and as escape in other parts of the plains to 1300 meters.

ZYGOPHYLLACEAE

Tribulus Linn.

Tribulus terrestris Linn. Sp. Pl. 387, 1753; FBI. 1: 423; C. 1: 170; Fl. Saur. 1: 76; Maheshwari, 91; Fl. Pavagadh, 55; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

A spreading, hairy herb. Leaves abruptly pinnate. Flowers yellow, solitary, axillary or leaf-opposed. Schizocarps globose, each mericarp armed with 2-spines. (Fl. Fr. August - November).

Local name : Gokhru.

PPB. 679.

Along sandy coast at several places.

Throughout the dry, hotter parts of India.

Warmer regions of the globe.

OXALIDACEAE

Leaves pinnate ..... Biophytum

Leaves trifoliolate ..... Oxalis

Biophytum DC.

Biophytum sensitivum (Linn.) DC. Prodr. 1: 690, 1824; FBI. 1: 436; C. 1: 177; Fl. Dang, 22; Fl. Saur. 1: 79; Fl. Pavagadh, 56; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Sastry & Rao, loc. cit. 96, 1973.

Oxalis sensitiva Linn. Sp. Pl. 434, 1753.

A small, sensitive, erect, unbranched annual herb. Leaves pinnately compound, crowded at the top. Flowers yellow, in umbel-like inflorescence. Capsule ellipsoid. (Fl. Fr. August - November).

PPB. 855.

Fairly common in moist areas.

Gujarat, Maharashtra, Karnatak, Madras; throughout hotter parts of India.

Africa, America, Tropical Asia and Ceylon.

Oxalis Linn.

Oxalis corniculata Linn. Sp. Pl. 435, 1753; FBI. 1: 436; C.1: 177; Sant. 27; Fl. Saur. 1: 79; Maheshwari, 93; Fl. Pavagadh, 56; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

A small, prostrate herb, rooting at the nodes. Leaves

3-foliolate; leaflets obcordate, small, petioles long and slender. Flowers yellow, axillary, on long peduncles. Fruit elongate, hairy. (Fl. Fr. August - January).

Local name : Ambati.

PPB. 884.

Common in moist, shaded localities.

Almost throughout India from the plains to a height of 2500 meters.

Cosmopolitan in distribution.

BALSAMINACEAE

Impatiens Linn.

Impatiens balsamina Linn. Sp. Pl. 938, 1753; FBI. 1: 453; C. 1: 184; Fl. Saur. 1: 77; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

An erect, annual herb. Leaves lanceolate, acuminate, deeply serrate. Flowers rose, pink, white, in axillary clusters. Capsule loculicidal, elastically dehiscing. (Fl. Fr. July - September).

Local name : Galmendi, Terdo.

PPB. 852.

Tropical and sub-tropical India.

China and Malaya.

RUTACEAE

Armed shrubs or trees :

Leaves unifoliolate; pericarp leathery ..... Citrus

Leaves multifoliolate; pericarp woody :

Leaflets 3, stamens many ..... Aegle

Leaflets more than 3; rachis winged;
stamens 10-12 ..... Limonia

Unarmed herbs, shrubs or trees :

Style short, persistent ..... Glycosmis

Style jointed on the top of the ovary,
not persistent ..... Murraya

Citrus Linn.

Citrus limon (Linn.) Burm. f. Fl. Ind. 173, 1768; Bailey, Man. Cult. Pl. 609.

C. media var. limon Linn. Sp. Pl. 2: 282, 1753.

A shrub or a small tree. Leaves 1-foliolate with winged petiole and axillary thorn. Flowers white. Fruit globose, juicy, with acidic pulp.

Local name : Limbu.

PPB. 1210.

Cultivated in a number of public and private gardens

throughout the area along the sea shore.

Cultivated throughout India.

Tropical and subtropical Asia and Malayan Achipelago.

Aegle Correa. (nom. cons.)

Aegle marmelos (Linn.) Correa, in TLS. 5: 223, 1800; FBI. 1: 516; C. 1: 204; Talb. 1: 206, t. 125; Chavan & Padate, in Ind. For. 86(4): 211, 1960. Fl. Saur. 1: 81; Maheshwari, 95; Fl. Pavagadh, 57.

Crataeva marmelos Linn. Sp. Pl. 444, 1753.

Small to medium-sized, deciduous tree, armed usually with paired, axillary thorns. Leaves 3-foliolate. Flowers greenish-white, scented, in panicles. Fruit a globose amphisarca. (Fl. Fr. May - October).

Local name : Bili, Bel.

PPB. 1211.

Sparsely distributed throughout the area. Cultivated in many places, sometimes wild.

Cultivated throughout the country; runs wild in some parts.

Limonia Linn.

Limonia acidissima Linn. Sp. Pl. (ed. 2) 554, 1762; Airy-Shaw,

in Kew Bull. 293, 1939; Fl. Pavagadh, 58.

Feronia elephantum Corr. in TLS. 225, 1800; FBI. 1: 516; C. 1: 203; Wt. Icon. t. 15.

A small to medium-sized tree, armed with straight, strong spines. Leaves imparipinnate with slightly winged rachis. Flowers small, dull red or red mixed with muddy yellow, in lateral and terminal panicles. Fruit a globose amphisarca. (Fl. Fr. March - August).

Local name : Kothi, Kothun.

PPB. 1212.

Common throughout the area. Cultivated or wild.

Throughout India in dry situations.

Ceylon, Java.

Glycosmis Corr.

Glycosmis pentaphylla (Retz.) Corr. in Ann. Mus. Hist. Nat. 6 : 386, 1805; FBI. 1: 499; C. 1 : 192; Sant. 30.

Limonia pentaphylla Retz. Obs. 5: 24, 1789.

An erect shrub. Leaves variable. Flowers small, white. Fruit a globose berry. (Fl. Fr. October - March).

PPB. 1213.

Noted a few plants at Hajira and Dumas.

Common throughout the moist evergreen forests of Konkan and N. Kanara; elsewhere planted.

Malaya, China, Borneo, Australia, Ceylon, Philippines.

Murraya Linn.

Leaves strongly scented; leaflets 11-25; berries black ..... koenigii

Leaves not strongly scented; leaflets 3-7; berries red ..... paniculata

Murraya koenigii (Linn.) Spreng. Syst. 2: 315, 1825; FBI. 1: 503; C. 1: 193; Sant. 30; Fl. Saur. 1: 80; Maheshwari, 97; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

Bergera koenigii Linn. Mant. 1: 565, 1767.

A large shrub with highly scented leaves. Leaves imparipinnate. Flowers white, in corymbose umbels. Berries shining, pale-yellow when young and later becoming black on ripening. (Fl. Fr. March - June).

Local name : Mitho limbdo, Kadhi limbdo.

PPB. 1214.

Cultivated at few places in private gardens at Dumas and Tithal.

Common all along the ghats; elsewhere it is cultivated.

Ceylon, Java, Madagascar, Siam.

Murraya paniculata (Linn.) Jack., in Malay. Misc. 1(5): 31, 1820; Sant. 31; Fl. Saur. 1: 80; Maheshwari, 97; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

Murraya exotica Linn. Mant. 2: 563, 1771 (Murraea); FBI. 1: 512; C. 1: 193.

A large, evergreen shrub. Leaves imparipinnate, leaflets shining, not strongly scented. Flowers bell-shaped; white, fragrant, solitary or in small axillary corymbs. Berries red. (Fl. Fr. July - December).

Local name : Kunti.

PPB. 1215.

Cultivated in gardens at Dumas, Tithal and Nargol.

Australia, Ceylon, China and the Pacific Islands.

MELIACEAE

Leaves once pinnate; flowers white;
fruit 1-seeded ..... Azadirachta

Leaves twice pinnate; flowers lilac;
fruit 4-seeded ..... Melia

Azadirachta A. Juss.

Azadirachta indica A. Juss., in Mem. Mus. Par. 19: 221, 1830; C. 1: 220; Parker, For. Fl. 71; Fl. Dang, 23; Fl. Saur. 1: 87; Maheshwari, 99; Fl. Pavagadh, 59.

Melia azadirachta Linn. Sp. Pl. 385, 1753; FBI. 1: 544.

A large tree. Leaves pinnate; leaflets subopposite, serrate, acuminate. Flowers white, in large, axillary panicles. Drupe ellipsoid or subovoid, 1-seeded. (Fl. Fr. April - May).

Local name : Limdo.

PPB. 705.

Common near seacoast almost at all places.

Gujarat, Maharashtra, Karnatak, Madhya Pradesh; cultivated throughout India but nowhere really wild.

Persia, China.

Melia Linn.

Melia azedarach Linn. Sp. Pl. 384, 1753; FBI. 1: 544; C. 1: 218; Parker, For. Fl. 72; Fl. Saur. 1: 88; Maheshwari, 99; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69.

A medium to large size tree with twice pinnate leaves. Flowers lilac-blue, in long axillary panicles. Drupes subglobose, 4-seeded. (Fl. Fr. March - July).

Local name : Bakan limdo.

PPB. 1216.

Cultivated in gardens at Valsad and Dumas.

A native of Asia, cultivated throughout India.

Persia, China.

CELASTRACEAE

Maytenus Molina.

Maytenus emarginata (Willd.) Ding Hou, in Fl. Males. 1: 6(2): 241, 1962; Raizada, in Ind. For. 92(5): 316, 1966; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

Celastrus emarginatus Willd. Sp. Pl. 1: 1128, 1798.

Gymnosporia montana Benth. Fl. Austr. 1: 400, 1863; FBI. 1: 621; C. 1: 247; Talb. 1: 281; f. 166, pp. (non Roxb.)

An erect, tall, glabrous, much-branched shrub; young branches reddish brown, ending into sharp stout thorns. Leaves thick, obovate to oblanceolate, emarginate. Flowers small, white, numerous, in axillary cymes. Capsule globose, purple or black when ripe. (Fl. Fr. February - April).

Local name : Vikaro.

PPB. 255.

Local name : Bakan limdo.

PPB. 1216.

Cultivated in gardens at Valsad and Dumas.

A native of Asia, cultivated throughout India.

Persia, China.

CELASTRACEAE

Maytenus Molina.

Maytenus emarginata (Willd.) Ding Hou, in Fl. Males. 1: 6(2): 241, 1962; Raizada, in Ind. For. 92(5): 316, 1966; Padate, in JMSU. 17 & 18(3): 103, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 96, 1973.

Celastrus emarginatus Willd. Sp. Pl. 1: 1128, 1798.

Gymnosporia montana Benth. Fl. Austr. 1: 400, 1863; FBI. 1: 621; C. 1: 247; Talb. 1: 281; f. 166, pp. (non Roxb.)

An erect, tall, glabrous, much-branched shrub; young branches reddish brown, ending into sharp stout thorns. Leaves thick, obovate to oblanceolate, emarginate. Flowers small, white, numerous, in axillary cymes. Capsule globose, purple or black when ripe. (Fl. Fr. February - April).

Local name : Vikaro.

PPB. 255.

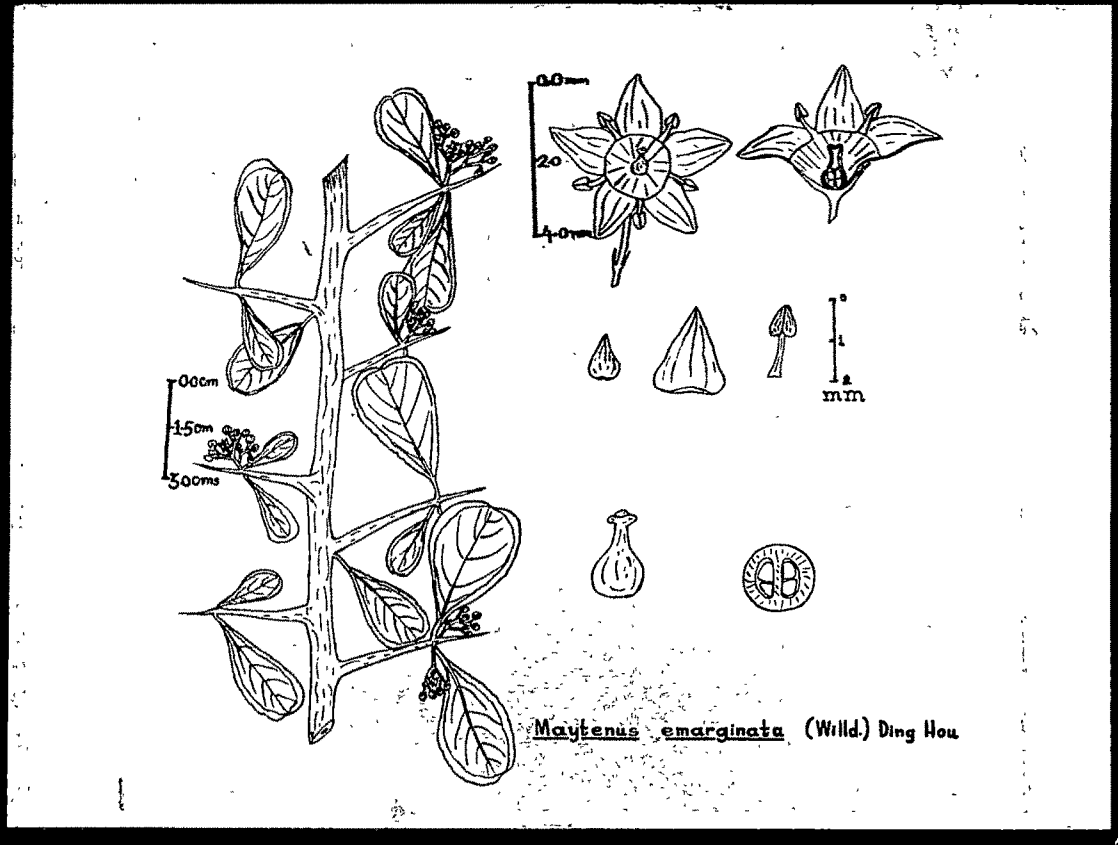

0.0cm
15cm
30cms
0.0mm
2.0
4.0mm
0
1
2
mm
Maytenus emarginata (Willd.) Ding Hou

PLATE No. 20.

Commonly observed in hedges.
PLATE NO. 20.
Throughout the drier parts of India.

Afghanistan, Malay Archipelago, Australia, Central Africa.

RHAMNACEAE

Zizyphus Tourn. ex Mill.

Leaves glabrous on both sides ..... glabrata

Leaves tomentose on one or both sides :

Leaves distichously arranged;
acute or acuminate ..... oenoplia

Leaves not distichously arranged;
rounded at both ends :

Leaves tomentose beneath;
an erect tree ..... mauritiana

Leaves tomentose on both sides;
pubescent above and buff-tomentose
beneath; diffuse shrub with
geniculate branches ..... nummularia

Zizyphus glabrata Heyne ex Roth, Nov. Pl. Sp. 159, 1821;
FBI. 1: 633; Fl. Saur. 1: 92; Fl. Raj. 40.

Z. trinervis Roxb. Hort. Beng. 17, 1814 (nom. nud.) and Fl. Ind. 1: 606, 1832 (non Poir. 1813); C. 1: 256.

A large shrub; armed with thin stipular spines; one straight and the other hooked. Leaves glabrous, prominently 3-nerved, serrate, oblique. Flowers in short, axillary cymes. (Fl. Fr. November - December).

PPB. 489, 490.

A common shrub in the inland areas along the coast.

Gujarat plains, Western Peninsula, East Bengal, Madras. Bhutan.

Zizyphus oenoplia Mill. Gard. Dict. (ed. 8) no. 3, 1768; FBI. 1: 634; C. 1: 257; Sant. 40; Fl. Dang, 24; Fl. Saur. 1: 93; Maheshwari, 102; Fl. Pavagadh, 62; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69; Sastry & Rao, loc. cit. 97, 1973.

Rhamnus oenoplia Linn. Sp. Pl. 194, 1753.

A subscandent, straggling shrub with rusty-pubescent branches. Leaves ovate, acute, oblique, silky hairy beneath, distichously arranged. Flowers greenish-yellow in short, axillary racemes. (Fl. Fr. August - November).

Local name : Bordi.

PPB. 301, 1075.

Commonly noted along Mahi estuary.

Throughout the hotter parts of India, from Punjab and W. Himalayas to Assam, and W. India.

Ceylon, Tropical Asia and Australia.

Zizyphus mauritiana Lamk. Encycl. 3: 319, 1789; Santapau, in JBNHS. 51: 802, 1951; Sant. 39; Chavan & Padate, in Ind. For. 86(4): 211, 1960. Fl. Saur. 1: 92; Maheshwari, 101, Fl. Pavagadh, 61.

Z. jujuba Lamk. Encycl. 3: 319, 1789 (non Z. jujuba Miller, Gard. Dict. (ed. 8) no. 1, 1768); FBI. 1: 632; C. 1: 256; Gr. 39; D. & G. 49.

A much-branched, large shrub. Leaves ovate-elliptic, rounded at the base and apex, buff-tomentose beneath. Flowers small, greenish-yellow, in short, axillary clusters. Fruit a globose or oblong, drupe. (Fl. Fr. August - October).

Local name : Bor.

PPB. 682, 723.

Fairly common; observed in hedges.

Throughout India.

Afghanistan, Ceylon, China, Australia, Africa.

Zizyphus nummularia (Burm. f.) Wt. et Arn. Prodr. 162, 1834; FBI. 1: 633; Gr. 247; D. & G. 49; Rao et al. Bull. Bot. Surv. India 8(1): 21, 1966.

Rhamnus nummularis Burm. f. Fl. Ind. 61, 1768.

Zizyphus rotundifolia Lamk. Encycl. 3: 319, 1779; C. 1: 257; Sant. Fl. Saur. 1: 93.

An armed, much branched, straggling shrub. Leaves dentate, hairy on both the sides, silky, tomentose beneath. Flowers small, in axillary cymes. Drupe glabrous, red. (Fl. Fr. October - January).

Local name : Chani bor.

PPB. 49, 145, 226.

Very common, noted in hedges.

India, Persia.

VITACEAE (AMPELIDACEAE)

Leaves simple :

Flowers pentamerous ..... Ampelocissus

Flowers tetramerous ..... Cissus

Leaves 3-5-foliolate ..... Cayratia

Ampelocissus Planch. (nom. cons.)

Ampelocissus latifolia (Roxb.) Planch. Journ. Vigne Amer. 374, 1884 and in DC. Mon. Phan. 5(2): 370, 1887;

Fl. Saur. 1: 96; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

Vitis latifolia Roxb. Hort. Beng. 18, 1814; FBI. 1: 652; C. 1: 269; Talb. 1: 55; N.G. 252.

A large climber. Tendrils forked. Leaves simple, large, angular, 3-7-lobed. Flowers in cymes, on stout peduncles; peduncle bearing a slender forked tendril. Berries globose; succulent. (Fl. Fr. May - June).

PPB. 979.

Common, observed as a climber.

Gujarat, Maharashtra, Karnatak, Madras, Assam, Bengal.

Pakistan.

Cissus Linn.

Cissus quadrangularis Linn. Mantiss : 39; Gr. 33; D. & G. 39; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 97, 1973.

Vitis quadrangularis Wall. Cat. 5992, 1828; FBI. 1: 645; Trim. Fl. Ceyl. 1: 289; Talb. Trees, Bomb. 54; Woodr. in JBNHS. 11: 271, 1897; Wt. Icon. t. 51, C. 1: 266.

Glabrous climber with succulent quadrangular stems of winged margins and constricted nodes. Leaves thin, entire. Flowers in short, peduncled umbel-like cymes. Berry apiculate, red when ripe. (Fl. Fr. July - September).

PPB. 1029.

Observed as a climber.

Throughout India; Java, E. Africa, Malaya, Ceylon.

Cayratia Juss (nom. cons.)

Cayratia carnosa (Lamk.) Gagnep. Lecomte. Not. Syst. t, 347, 1911; Fl. Dang, 25; Fl. Saur. 1: 98; Maheshwari, 102; Fl. Pavagadh, 64; Rao et al. Bull. Bot. Surv. India 6(2.4): 181, 1964.

Cissus carnosa Lamk. Encycl. 1: 31, 1783.

Vitis carnosa Wall. ex Wt. & Arn. Prodr. 1: 27, 1834.

V. trifolia auct. (non Linn.); C. 1: 271.

A creaping or climbing shrub. Leaves trifoliolate; tendrils branched, leaf-opposed. Flowers greenish-white, in cymes. Berries globose, black. (Fl. Fr. August - September).

Local name : Khatkhatumbo.

PPB. 892.

Noted on hedges.

Throughout the hotter parts of India.

Burma, Ceylon, Malacca.

LEEACEAE

Leea Linn.

Leea macrophylla Roxb. ex Hormem. Hort. Hofn. 1: 231, 1813; Roxb. Fl. Ind. 1: 653; Wt. Icon. t. 1154; FBI. 1: 664, in part (excluding Syn. L. latifolia) C. 1: 276; Talb. 1: 326; Fl. Dang, 25.

An erect, undershrub or shrub. Leaves simple, broadly ovate, cordate, acute, coarsely serrate. Flowers white, in terminal, much-branched cymes. Berries black, usually 3-lobed. (Fl. Fr. July - September).

PPB. 1217.

Noted at Tithal; rare.

Throughout the hotter parts of India.

SAPINDACEAE

Climbing herbs ..... Cardiospermum

Trees ..... Sapindus

Cardiospermum Linn.

Cardiospermum halicacabum Linn. Sp. Pl. 366, 1753; FBI. 1: 670; C. 1: 280; Wt. Icon. t. 508; Fl. Dang, 25; Fl. Saur. 1: 100; Maheshwari, 103; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

A slender, herbaceous, tendril climber. Leaves thin, biternate. Flowers white, in umbellate cymes. Capsule trigonous, in flatted, membranous; seeds black. (Fl. Fr. August - October).



Local name : Kagadoliyo.

PPB. 568.

Observed as a climber on hedges along the coast.

Throughout India.

Malacca, Ceylon, Tropical and Sub-tropical countries.

Sapindus Linn.

Sapindus emarginatus Vahl, Symb. 3: 34, 1794; Gr. 29; D. & G. 35; Fl. Saur. 1: 102; Fl. Pavagadh, 65; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

S. laurifolius var. emarginatus C. 1: 284.

S. trifoliatus Hiern., in FBI. 1: 682, pro. parte (non Linn.).

A medium-sized tree; bark greyish in colour. Leaves alternate, pinnate; leaflets emarginate. Flowers pinkish-white, in terminal panicles. Fruits of 3 drupes, smooth to touch. (Fl. Fr. December - April).

Local name : Rithan, Aritha.

PPB. 1228.

Not common; planted at a few places at Nagrol and Tithal.

Indigenous to the evergreen forests of N. Kanara, fairly common at low elevations in S. India, cultivated in Bengal and S. W. India for its fruits, which contain saponin, which makes it useful for cleaning purposes.

ANACARDIACEAE

Mangifera Linn.

Mangifera indica Linn. Sp. Pl. 200, 1753; FBI. 2: 13; C. 1: 291; Gr. 41; D. & G. 51; Talb. 1: 348; Sant. 50; Fl. Saur. 1: 103; Fl. Pavagadh, 66.

A large, evergreen tree with spreading branches. Leaves simple, lanceolate, slightly wavy, shining. Flowers yellowish, polygamous, in large panicles. Drupes large. (Fl. Fr. January - June).

Local name : Ambo.

PPB. 1218.

Cultivated throughout the area on large scale for its edible fruits.

The well known 'Mango' tree, cultivated throughout India and in the tropics generally.

MORINGACEAE

Moringa Adans.

Leaves 2-pinnate; leaflets orbicular; flowers pale-yellow, streaked with red ..... concanensis

Leaves 3-pinnate; leaflets elliptic or obovate; flowers white ..... oleifera

Moringa concanensis Nimmo, in Graham, Cat. Bombay Pl. 43, 1839; FBI. 2: 45; C. 1: 301; Brandis, For. Fl. 130; Hook. Icon. Plant. Ser. 4, Vol. 6, t. 2596, 1899; Fl. Saur. 1: 106.

A medium-sized, soft-wooded tree. Leaves 2-pinnate; leaflets are larger. Flowers yellow to faint yellow. Fruits, irregularly constricted, bitter in taste, non-edible. (Fl. Fr. February - June).

Local name : Kadvo saragvo.

PPB. 1227.

Rare; a few trees observed at Nargol and Umargam.

Gujarat, Konkan, Rajputana.

Pakistan, Sind, Baluchistan.

Moringa oleifera Lamk. Encycl. 1: 398, 1785; Blatter, in JBNHS. 31: 907, 1931; Bailey, Man. Cult. Pl. 451;

Chavan & Padate, in Ind. For. 86(4): 211, 1960; Fl. Saur. 1: 105; Maheshwari, 106; Fl. Pavagadh, 66.

Moringa pterygosperma Gaertn. Fruct. 2: 314, 1791; FBI. 2: 45; C. 1: 301.

A medium-sized tree with soft wood. Leaves alternate, usually- 3-pinnate. Flowers white, fragrant, in large panicles. Pod capsular, long, 9-ribbed. (Fl. Fr. February - April).

Local name : Saragvo.

PPB. 1168.

Doubtfully wild, usually cultivated near human habitations for its edible fruits.

It is indigenous to the Western Himalayas and Oudh.

It is cultivated throughout India and other Tropical countries.

FABACEAE (PAPILIONACEAE)

(For routine keys to the tribes and genera refer to Cooke's Flora of the Presidency of Bombay. I have incorporated here an artificial key to the genera, which would help in easy determination of the plant species of this large family. Many generic names are repeated more than once, because different species of the genus show differences in characters).

1. Trees :

2. Leaves 3-foliolate, corolla orange or salmon-coloured ..... Butea

2. Leaves and corolla not as above :

3. Flowers 5-7 cm. or more long ..... Sesbania (in part)

3. Flowers less than 3 cm. long :

4. Pod 1-seeded, woody ..... Derris

4. Pod never woody, 1- many-seeded ..... Sesbania (in part)

1. Herbs, shrubs or climbers :

5. Seeds bright red, subglobose with a black spot at one end ..... Abrus

5. Seeds not as above :

6. Plants having a simple leaf or a compound leaf with one leaflet :

7. Plants armed with hard spines ..... Alhagi

7. Plants unarmed :

8. Leaves gland-dotted ..... Psoralea

8. Leaves not gland-dotted :

9. Pods 1-2-seeded :

10. Flowers yellow ..... Goniogyna

10. Flowers red ..... Indigofera (in part)

9. Pods many-seeded :

11. Pods jointed, separating into indehiscent joints :

12. Joints of pods turgid ..... Alysicarpus

12. Joints of pods flattened ..... Desmodium (in part)

11. Pods not jointed :

13. Pods flattened, leaf-like ..... Tephrosia (in part)

13. Pods turgid ..... Crotalaria (in part)

6. Plants having a leaf with two or more than two leaflets :

14. Plants with 2 or 3 leaflets :

15. Leaflets 2 ..... Zornia

15. Leaflets 3 :

16. Prostrate or diffuse (rarely trailing) herbs :

17. Leaflets entire, stipules lanceolate ... Desmodium (in part)

17. Leaflets 3-lobed ..... Phaseolus (in part)

16. Plants not as above :

18. Twining herbs or shrubs :

19. Stamens 10, monadelphous :

20. All stamens perfect; flowers large..Canavalia

20. Alternate stamens sterile; flowers small .....Teramnus

19. Stamens 10, diadelphous :

21. Leaflets gland-dotted beneath; pods 2-seeded .....Rhynchosia

21. Leaflets not gland-dotted beneath; pods more than 2-seeded :

22. Keel not spiral .....Vigna

22. Keel spiral :

23. Stigma oblique .....Phaseolus (in part)

23. Stigma terminal .....Lablab

18. Erect herbs or shrubs :

24. Pods jointed, indented on one or both the sutures ..... Desmodium (in part)

24. Pods not as above :

25. Leaves gland-dotted beneath ..... Cajanus

25. Leaves not gland-dotted :

26. Flowers white, yellow or whitish-yellow ..... Crotalaria (in part)

26. Flowers red, pink or purple :

27. Pods jointed ..... Uraria

27. Pods not as above :

28. Pods spirally twisted..... Medicago

28. Pods not spirally twisted.. Indigofera (in part)

14. Plants with more than 3 leaflets :

29. Climbers or twiners ..... Clitoria

29. Herbs or shrubs :

30. Prostrate or diffuse herbs :

31. Leaflets toothed ..... Cicer

31. Leaflets entire :

32. Anthers apiculate ..... Indigofera (in part)

32. Anthers not apiculate ..... Tephrosia (in part)

30. Erect plants :

33. Stamens monadelphous ..... Cyamopsis

33. Stamens diadelphous :

34. Stamens 5 + 5 :

35. Pods striaght, leaves imparipinnate ..... Aeschynomene

35. Pods twisted, leaves paripinnate ..... Smithia

34. Stamens 9 + 1 :

36. Flowers yellow or yellowish-white.. Sesbania (in part)

36. Flowers pink, red or purple :

37. Anthers apiculate ..... Indigofera (in part)

37. Anthers not apiculate ..... Tephrosia (in part)

Butea Roxb. ex Willd. (nom. cons.)

Butea monosperma (Lamk.) Taub., in Engl. & Prantl, Pham. 3(3): 366, 1894; Sant. 66; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 163; Maheshwari, 130; Fl. Pavagadh, 88; Rao & Aggarwal, loc. cit. 21, 1966.

Plaso monosperma (Lamk.) O. Kuntze, Rev. Gen. Pl. 1: 202, 1891.

Erythrina monosperma Lamk. Encycl. 1: 391, 1783.

Butea frondosa Koening ex Roxb., in Asiat. Res. 3: 469, 1792 & Pl. Cor. 1: 21, t. 21, 1795; Gr. 54; D. & G. 71; FBI. 2: 194; C. 1: 395.

A small to medium-sized tree. Leaves 3-foliolate; leaflets coriaceous, glabrous above and silky tomentose beneath. Flowers large, showy, red or orange, in dense racemes. Pods stalked, velvety, 1-seeded. (Fl. Fr. February - April).

Local name : Khakaro, Kusudo.

PPB. 1003.

Common throughout the area in wild state.

Throughout India, especially in deciduous forests.

Ceylon, Burma.

Sesbania Scop. (nom. cons.)

Flowers large (5 cm. or more) ..... grandiflora

Flowers small (1-2 cm.) :

Unarmed; pods twisted, torulose ..... sesban var. picta

Armed; pods not twisted or torulose ..... bispinosa

Sesbania grandiflora Pers. Syn. Pl. 2: 316, 1807; FBI. 2: 115; C. 1: 350; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 139.

A small, soft-wooded tree. Flowers large, showy, upto 7 cm. long, usually of white or cream colour. Pods beaked and four-angled. (Fl. Fr. September - January).

Local name : Agathio, Agastho.

PPB. 1232.

Few trees cultivated at Dumas and Tithal.

Plains of Western Peninsula.

Mauritius, Malaya, India to N. Australia.

Sesbania sesban (Linn.) Merr. var. picta (Prain.) Santapau, Pl. Saur. 263, 1953; Fl. Saur. 1: 139; Maheshwari, 120.

Sesbania aegyptiaca Pers. var. picta Prain., in JASB. 66: 367, 1898; C. 1: 349.

A soft-wooded, erect, medium-sized, unarmed shrub. Leaves paripinnate; leaflets linear-oblong, 20-30 pairs. Flowers yellow, in pendulous racemes. Pods long, twisted, torulose. (Fl. Fr. October - February).

Local name : Sevari.

PPB. 754, 1115.

Almost throughout India.

Throughout the tropics of the old world.

Sesbania bispinosa (Jacq.) Fawc. & Rendle, Fl. Jam. 4: 24, 1920; Gillet, in Kew Bull. 17: 129, 1963; Sant. 56; Fl. Saur. 1: 140; Maheshwari, 119; Raizada, in Ind. For. 92(5): 323, 1966.

Aeschynomene bispinosa Jacq. Icon. t. 3: 13, t. 564, 1793.

Sesbania aculeata Pers. Syn. Pl. 2: 316, 1807; FBI. 2: 114; C. 1: 350.

An erect, weak-stemed herb or undershrub. Branches and leaf rachis prickly. Leaves pinnate; leaflets linear-oblong, membranous, glabrous, 20-50 pairs. Flowers yellow, in 3-6-flowered, drooping racemes. Pods long, cylindrical, not twisted. (Fl. Fr. September - November).

Local name : Ikad.

PPB. 1225.

Often noted as a weed in cultivated and fallow fields and on water-logged soils throughout the area. Common and abundant.

Common in wet places of the plains in India.

Cosmopolitan in the tropics of the old World.

Derris Lour.

Derris indica (Lamk.) Bennet, Comb. Nov. in JBNHS. 68(1):

302-304, 1971; Saldanha and Nicolson, 248.

Galedupa indica Lamk. Ency. 2: 594, 1788-89.

Pongamia glabra Vent. Jard. Malm. t. 28, 1803; Gr. 55; D. & G. 77; Wt. Icon. t. 59; FBI. 2: 240; C. 1: 402.

P. pinnata (Linn.) Pierre, Fl. Cochinch. Sub. t. 385, 1899; Sant. 75; Fl. Dang, 35; Fl. Saur. 1: 180; Rao et al. Ind. For. 101(8): 466.

A medium-sized tree. Leaves imparipinnate, leaflets 5-7, ovate, acute. Flowers pinkish-white, in short, axillary racemes. Pods hard, oblique, 1-seeded, compressed. (Fl. Fr. March - June).

Local name : Kanaji, Karanj.

PPB. 712, 903.

Noted in all stages of development in the area.

Gujarat, Maharashtra, Karnatak, Central and East Himalaya; throughout India (banks of rivers and streams especially near the coast, widely planted elsewhere).

Throughout tropical Asia, China, Seyehelles and the Trop. Australia.

Abrus Linn.

Abrus precatorius Linn. Syst. Nat. (ed. 12) 472, 1767; FBI. 2: 175; C. 1: 382; Fl. Dang, 27; Fl. Saur. 1: 158; Maheshwari, 126; Fl. Pavagadh, 82.

Glycine abrus Linn. Sp. Pl. 753, 1753.

A large, perennial twiner. Leaves abruptly pinnate; leaflets membranous, opposite, oblong, Flowers pale-blue or pink, in many-flowered racemes. Pods oblong, turgid; seeds scarlet with a black spot at the hilum. (Fl. Fr. July - December).

Local name : Chanoti.

PPB. 868.

Commonly observed as a climber in hedges along seacoast.

Throughout India.

Ceylon, Siam; Cosmopolitan in the tropics, often planted.

Alhagi Adans.

Alhagi pseudalhagi (M. Bieb.) Desv., in Journ. de Bot. 1: 120, 1813; Fl. Saur. 1: 141; Maheshwari, 122; Pavagadh, 69; Fl. Raj. 49.

Hedysarum pseudalhagi M. Bieb. Fl. Taur. Cauc. 2: 174, 1808.

Alhagi camelorum Fisch. Ind. Hort. Gorenk (ed.2) 72, 1812; C. 1: 355; Chavan & Padate, in Ind. For. 86(4): 212,1960.

A small, bushy, thorny undershrub. Leaves simple, small, ovate-oblong, obtuse. Flowers red, borne on thorns. Pods small, falcate, irregularly torulose, seeds reniform. (Fl. Fr. March - April).

Local name : Javaso.

PPB. 224.

A gregarious weed of dry, sandy places throughout the area.

In the drier regions of N. and W. India.

Egypt, Arabia, Baluchistan.

Psoralea Linn.

Psoralea corylifolia Linn. Sp. Pl. 764, 1753; FBI. 2: 103; C. 1: 341; Sant. 55; Fl. Saur. 1: 144; Maheshwari, 119; Fl. Pavagadh, 87; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

An erect, woody herb with stems and branches marked with glands. Leaves simple, hairy, petiolate, gland-dotted. Flowers purple-blue, in long peduncled, dense racemes or heads. Pods ovoid-oblong, black, 1-seeded. (Fl. Fr. September - December).

Local name : Bavachi.

PPB. 1231.

Noted in cultivated fields at Chokari, Kavi, Dhuvaran and Ganguva along the Mahi estuary.

Throughout India in the plains and Ceylon.

Goniogyna DC.

Goniogyna hirta (Willd.) Ali, in Taxon 16: 463, 1967; Rao, in

Bull. Bot. Surv. India 10 (Suppl. 2), addenda no. 3, 1969; Sastry & Rao, loc. cit. 97, 1973.

Hallia hirta Willd. Sp. Pl. 1169, 1800.

Heylandia latebrosa DC. Mem. Leg. 201, 1825; FBI. 2: 65; C. 1: 310; Gr. 44; D. & G. 54; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Sant. 51; Saur. 1: 111; Fl. Pavagadh, 85.

A prostrate, much-branched, spreading, hairy herb; apparently dichotomously branched. Leaves numerous, simple, sub-sessile, broadly ovate, hairy on both sides. Flowers yellow, axillary, solitary. Pods flattened, oblong, hairy, 1-2-seeded. (Fl. Fr. August - November).

Local name : Adadiyo.

PPB. 502.

Very common; noted among grasses in most of the localities.

Throughout Tropical India and Ceylon.

Indigofera Linn.

(Key to the species of Indigofera has been based on that given by Cooke in his Flora).

1. Leaves simple :

2. Pods 1-seeded; leaves linear ..... linifolia

2. Pods 2 or many seeded; leaves ovate-cordate ..... cordifolia

1. Leaves imparipinnate :

3. Flowers in axillary sessile or short peduncled heads :

4. Leaves 3-foliolate; pods 1-2-seeded, not much longer than broad ..... glandulosa

4. Leaves 5-11-foliolate; pods 2-seeded, much longer than broad ..... linnaei

3. Flowers in axillary racemes, not in heads :

5. Leaflets alternate ..... oblongifolia

5. Leaflets opposite :

6. Leaflets 3; racemes 6-12-flowered .... trita

6. Leaflets more than 3; racemes more than 12-flowered :

7. Pods cylindric, glabrous ..... tinctoria

7. Pods tetragonous, hairy ..... astragalina

Indigofera linifolia (Linn. f.) Retz. Obs. Bot. 4: 29, 1786 and 6 : 33, t. 2, 1791; FBI. 2: 92; Wt. Icon. t. 333; C. 1: 330; Sant. 55; Fl. Dang, 33; Gillett, in Kew Bull.

(Add. Ser. I) 35, 1958; Ali, in Bot. Notis. III: 546, 1958; Fl. Saur. 1: 124; Rao & Aggarwal, Bull. Bot. Surv. India 6(2.4): 181, 1964.

Hedysarum linifolium Linn. f. Suppl. 331, 1781.

A trailing or suberect, much-branched. herb; branches wiry, spreading, covered with silvery-white hairs. Leaves simple, linear, acute. Flowers bright-red, in dense sessile or sub-sessile, axillary racemes. Pods globose, silvery-white, 1-seeded. (Fl. Fr. August - October).

PPB. 718.

Common, observed along with grasses, also noted on hard sandy grounds at Hajira.

Throughout India.

Abyssinia, Afghanistan, Ceylon, Malay Isles, N. Australia.

Indigofera cordifolia Heyne ex Roth, Nov. Pl. Sp. 357, 1821; FBI. 2: 93; C. 1: 331; Gillett, loc. cit. 35; Ali, loc. cit. 545; Fl. Saur. 1: 125.

A diffuse, branched, prostrate or erect herb, covered with white pubescence all over. Leaves simple, ovate-cordate, densely hairy. Flowers red, in axillary clusters. Pods cylindric, densely hairy, seeds 2. (Fl. Fr. August - November).

PPB. 719.

Along sandy shore at Hajira.

Throughout India.

Afghanistan, Pakistan, Nubia, Malay Isles, N. Australia.

Indigofera glandulosa Roxb. ex Willd. Sp. Pl. 3: 1227, 1800; Roxb. Fl. Ind. 3: 372; 1832; Wt. Icon. t. 330; FBI. 2: 94; C. 1: 332; Sent. 55; Fl. Dang, 33; Fl. Saur. 1: 125.

An erect, branched, rigid, hairy herb. Leaves 3-foliolate; leaflets oblanceolate, obtuse. Flowers red or pink, in short, condensed, axillary racemes. Pods oblong, 2-seeded, angled, with fimbriate, toothed wings. (Fl. Fr. August - November).

Local name : Vekhario.

PPB. 877.

Common on hard sandy ground.

Throughout India.

Indigofera linnaei Ali, in Bot. Notis. III : 549, 1958; Fl. Saur. 1: 126; Fl. Pavagadh, 75.

I. enneaphylla Linn. Mont. 2: 272, 1771, append. 571, 1771; nom. illegit; D. & G. 58; Wt. Icon. t. 403; FBI. 2: 94; C. 1: 332; Fl. Dang, 333; Gillett, loc. cit. 35; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 97, 1973.

A prostrate, annual herb with a woody root-stock. Leaves pinnate; leaflets 7-9, alternate, obovate, rounded or emarginate at the apex densely covered with white appressed hairs on both sides. Flowers red, in short, axillary, dense

heads. Pods cylindric, silvery white, hairy, 2-seeded. (Fl. Fr. August - October).

Local name : Bhui-gali.

PPB. 333.

Observed as a weed in cultivated fields.

Throughout the plains of India.

Angola, Ceylon, Burma, Malay Isles, N. Australia.

Indigofera oblongifolia Forsk. Fl. Aeg.-Arab. 137, 1775; G. 311; Fl. Saur. 1: 127; Fl. Raj. 47.

I. paucifolia Delile, Fl. Egypte 251, 1813; FBI. 2: 97; C. 1: 334.

A woody, diffuse undershrub. Branches many, stout, dark purplish, silvery-canescent. Leaves compound; leaflets variable, alternately arranged, elliptic-oblong, hairy above and silvery-hairy beneath. Flowers red, in axillary, many-flowered racemes. Pods purplish, distinctly torulose, pointed, deflexed, 6-8-seeded. (Fl. Fr. August - December).

Local name : Vajradanti.

PPB. 337.

Fairly common in the area, noted along sandy shore at Cambay.

Fairly common in Gujarat; throughout the plains of India.

Trop. Africa, Arabia, Pakistan, Ceylon, Java.

Indigofera trita Linn. f. Sp. Pl. 335, 1781; C. 1: 335; Gr. 46; D. & G. 60; G. 310; Wt. Icon. t. 315, 386; Sant. Fl. Saur. 1: 128.

A hairy undershrub. Leaves 3-foliolate; leaflets ovate, oblong, hairy. Flowers small, red, in 6-12-flowered racemes. Legumes tetragonous, pointed at apex, grey. (Fl. Fr. November - February).

PPB. 1222.

Common near hedges of cultivated fields along the sea coast at Cambay, Chokari, Tithal.

India, Ceylon, Malay Islands, North Australia, Tropical Africa.

Indigofera tinctoria Linn. Sp. Pl. 751, 1753; FBI. 2: 99; C. 1: 339; G. 312; Gillett, loc. cit. 106-107; Ali, loc. cit. 567; Fl. Saur. 1: 131;

A sturdy undershrub or shrub, about a meter tall. Stems terete, covered with fine, appressed hairs. Leaves imparipinnate; leaflets 9-13, opposite, membranous, dark green. Flowers numerous, in lax, axillary racemes. Pods linear, long, slightly curved, apiculate, seeds 8-12. (Fl. Fr. August - October).

Local name : Gali.

PPB. 716.

Observed on open grounds at Dumas.

The Indigo plant, once widely cultivated in many parts

of India and extensively in Gujarat.

Pakistan (Sind).

Indigofera astragalina DC. Prodr. 2: 228, 1825; Gillett, in Kew Bull. (Add. Ser. 1) 110, 1958 & in Kew Bull. 14(2): 290-95, 1960; Fl. Pavagadh, 78.

Indigofera hirsuta Linn. Sensu Baker in FBI. 2: 98, 1879 P.P. (non Linn. 1753); C. 1: 339; Fl. Saur. 132;

A strong, erect, hairy herb. Leaves 10 cm. long; stipules 1 cm. long, green; leaflets 5-11, pubescent on both the sides. Flowers red, few, in axillary racemes. Pods tetragonous, pubescent. Seeds 3-6. (Fl. Fr. September - December).

Local name : Runchhali guli.

PPB. 1223.

Noted in cultivated fields and open waste lands in the area.

India, Ceylon, Java, Philippines, North Australia, Tropical America.

Alysicarpus Desv. (nom. cons.)

1. Pods perfectly or imperfectly moniliform :

   2. Pods reticulately veined or transversely ribbed :

      3. Pods reticulately veined ..... longifolius

3. Pods transversely ribbed :

4. Pods 2-edged, not exerted :

5. Rachis and calyx very hairy ..... glumaceous

5. Rachis and calyx slightly hairy ..... scariosus

4. Pods 4-gonous, exserted ..... tetragonolobus

2. Pods not veined or ribbed :

6. Leaflets linear-lanceolate ..... bupleurifolius

6. Leaflets oblong to rounded ..... monilifer

1. Pods not moniliform :

7. Calyx shorter than the first joint of the pod ..... procumbens

7. Calyx equalling or slightly longer than the first joint of the pod ..... vaginalis

Alysicarpus longifolius Wt. & Arn. Prodr. 233, 1834; FBI. 2: 159; C. 1: 370; Wt. Icon. t. 251; Sant. 60; Fl. Dang, 27; Fl. Saur. 1: 148; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

Stout herb, sometimes one meter or more in height. Leaves 1-foliolate; leaflets linear-lanceolate, or oblong;

stipules large, acute, scarious. Flowers purple, with a yellow dot, in long spike-like racemes. Pods slightly moniliform, reticulately veined. (Fl. Fr. September - January).

PPB. 879.

Fairly common; observed as a weed in cultivated fields and on open places among grasses.

Throughout the plains of India.

Alysicarpus glumaceus (Vahl) DC. Prodr. 2: 353, 1825; Andrews, Fl. Pl. Anglo-Egypt. Sudan 2: 175, 1952; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

Hedysarum glumaceum Vahl, Symb. Bot. 2: 106, 1791.

H. rugosum Willd. Sp. Pl. 3(2): 1172, 1803.

Alysicarpus rugosus (Willd.) DC. loc. cit. 353, 1825; C. 1: 371.

A prostrate or ascending plant. Leaves 1-foliolate, stipules scarious, very acute, striate; leaflets oblong to sub-orbicular. Flowers in dense, spike-like racemes. Pods moniliform, apiculate, 2-5; jointed, concealed in chaffy calyx (Fl. Fr. October - December).

PPB. 1224.

Not common; noted on small depressions along the coastal area.

Throughout India.

Ceylon, Cape, W. Indies and tropics of the Old World.

Alysicarpus scariosus Grah.- ex Thw. Enum. Pl. Zeyl. 88, 1858 (Type Wall. Cat. 5766 CK.); Ali, in Biol. 12: 32, 1966.

Hedysarum scariosum Rottl. ex Spreng. Syst. Veg. 3: 319, 1826.

Alysicarpus styracifolius auct. non DC. Saur. 1: 150; Fl. Raj. 50.

A. rugosus var. styracifolius Baker, in FBI. 2: 159; C. 1: 371; NG. 259.

A prostrate or ascending plant. Stems diffuse, finely pubescent. Leaves 1-foliate, leaflets small, elliptic-oblong, obtuse, hairy beneath. Flowers in lax racemes; the rachis and calyx nearly glabrous. Pods included in the calyx. (Fl. Fr. September - October).

PPB. 1041.

Noted among grasses, and as a weed in cultivated fields at Kavi and Tithal along the coast.

Throughout India.

Ceylon.

Alysicarpus tetragonolobus Edgew., in JASB. 21: 169, 1853;

FBI. 2: 159; C. 1: 372; Fl. Saur. 1: 150; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

A. quadrangularis Edgew. ex Baker, in FBI. 2: 159, 1876.

An erect, sometimes trailing herb. Leaves 1-foliolate; leaflets elliptic-oblong, obtuse or sub-acute. Flowers in lax, axillary or terminal racemes. Pods 4-gonous, reticulately veined, transversely ribbed. (Fl. Fr. August - December).

PPB. 467.

Observed as a weed in cultivated fields, at Chokari and Dhuvaran along the coast.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, Kerala; plains of Bundelkhand.

Pakistan (Sind).

Alysicarpus bupleurifolius (Linn.) DC. Prodr. 2: 352, 1825; Gr. 50; D. & G. 64; FBI. 2: 158; C. 1: 370; Fl. Saur. 1: 148; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

Hedysarum bupleurifolius Linn. Sp. Pl. 745, 1753.

An erect or ascending herb. Leaves 1-foliolate; leaflets linear-lanceolate, glabrous, shortly petiolate. Flowers purple, usually in pairs on a lax raceme. Pods slightly moniliform, not ribbed or veined, 4-8-seeded. (Fl. Fr. July - September).

PPB. 563.

Observed along with grasses in open, waste places at Kavi,

Cambay, Dhuvaran.

Throughout India from Himalaya to S. India.

Mauritius, Ceylon, Burma, Malay Isles, China, Philippines, Polynesia.

Alysicarpus monilifer (Linn.) DC. Prodr. 2: 353, 1825; FBI. 2: 157; C. 1: 368; Fl. Saur. 1: 147; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 97, 1973.

Hedysarum moniliferum Linn. Mant. 1: 102, 1767.

A small, much-branched, prostrate or sub-erect herb. Leaves 1-foliolate; leaflets oblong, obtuse, mucronate, glabrous above and hairy beneath. Flowers small, pinkish, in axillary racemes. Pods moniliform, joints turgid. (Fl. Fr. September - October).

PPB. 385.

Commonly noted among grasses and along the hedges.

Throughout India.

Abyssinia, Nubia, Burma, Tenassarim.

Alysicarpus procumbens (Roxb.) Schindler, in Fedde, Repert 21: 11, 1925; Fl. Saur. 1: 147; Fl. Pavagadh, 71; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

Hedysarum procumbens Roxb. Hort. Beng. 56, 1814, nom. nud. & Fl. Ind. 3: 345, 1832.

Alysicarpus hamosus Edgew., in JASB. 21: 32 & 171, 1852; FBI. 2: 157; C. 1: 368; Fl. Dang, 27.

A prostrate, trailing herb, with stems covered with long, spreading hairs. Leaves 1-foliolate; leaflets ovate-oblong, or orbicular, mucronate. Flowers purple, in axillary or terminal, elongated racemes. Pods flat, veined, hairy. (Fl. Fr. January - February).

PPB. 384.

Fairly common; observed in open grassy places.

Throughout India from the Upper Gangetic Plains to W. Peninsula.

Alysicarpus vaginalis (Linn.) DC. Prodr. 2: 353, 1825; FBI. 2: 158; C. 1: 369; Sant. 60; Fl. Saur. 1: 148; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

Hedysarum vaginalis Linn. Sp. Pl. 746, 1753.

Alysicarpus vaginalis var. nummularifolius Baker, in FBI. 2: 158, 1876; C. 1: 369.

A. nummularifolius Sant. Pl. Saur. 173, 1953.

A diffuse, much-branched, prostrate herb with scarious stipules. Leaves 1-foliolate; leaflets oblong to broadly ovate, obtuse or rounded. Flowers purple, in elongated racemes. Pods thin, flattened. (Fl. Fr. September - October).

PPB. 383, 777.

Very common, observed on wet banks at cambay, also noted as a weed at Hajira.

Gujarat, Maharashtra, throughout India.

Afghanistan, Ceylon, Malacca and generally throughout the tropics of the Old World; introduced in America.

Desmodium Desv.

Leaves 1-foliolate ..... gangeticum

Leaves 3-foliolate :

Flowers in axillary, small fascicles .....triflorum

Flowers in terminal or axillary racemes :

Pods scarcely constricted between the seeds..laxiflorum

Pods deeply indented between the seeds .....neo-mexicanum

Desmodium gangeticum (Linn.) DC. Prodr. 2: 327, 1825; FBI. 2: 168; C. 1: 379; D. & G. 66; Wt. Icon. t. 271; Sant. 62; Fl. Saur. 1: 156.

Hedysarum gangeticum Linn. Sp. Pl. 746, 1753.

A straggling undershrub; branches angled, hairy. Leaves 1-foliolate; leaflets membranous, ovate, rounded at the base.

Flowers violet or purple, in long, axillary or terminal racemes. Pods falcate, joints 6-8, longer than broad. (Fl. Fr. September - December).

Local name : Ekpani - Pandadiyo.

PPB. 984.

Rare; on the sandy shore at Tithal.

Almost throughout India.

Trop. Africa, Ceylon, China, Malay Isles, Philippines; introduced in W. Indies.

Desmodium triflorum (Linn.) DC. Prodr. 2: 334, 1825; FBI. 2: 173; C. 1: 378; Wt. Icon. t. 392; Sant. 62; Fl. Saur. 1: 155; Sastry & Rao, loc. cit. 97, 1973.

Hedysarum triflorum Linn. Sp. Pl. 749, 1753.

A small, perennial, much-branched, prostrate herb. Leaves 3-foliolate; leaflets obovate, emarginate, cuneate at the base. Flowers bluish-purple, in small fescicles in the axils. Pods falcate, the upper suture straight, the lower one deeply indented, (Fl. Fr. September - November).

PPB. 717.

Common. Noted in sandy shore along with grasses at Dumas, Kavi, Hajira, Umbergaon.

Common throughout India.

Cosmopolitan in the Tropics.

Desmodium laxiflorum DC. in Ann. Sci. Nat. 4: 100, 1825 & Prodr. 2: 335, 1825; FBI. 2: 164; C. 1: 376; Sant. 61; Fl. Saur. 1: 154.

D. recurvatum Wall. : Gr. 49; Wt. Icon. t. 374.

An erect, stout herb or undershrub. Leaves 3-foliolate; leaflets ovate-lanceolate, membranous. Flowers in distant fascicles, in axillary or terminal racemes. Pods hairy, not constricted between the seeds. (Fl. Fr. September - December).

PPB. 382.

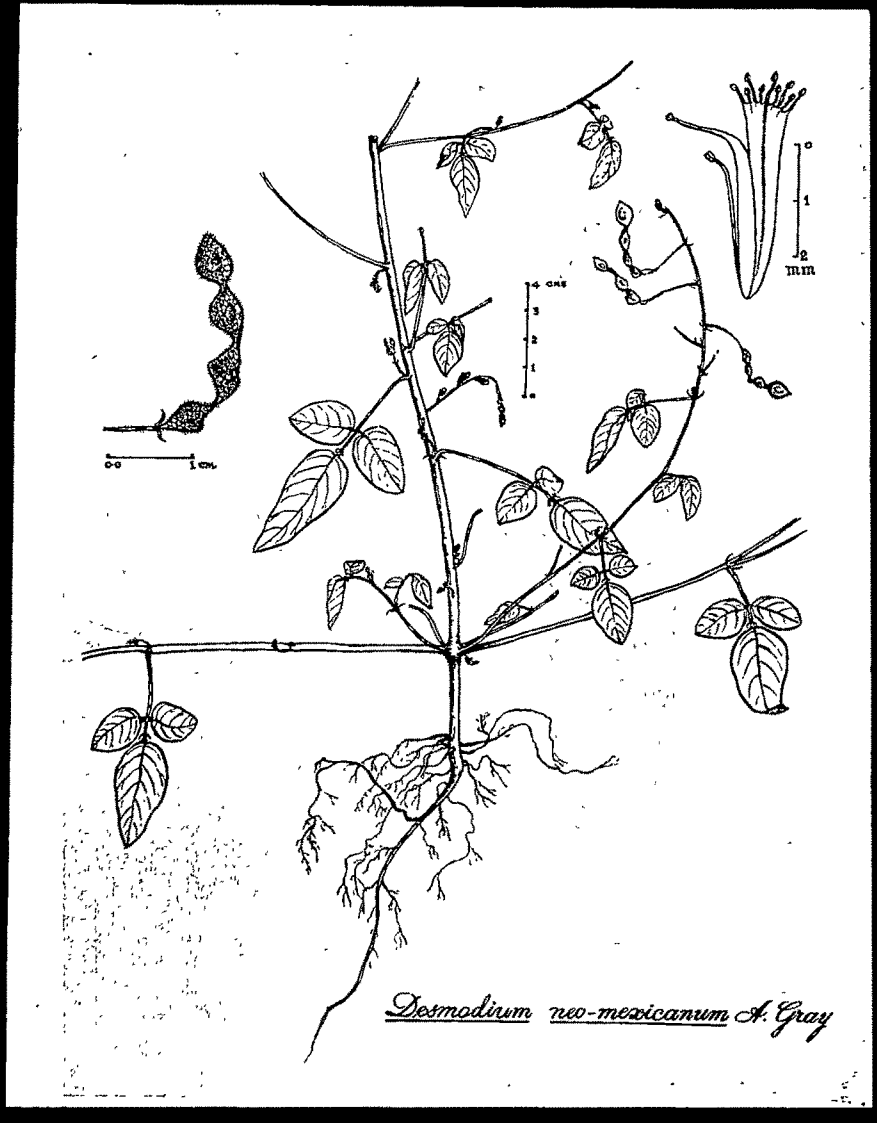
Common; noted in hedges; in open waste places along the sea coast.

Throughout India.

Java, Bornea, Philippines.

Desmodium neo-mexicanum A. Gray, Pl. Wright 1: 53, 1852; Schubert, in Contrib. Graytterb. 129: 13, 1940; Chavan et al., in Kew Bull. 17(2): 1963 and JBNHS. 63(3): 786, 1966.

A low, straggling herb, branching from the base. Stems and branches slender, slightly hairy. Leaves 3-foliolate, terminal leaflet largest. Flowers whitish-blue, in terminal and axillary, lax panicles. Bracts minute, setaceous. Pods reticulately veined, indented deeply on both the sutures, not spirally twisted, 3-4-seeded. (Fl. Fr. August - November).



Desmodium neo-mexicanum A. Gray

PLATE No. 21.

PPB. 889.

Rare; observed as undergrowth on the slopes of steep banks along the coastal areas at Dhuvaran.

PLATE NO. 21

Native of Tropical America.

Tephrosia Pers. (nom. cons.)

Leaves simple ..... strigosa

Leaves pinnately compound :

Pods covered with villous tomentum ..... hirta

Pods more or less pilose but not villous :

Raceme axillary; style bearded ..... senticosa

Racemes extra-axillary; style not bearded..hamiltonii

Tephrosia strigosa (Dalz.) Santapau & Maheshwari, in JBNHS. 54: 804, 1957; Fl. Saur. 1: 134; Maheshwari, 121; Fl. Raj. 48.

Macronyx strigosum Dalz. in Hook. Kew Journ. 35, 1850.

Tephrosia tenuis Wall. ex Dalz. & Gibs. Bombay Fl. 61, 1861; FBI. 2: 111; C. 1: 344.

An erect, slender herb with simple leaves. Flowers solitary, axillary, on slender pedicels. Pods linear, flat,

6-10-seeded. (Fl. Fr. September - October).

PPB. 295, 339.

Not common; noted among grasses during rainy season and on slopes of river banks at Tithal.

Gujarat, Maharashtra, Karnatak, Madras, Punjab.

Pakistan (Sind), Burma.

Tephrosia hirta Ham. in Trans. Linn. Soc. 13: 546, 1822; G. 318; Fl. Saur. 1: 135; Sastry & Rao, loc. cit. 98, 1973.

T. villosa Wt. & Arn. Prodr. 212, 1834; FBI. 2: 113 (excl. some synonyms); C. 1: 347; Indraji, 203; Chavan & Padate, in Ind. For. 86(4): 212, 1960.

An erect or suberect, robust undershrub. Leaves imparipinnate compound; leaflets narrowly oblanceolate, emarginate and mucronate. Flowers dark pink or violet, in lax racemes; calyx villous. Pods deflexed, covered with velvety, villous tomentum. (Fl. Fr. August - October).

Local name : Runchhalo - Sarpankho.

PPB. 469.

Frequent all along the coast.

Throughout the plains of India.

Ceylon, Mauritius, Tropical Africa.

Tephrosia senticosa Pers. Syn. Pl. 2: 1807; FBI. 2: 112, Fl. Saur. 1: 137; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

T. pauciflora Grah. (in Wall. Cat. No. 5635, 1828 nom. nud.) ex Baker, in FBI. 2: 114, 1876; C. 1: 348.

A small, prostrate or suberect herb, with short, appressed hairs. Leaves pinnately compound; leaflets 5-9, oblanceolate. Flowers purple-pink, 1-3 axillary. Pods hairy. (Fl. Fr. August - November).

Local name : Betho - Sarpankho.

PPB. 711, 888.

Not common; noted in ditches throughout the area.

Gujarat, Maharashtra, Western Peninsula, Punjab.

Afghanistan, Pakistan (Sind), Burma.

Tephrosia hamiltonii J.R. Drum., in Gamble, Fl. Pres. Madras, 1: 226, 1918 (Rep. ed.); Fl. Saur. 1: 138; Fl. Pavagadh,81.

T. purpurea (Pers.) Baker, in FBI. 2: 112, in part; C. 1: 346, P.P.; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Sastry & Rao, loc. cit. 98, 1973.

A much-branched, erect, undershrub; branches zigzag, angled, hairy. Leaves imparipinnate compound; leaflets obovate-lanceolate, glabrous above, clothed with fine appressed, silky

tomentum beneath. Flowers pinkish-purple, in leaf-opposed, lax racemes. Pods linear, slightly curved, glabrescent. (Fl. Fr. August - October).

Local name : Sarpankho.

PPB. 375.

Common in all localities with common associates like Crotalaria medicaginea; Cassia occidentalis, Cassia tora and Xanthium strumarium.

Throughout India.

Ceylon, Malacca, Siam, everywhere in the tropics.

Crotalaria Linn.

1. Leaves simple :

   2. Stipules foliaceous; corolla blue and white ...verrucosa

   2. Stipules 0 or minute; wings of corolla yellow..juncea

      3. Exstipulate plants; upper teeth of calyx connate .....linifolia

      3. Stipulate plants; upper teeth of calyx divaricate .....retusa

1. Leaves trifoliolate :

4. Calyx-teeth exceeding the tube;
pod subglobose ..... medicaginea

4. Calyx-teeth equalling the tube;
pod subquadrangular .....notonii

Crotalaria verrucosa Linn. Sp. Pl. 715, 1753; D. & G. 55; FBI. 2: 77; C. 1: 319; Sastry & Rao, loc. cit. 97, 1973.

A much-branched glabrous herb with acutely angled branches. Leaves ovate-rhomboid; stipules large, foliaceous, semilunate, persistent. Flowers white- and bluish-purple in terminal or lateral racemes. Pods oblong-cylindric, stalked; seeds 10-15, yellow. (Fl. Fr. September - December).

PPB. 1081.

Noted on the dry sandy banks at Cambay, Valsad, Dahej.

Gujarat, Maharashtra, Bihar, Orissa, Bengal.

Ceylon, Bangladesh, China, Tropical Africa, Mauritius, Tropical America.

Crotalaria juncea Linn. Sp. Pl. 714, 1753; FBI. 2: 79; C. 1: 320; Sant. 54; Fl. Saur. 1: 118; Maheshwari, 113; Fl. Pavagadh, 84; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

A tall, erect, much-branched, annual herb; stems terete, striate. Leaves linear, apiculate, clothed with appressed

silky hairs. Flowers yellow, in terminal and axillary,many-flowered racemes. Pods hairy, seeds 10-15. (Fl. Fr. October - December).

Local name : Shan.

PPB. 505.

Common in the cultivated fields along the sandy banks at Dhuvaran, Ganguva and Chokari.

Cultivated throughout India for the "Sun Hemp" fibre.

Ceylon, Burma, Pegu, Malaya Islands, Australia.

Crotalaria linifolia Linn. f. Suppl. 322, 1781; FBI. 2: 72; C. 1: 317; Sant. 53; Fl. Saur. 1: 114; Fl. Pavagadh, 83; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69; Sastry & Rao, loc. cit. 97, 1973.

An erect, rigid, much-branched herb with branches covered with appressed silky hairs. Leaves oblong-lanceolate, rounded at the apex, Flowers yellow, in long, terminal racemes; pods ovoid-oblong, glabrous, obliquely truncate at the apex, turning black on maturity. (Fl. Fr. September - December).

PPB. 985.

Observed along with grasses and in fallow fields, also noted in sandy soils.

Throughout India, Sikkim.

Burma, Ceylon, Pegu, Malay Isles, China, Philippines, N. Australia.

Crotalaria retusa Linn. Sp. Pl. 715, 1753; FBI. 2: 75 (excl. Syn. Dalz. & Gibs.); C. 1: 318; Sant. 53; Fl. Saur. 1: 115; Fl. Pavagadh, 83; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69; Sastry & Rao, loc. cit. 97, 1973.

A much-branched, robust undershrub. Branches glabrous, angled, striate. Leaves oblanceolate-oblong, obtuse or retuse, glabrous above and silky pubescent beneath. Flowers yellow, showy, numerous, in erect, terminal racemes. Pods turgid, linear-oblong; seeds 15-20 (Fl. Fr. January - April).

Local name : Ghughra.

PPB. 1043.

Commonly observed as a weed in cultivated fields, and on hard sandy grounds at Dahej.

Almost throughout India.

Ceylon, China, Malaya, N. Australia, Tropical Africa and America.

Crotalaria medicaginea Lamk. Encycl. Method. 2: 201, 1786; FBI. 2: 81; C. 1: 322; Fl. Saur. 1: 119; Fl. Pavagadh, 84; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

An erect, much-branched, annual herb. Leaves 3-foliolate; leaflets oblanceolate. Flowers small, yellow, in terminal or

-HE
1809

leaf-opposed racemes. Pods sub-globose, 2-seeded, hairy or velvety. (Fl. Fr. September - December).

Local name : Ranmethi.

PPB. 330.

Very common and abundant; observed as a weed in cultivated fields and on sandy banks near shore at Cambay.

W. Himalayas to South India.

Burma, Ceylon, Malay Isles, Afghanistan, China, Australia.

Crotalaria notonii Wight & Arn. Prodr. 192; FBI. 2: 82; Wt. Icon. t. 752; C. 1: 323.

C. rostrata Wight & Arn. Prodr. 191; D. & G. 57.

Suffruticose, erect, undershrub with divaricate branches. Leaves approximated; petioles slightly shorter than the leaves. Flowers in terminal or leaf-opposed racemes. Pods sub-quadrangular, thinly silky. (Fl. Fr. September - November).

Rare. Reported by Th. Cooke from sandy soil at Dumas near Surat. I failed to collect this plant from the same area.

India (Nilghiri and Pulney hills).

Zornia Gmel.

Zornia gibbosa Span, in Linnaea 15: 192, 1841; Mohlenbrock, in Webbia 16(1): 112, ff. 44 & 76, 1961; Wagh, in JBNHS.

61 : 214, 1964; Raizada, in Ind. For. 92(5): 326, 1966; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

Z. diphylla auct. Plur. (non Pers. 1807); FBI. 2: 147; C. 1: 355; Sant. 53.

A much-branched, prostrate or ascending annual. Leaves 2-foliolate; leaflets lanceolate, glabrous with black glands beneath; stipules large, lanceolate, appressed. Flowers yellow, in few-flowered racemes. Pods jointed, joints covered with soft spines, slightly exserted above the bracts. (Fl. Fr. August - October).

Local name : Samra Pani.

PPB. 715.

Fairly common; noted on open grounds among grasses.

Almost throughout India.

Pakistan, Burma, Celebes, China, Cochinchina, Malaya, Philippine Islands, Siam, New Guinea and Australia.

Phaseolus Linn.

1. Stipules fixed by their bases; corolla never pure yellow ..... vulgaris

1. Stipules fixed peltately at or near their middle; corolla always pure yellow :

2. Pods glabrous, cylindric :

3. Leaf-lobes broad, rounded ..... trilobus

3. Leaf-lobes narrow, long and acute ..... aconitifolius

2. Pods hirsute or pubescent, slightly compressed :

4. Stems and pods densely clothed with brownish hairs; pods ascending septate... radiatus

4. Stems and pods sparsely covered with grey tomentum; pods not septate .....angularis

Phaseolus vulgaris Linn. Sp. Pl. 723, 1753; FBI. 2: 200; C. 1: 403; Fl. Saur. 1: 170; Maheshwari, 133.

A sub-erect or twining, glabrous annual. Flowers white, rose or lilac, in sub-sessile, few-flowered, lax racemes. Pods linear, recurved, 4-6-seeded. (Fl. Fr. August - December).

Local name : Farasbi.

PPB. 1226.

Not common; at times noted under cultivation along the Mahi and Tapi estuary.

Throughout India, cultivated, nowhere known as wild.

Spread everywhere, both in tropical and temperate regions.

Phaseolus trilobus Ait. Hort. Kew 3: 30, 1789; FBI. 2: 201; C. 1: 401; Fl. Saur. 1: 168; Maheshwari, 132; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

A prostrate, much-branched, more or less hairy annual herb. Leaves 3-foliolate; terminal leaflet lobed; stipules foliaceous. Flowers yellow, in few-flowered racemes. Pods straight, sub-cylindric, slender. (Fl. Fr. September - November).

Local name : Jangali Math.

PPB. 603.

Noted along canals o and open moist places during monsoon at Meh Dungri, Dumas, Umbergaon.

Very common throughout Gujarat, Maharashtra, Karnatak; sometimes cultivated in some parts of India, chiefly for fodder or as a food of the poor.

Phaseolus aconitifolius Jacq. Obs. 3: 2, t. 52, 1768; FBI. 2: 202; C. 1: 403; Fl. Saur. 1: 167; Maheshwari, 132; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

A prostrate or twining, hairy annual. Leaves 3-foliolate; leaflets irregularly lobed, lobes acute, not rounded. Flowers yellow, in short, capitate, long-peduncled racemes. Pods densely clothed with brownish hairs. (Fl. Fr. August - December).

Local name : Math.

PPB. 907.

Noted as a weed throughout the estuarine area.

Cultivated in part of Gujarat, Maharashtra, Karnatak and other parts of India; occasionally wild.

Phaseolus radiatus Linn. Sp. Pl. 725, 1753; Fl. Saur. 1: 169; Fl. Raj. 52; Fl. Pavagadh, 78.

P. sublobatus Roxb. Hort. Beng. 54, 1814; C. 1: 402.

P. trinervis Heyne, in Wall. Cat. 5603, 1831-32; FBI.2:203.

Erect, sub-erect or climbing herb. Leaves 3-foliolate; leaflets entire. Flowers yellow, in short-peduncled, few-flowered racemes. Pods densely clothed with brownish hairs. (Fl. Fr. August - October).

PPB. 713.

Noted in waste places along the coast at Dhuvaran, Chokari.

Throughout India.

Ceylon.

Phaseolus angularis (Willd.) Wight, in U.S. Dept. Agric. Bur. Pl. Ind. Bull. 137: 17, 1909; Fl. Saur. 1: 169.

Dolichos angularis Willd. Sp. Pl. 3: 1051, 1803.

Phaseolus mungo auct. non Linn.; FBI. 2: 203; C. 1: 403; Bailey, Man. Cult. Pl. 574.

A trailing, annual herb. Leaves 3-foliolate. Flowers yellow, in few-flowered racemes. Pods hairy, terete. (Fl. Fr. September - October).

Local name : Adad.

PPB. 510.

Cultivated at Dahej in saline soil. Plants were quite healthy.

One of the most important of the pulses cultivated in India.

Canavalia DC.

Canavalia gladiata (Jacq.) DC. Prodr. 2: 404, 1825; D. & G. Suppl.23; Sant. 67; Fl. Dang, 29; Chatterjee, in JIBS. 28: 86, 1949; Fl. Saur. 1: 165.

Dolichos gladiatus Jacq. Coll. Bot. 2: 276, 1788.

Canavalia ensiformis Baker, in FBI. 2: 195, 1876, et alior. auct. (non DC. nee Dolichos ensiformis Linn.) C. 1: 397.

A heavy twiner with glabrous stems. Leaves 3-foliolate; leaflets large, ovate, acute. Flowers pink or purple, in a spike-like inflorescence. Pods thick, linear-oblong,

flattened. (Fl. Fr. September - October).

Local name : Aboi, Abbo.

PPB. 1082.

Commonly noted on hedges, at Chokari, Tithal, Dumas.

Throughout India; wild and commonly cultivated.

Everywhere in the tropics. Native of Old World tropics.

Teramnus Sw.

Teramnus labialis (Linn. f.) Spreng. Syst. 3: 235, 1826; FBI. 2: 184; C. 1: 387; Sant. 64; Fl. Saur. 1: 159; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

Glycine labialis Linn. f. Suppl. 325, 1781; Wt. Icon. t. 168.

A small, hairy, herbaceous twiner, clothed with deflexed hairs. Leaves 3-foliolate; terminal leaflet slightly bigger than the lateral; stipules small, hairy. Flowers purplish-blue or white, in axillary, few-flowered, lax racemes. Stamens 10, monadelphous, alternate stamens sterile. Pods hairy with a beak curved at right angles. (Fl. Fr. August - October).

Local name : Jangali udad.

PPB.493, 583.

Noted on hedges, at Chokari, Kavi, Dhuvaran, Ganguva.

Throughout the plains of India.

Burma, Ceylon, Cosmopolitan in the tropics.

Rhynchosia Lour. (nom. cons.)

Flowers in long racemes; seeds black without a strophiole ..... minima

Flowers in capitate racemes; seeds dark brown with a strophiole ..... capitata

Rhynchosia minima (Linn.) DC. Prodr. 2: 385, 1825; FBI. 2: 223; C. 1: 414; Fl. Dang, 36; Fl. Saur. 1: 176; Fl. Pavagadh, 89.

Dolichos minimus Linn. Sp. Pl. 1020, 1753.

Rhynchosia medicaginea DC. Prodr. 2: 386, 1825; D. & G. 74.

A slender, spreading or twining annual. Leaves 3-foliolate, leaflets acute, deltoid at the base, minutely gland-dotted beneath. Flowers yellow, small, in slender axillary racemes. Pods compressed, 2-3-seeded. (Fl. Fr. August - January).

PPB. 217, 790.

Common and abundant all along the hedges.

Throughout India.

Ceylon, Tropics generally, Cape, United States.

Rhynchosia minima var. laxiflora Baker, in FBI. 2: 223; C. 1: 414; G. 1: 264; Fl. Saur. 1: 177.

Similar to the preceding species, but the leaflets are more acute, plant is less hairy and most of its parts larger than R. minima Proper. (Fl. Fr. August - December).

PPB. 500, 561.

Observed as a climber on hedges.

Rajasthan, Gujarat, Maharashtra, Karnatak, Madras, Bengal.

Pakistan (Sind).

Rhynchosia capitata DC. Prodr. 2: 386, 1825; FUGP. 1: 222; Maheshwari, 134; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

R. aurea DC. Prodr. 3: 386, 1828; FBI. 2: 221; C. 1: 413 in part.

Nomismia aurea Wt. & Arn. Prodr. 237, 1834.

N. capitata Wt. & Arn. Prodr. 237, 1834; Wt. Icon. t. 295.

A trailing or climbing herb with sparingly hairy stems. Leaves 3-foliolate; leaflets rhomboid or rhomboid-ovoid. Flowers yellow, in many-flowered, crowded, capitate racemes. Pods orbicular, mottled and covered with soft spreading hairs. (Fl. Fr. August - October).

PPB. 1233.

Common throughout the area.

Rare plant in Western India, Maharashtra, Karnatak, Madras; throughout India.

Vigna Savi.

Vigna unguiculata (Linn.) Walp. Repert. 1: 779, 1842; Andrews, Fl. Pl. Anglo-Egypt. Sudan 2: 246, 1952; Shah, in JBNHS. 60(1): 297, 1963.

Dolichos unguiculata Linn. Sp. Pl. 725, 1753.

Vigna sinensis (Linn.) Savi ex Hassk. Cat. Hort. Bogor, 279, 1844; Rao et al. Ind. For. 101(8): 466, 1975.

Dolichos sinensis Linn. Cent. Pl. 2: 28, 1756.

Vigna catjang Walp., in Linnaea 13: 533, 1839; C. 1: 405.

A twining annual. Leaves 3-foliolate; leaflets rhomboid-ovate. Flowers whitish at the ends of very long peduncles. Pods slender, nearly terete. (Fl. Fr. December - January).

PPB. 511.

Cultivated, the pods are edible.

Probably Asian.

Lablab Adans.

Lablab purpureus (Linn.) Sweet, Hort. Brit. ed. I, 481;

Verdcourt, in Kew Bull. 24(3): 410, 1970.

Dolichos purpureus Linn. Sp. Pl. (ed. 2) 1021, 1762.

D. lablab Linn. Sp. Pl. 725, 1753; FBI. 2: 209; C. 1: 406; Bailey, Man. Cult. Pl. 575; Fl. Saur. 1: 173; Maheshwari, 131.

A large, glabrous twiner. Leaves 3-foliolate; leaflets as broad as long, sub-coriaceous. Flowers white or bluish, in axillary racemes. Pods flat, beaked. (Fl. Fr. September - October).

Local name : Val, Valpapdi.

PPB. 123, 1104.

Extensively cultivated in fields along the coast at Tithal, Dumas, Hajira and Umergaon.

Cultivated throughout India.

Tropics of the Old World.

Cajanus DC. (nom. cons.)

Cajanus cajan (Linn.) Millsp. in Field Columb. Mus. Bot. 2: 53, 1900; Bailey, Man. Cult. Pl. 579; Sant. 76; Fl. Dang, 29; Fl. Saur. 1: 181.

Cajanus cajan Linn. Sp. Pl. 739, 1753.

C. indicus Spreng, Syst. 3: 249, 1826; FBI. 2: 217; C.1: 435.

An erect, much-branched shrub. Leaves 3-foliolate. Flowers yellow, in corymbose racemes. Pods narrowed at the ends, compressed with diagonal depressions. (Fl. Fr. November - July).

Local name : Tuver.

PPB. 1124.

Cultivated.

Cultivated throughout India.

Uraria Desv.

Uraria picta Desv. Journ. Bot. 1: 123, t. 5, f. 19, 1813; FBI. 2: 155; C. 1: 367; Fl. Dang, 38; Fl. Saur. 1: 145.

A suffruticose, sparingly branched, perennial undershrub. Stem and branches covered with hooked hairs. Leaves imparipinnate; leaflets linear-oblong, the midrib and neighbouring parts white or pale-yellowish on the upper side, green beneath. Flowers purplish, in close fascicles along the rachis of spicate cylindric racemes. Pods glabrous, 3-6-jointed, the joints folded on one another. (Fl. Fr. August - October).

PPB. 978.

Noted in moist places near canals at Dahej.

Throughout India; Ceylon, Tropical Africa, Malay Islands, Philippines.

Medicago Linn.

Medicago sativa Linn. Sp. Pl. 778, 1753; FBI. 2: 90; C. 1: 327; Bailey, Man. Cult. Pl. 582; Fl. Saur. 1: 121; Padate, in JMSU. 17 & 18(3): 104, 1968 & 69.

An erect, deep green, annual herb. Leaves 3-foliolate; leaflets obovate, denticulate towards the apex. Flowers purple, in axillary, close racemes. Pods spirally falcate, circinate or cochleate. (Fl. Fr. April - May).

Local name : Ghodaghas, Gadab.

PPB. 1087.

Cultivated as a fodder plant during winter at Hajira and Tithal.

Cultivated throughout the greater part of India.

Clitoria Linn.

Clitoria ternatea Linn. Sp. Pl. 753; 1753; D. & G. 68; FBI. 2: 208; C. 1: 405; Fl. Dang, 29; Fl. Saur. 1: 171; Maheshwari, 131; Fl. Pavagadh, 80; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 21, 1966.

A twining herb. Leaves imparipinnate; leaflets elliptic-oblong, obtuse. Flowers large, bright-blue or white, axillary, solitary. Pods flattened, sharply beaked. (Fl. Fr. June - December).

Local name : Garni, Gokarna.

PPB. 908.

Observed as a climber in hedges, at Tithal, Meh Dungri.

Gujarat, Maharashtra, Karnatak and Tropical zone.

Burma, Malacca, Ceylon; Cosmopolitan in the Tropics.

Cicer Linn.

Cicer arietinum Linn. Sp. Pl. 738, 1753; FBI. 2: 176; C. 1: 435; Bailey, Man. Cult. Pl. 554; Fl. Dang, 29.

A branched, glandular-pubescent, annual herb. Leaflets opposite or alternate, closely serrate. Flowers pink or blue, solitary or few in the axils. Pods 1-3-seeded. (Fl. Fr. January - February).

Local name : Chana.

PPB. 641, 1109.

Commonly cultivated for its seeds at Chokari along Mahi estuary.

Extensively cultivated throughout India.

Cyamopsis DC.

Cyamopsis tetragonoloba (Linn.) Taub. in Engl. & Prantl., Nat. Pfam. 3(3): 259, 1894; Fl. Saur. 1: 122; Maheshwari, 116; Rao et al. Ind. For. 101 (8): 466, 1975.

Psoralea tetragonoloba Linn. Mant. 104, 1767; Fl. Dang, 31.

Cyamopsis psoralioides DC. Prodr. 2: 216, 1825; FBI. 2: 92; C. 1: 328; Wt. Icon. t. 248.

An erect, annual herb. Stem and branches grooved. Leaves 3-foliolate, leaflets elliptic, acute; stipules subulate. Flowers pinkish-purple, in axillary racemes. Pods tetragonous, stout. (Fl. Fr. September - December).

Local name : Guvar.

PPB. 465, 904.

Cultivated.

Cultivated in many parts of India from Himalayas to Cape Camorin.

Afghanistan, Pakistan.

Aeschynomene Linn.

Aeschynomene indica Linn. Sp. Pl. 713, 1753; FBI. 2: 151; C. 1: 363; Chavan and Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 144; Sastry & Rao, loc. cit. 97, 1973.

A tall, erect, much-branched, marsh-loving, annual herb. Leaves imparipinnate; leaflets many pairs ; small, glabrous, oblong; stipules auricled; petiole warty. Flowers pale yellow, in few-flowered racemes. Pods flat, slightly curved, indented on the lower suture, covered with glandular wart-like dots.

(Fl. Fr. August - November).

Local name : Nani Ikad.

PPB. 755.

A marsh-loving plant, common throughout the area.

Widely distributed in India and South Andamans, ascending up to 1600 meters.

Throughout the tropics of the Old World.

Smithia Ait.

Smithia conferta Sm. in Rees, Cyclop. 33 (2), 1819; Trim. Fl. Ceyl. 2: 37.

S. geminiflora Roth, Nov. Pl. Sp. 352, 1821; Woodr. in JBNHS. 11: 422, 1897.

S. geminiflora var. conferta, Baker, in Hook. f. FBI. 2:149.

Annual herbs. Leaves small, abruptly-pinnate; stipules very large, scarious, lanceolate. Leaflets sub-sessile, 2-8 pairs. Flowers yellow, solitary or 2 in the axils of the upper leaves. Pods 3-6-jointed; joints small, turgid, papillose. (Fl. Fr. November - January).

PPB. 864.

Throughout India; Ceylon, Java, N. Australia.

CAESALPINIACEAE

1. Leaves simple or apparently so,
   divided into 2 lobes ..... Bauhinia

1. Leaves compound :

   2. Leaves once pinnate :

      3. Petals 5, all perfect ..... Cassia

      3. Petals 5, 3 perfect and
         2 reduced to scales ..... Tamarindus

   2. Leaves bi-pinnate :

      4. Leaf rachis ending in a spine;
         rachilla long, flat, bearing
         numerous, small leaflets ..... Parkinsonia

      4. Leaf rachis and rachilla not as above :

         5. Pods more or less broadly winged.... Peltophorum

         5. Pods not winged :

            6. Sepals valvate .....Delonix

            6. Sepals imbricate ..... Caesalpinia

Bauhinia Linn.

Bauhinia racemosa Lamk. Encycl. 1: 390, 1783; FBI. 2: 276; C. 1: 459; Sant. 80; Fl. Dang, 38; Fl. Saur. 1: 197; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

A small to medium-sized tree. Leaves broader than long, cordate. Flowers creamy-white, in terminal or axillary racemes; stamens 10, all fertile. Pods stalked, glabrous. (Fl. Fr. January - June).

Local name : Asatri, Sonu.

PPB. 973.

Cultivated; it is seen grown along hedges at many places and in holiday camp at Tithal.

Common throughout Gujarat, Maharashtra, Karnatak, Punjab, Garwal; throughout India.

Ceylon, Malay Isles, Timor, China, Pegu.

Cassia Linn.

1. Trees :

2. Bracts conspicuous, persistent; flowers pink or pinkish white ..... roxburghii

2. Bracts small, deciduous; flowers yellow :

3. Stamens 10, all fertile ..... fistula

3. Fertile stamens 6-7 ..... siamea

1. Herbs or shrubs :

4. Fertile stamens 5; staminodes 0 :

5. Leaflets 2 pairs ..... absus

5. Leaflets 10-20 pairs ..... pumila

4. Fertile stamens 7, other reduced to staminodes :

6. Gland of the leaf rachis solitary :

7. Gland of the leaf rachis inserted below, not between the leaflets; pods not crested over the seeds.... occidentalis

7. Gland of the leaf rachis 0; pods with a longitudinal crest down the middle over the seeds ..... italica

6. Glands of the leaf rachis many :

8. Leaflets 8-12 pairs; glands between each pair of leaflets; stipules foliaceous; reniform ..... auriculata

8. Leaflets 3-4 pairs; glands between the two lowest pairs of leaflets; stipules not as above ..... tora

Cassia roxburghii DC. Prodr. 2: 489, 1825; Maheshwari, 143.

C. marginata Roxb. Hort. Beng. 31, 1814, nom. nud. & Fl. Ind. 2: 338, 1832; FBI. 2: 262; C. 1: 454; Benthal, Trees Calc. 195.

A small, graceful, medium-sized tree. Branches spreading and drooping. Leaflets 15-20 pairs, oblong, oblique, emarginate and apiculate. Flowers small, fragrant, deep pink, in axillary or terminal racemes. Pods cylindrical, 200-300 mm. long. (Fl. Fr. May - December).

PPB. 1234.

Planted in gardens at Tithal and Nargol.

Grown throughout India; native of South India.

Cassia fistula Linn. Sp. Pl. 377, 1753; FBI. 2: 261; C. 1: 444; Talb. 1: 448, f. 253; Blatt. & Mill. Beaut. Ind. Tr. 20 & t. opp. p. 20; Sant. 79; Fl. Saur. 1: 187; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

C. rhombifolia Roxb. Hort. Beng. 31, 1814; Wt. Icon. t. 269.

A medium-sized, deciduous tree. Leaflets 4-8 pairs, large. Flowers yellow, in long, drooping racemes. Pods indehiscent, cylindric, pendulous, with partitions between the seeds. (Fl. March - June).

Fruits : Till the next flowering season.

Leaves : Absent when in flowers.

Local name : Garmalo.

PPB. 164, 280.

Commonly cultivated at Tithal, Nargol and Umargam.

Throughout India in the deciduous forests.

Ceylon, Malaya, China.

Cassia siamea Lamk. Encycl. 1: 648, 1785; FBI. 2: 264; C. 1: 454; Bailey, Man. Cult. Pl. 586; Fl. Saur. 1: 194; Maheshwari, 143.

A medium- or large-sized tree. Leaves pinnate without glands; leaflets 12-24 pairs, oblong. Flowers yellow, in corymbose racemes, clustered at the end of branches; fertile stamens 6-7. Pods flat with thickened sutures, nearly straight. (Fl. Fr. October - May).

PPB. 1235.

Planted in Public gardens at Valsad, Tithal and Nargol.

Indigenous in Ceylon, Malay Peninsula and South India; cultivated throughout India.

Cassia absus Linn. Sp. Pl. 376, 1753; FBI. 2: 265; C. 1: 451; Sant. 79; Fl. Saur. 1: 192; Shah, in Ind. For. 89(4): 289, 1963; Fl. Pavagadh, 91; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

An erect herb with glandular hairs. Leaves simple pinnate with only two pairs of leaflets; leaflets hairy beneath. Flowers yellow, in small, leafl-opposed or terminal racemes. Pods thin, coarsely hairy. (Fl. Fr. August - December).

PPB. 592.

Rare in the area. Noted as a weed at Tithal, Meh Dungri, Nargol and Umrat.

Gujarat, Maharashtra, throughout India.

Tropical Africa, Asia, Australia.

Cassia pumila Lamk. Encycl. 1: 651, 1784; FBI. 2: 266; C. 1: 452; D. & G. 82; Sant. 79; Fl. Dang, 39; Fl.Saur. 1: 193; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

A prostrate or decumbent herb. Branches spreading from the base. Leaves simple pinnate; leaflets 10-20 pairs with a peltate gland on the rachis below the leaflets. Flowers yellow, small, solitary or 2-3 together, supra-axillary; stamens 5. Pods thin, oblique, linear, 6-12-seeded. (Fl. Fr. August - October).

PPB. 937.

Frequent in sandy backshore with grasses at Tithal.

Gujarat, Maharashtra, Karnatak, Andhra, Madras; throughout India.

Ceylon, Malay Isles, Trop. Asia and Australia.

Cassia occidentalis Linn. Sp. Pl. 377, 1753; Gr. 63; FBI. 2: 262; C. 1: 445; Fl. Dang, 39; Fl. Saur. 1: 188; Sastry & Rao, loc. cit. 98, 1973.

Senna occidentalis Roxb. Fl. Ind. (ed. Carey 2) 343, 1832.

An erect, glabrous herb or undershrub. Leaves simple pinnate; leaflets 3-5 pairs, ovate-oblong or oblanceolate, with an ovoid gland at the base of rachis. Flowers yellow, in short peduncled, few-flowered racemes. Pods transversely septate, glabrous, dark brown. (Fl. Fr. June - November).

Local name : Kasundro.

PPB. 939.

Noted in the shade of Casuarina plantations in sandy soil at Tithal.

Throughout India. Cosmopolitan in the tropics.

Cassia italica (Mill.) Lam. ex Steud. Fl. Egypt : 320; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 21, 1966.

C. obtusa Roxb. Hort. Beng.: 31, 1814; Wt. Icon. t. 757; Trim. Fl. Ceyl. 2: 107; C. 1: 448.

C. obovata Collad. Hist. Cass. 92, t. 15, 1816; FBI.2:264.

Blue-green undershrub with soft branches from a woody

base. Leaflets obovate, obtuse, short-mucronate, in 3-7 pairs, rachis glabrous, without glands between the leaflets. Flowers pale yellow, in axillary, peduncled racemes. Legume slightly curved, transversely nerved, crested. (Fl. Fr. November - April).

PPB. 738.

A diffuse herb in open grounds at Dumas.

India (Punjab, W. Peninsula).

Arabia, Egypt, Abyssinia, Nubia.

Cassia auriculata Linn. Sp. Pl. 379, 1753; FBI. 2: 263; C. 1: 448; Dewit, in Webbia 11: 234, 1955; Fl. Saur. 1: 190; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

An erect shrub or undershrub with finely pubescent branches. Leaves pinnate with glands between each pair of leaflets; leaflets oblong, obovate, obtuse; stipules reniform, foliaceous. Flowers yellow, large, in terminal and axillary corymbose racemes. Pods flat, thin, oblong, obtuse. (Fl. Fr. January - April).

Local name : Aaval.

PPB. 524.

Abundant in sandy situations.

In the dry regions, more or less throughout India.

Ceylon.

Cassia tora Linn. Sp. Pl. 376, 1753; D. & G. 81 pro parte; FBI. 2: 263, pro parte; C. 1: 447; Sant. 79; Fl. Dang, 40; Fl. Saur. 1: 189; Rao et al., Bull. Bot. Surv. India 8(1): 64, 1966.

Cassia obtusifolia Linn. Sp. Pl. 377, 1753.

An erect, foetid herb. Leaves paripinnate; leaflets 3 pairs, ovate-oblong, glabrous. Flowers yellow, in sub-sessile, axillary pairs. Pods slender, sub-cylindric, obliquely septate. (Fl. Fr. August - November).

Local name : Kunvadio.

PPB. 417.

Common in coastal areas at Cambay.

Throughout India.

Ceylon, Malay Isles; Tropical Australia.

Tamarindus Linn.

Tamarindus indica Linn. Sp. Pl. 34, 1753; D. & G. 82; FBI. 2: 273; C. 1: 457; Talb. 1: 459; f. 260; Fl. Saur. 1: 196.

A large tree with spreading branches. Leaves simple pinnate; leaflets small, 10-20 pairs, oblong, sub-sessile, opposite, closely set. Flowers yellowish striped or spotted with red, in few-flowered racemes; fertile stamens 3. Pods falcate, thick, indehiscent. (Fl. Fr. July - December).

Local name : Amli.

PPB. 599.

A tree, in coastal areas at Ganguva, Kavi, Chokari.

Cultivated and self sown throughout India and the Tropics generally. Probably indigenous to Africa.

Parkinsonia Linn.

Parkinsonia aculeata Linn. Sp. Pl. 375, 1753; FBI. 2: 261; C. 1: 442; Fl. Saur. 1: 186.

A small, armed tree. Leaves bi-pinnate; main rachis ending in a spine; rachilla long, winged, bearing numerous, small leaflets. Flowers yellow in axillary racemes. Pods 8-12 cm. long, beaded. (Fl. Fr. October - April).

Local name : Pardeshi Baval.

PPB. 936, 1011.

Planted in parks for its exotic appearance. Only a few plants noted at Valsad, Tithal, Nargol and Dahej.

A native of Trop. America, cultivated more or less throughout India.

Peltophorum Vogel.

Peltophorum inerme (Roxb.) Naves, in Blanco, Fl. Filip.

(ed. 3) t. 335; Merrill, in Philip. J. Sci. 5: 57, 1910; Brother Alain Liogier, in Rhodora 67 : 315-361, 1965; Vartak, in Journ. Univ. Poona 30: 24, 1966.

Caesalpinia inermis Roxb. Fl. Ind. 2: 367, 1832.

Peltophorum ferrugineum (Decne) Benth. Fl. Austr. 2: 279, 1864; FBI. 2: 257.

P. pterocarpum (DC.) Backer, ex K. Heyne, Nutt. Pl. Ned.-Ind. (ed. 2) 2: 755, 1927; Blake, in Austr. Journ. Bot. 2: 112, 1954; Sant. 289 (appendix); Fl. Saur. 1: 194; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

A handsome, large tree. Leaves bi-pinnate; leaflets oblong, obtuse, base oblique. Flowers golden yellow, in terminal panicles. Pods flat, rusty-brown. (Fl. Fr. October - May).

PPB. 760.

Grown in gardens at Tithal, Valsad and Nargol.

Not wild, cultivated in many parts of India.

Ceylon, the Andamans, Malay Peninsula and Archipelago, N. Australia.

Delonix Raf.

Flowers large, bright red ..... regia

Flowers small, white or pale-yellow ..... elata

Delonix regia (Boj.) Raf. Fl. Tell. 2: 92, 1836; Benthall, Trees Calc. 170; McCann, Trees of India, 70; Sant. 78; Fl. Saur. 1: 184.

Poinciana regia Boj. ex Hook. in Bot. Mag. t. 2884, 1829; FBI. 2: 260; C. 1: 442.

A medium-sized, handsome tree with an umbrella-shaped crown. Leaves bi-pinnate; leaflets small, very numerous, leathery. Flowers bright-red, in terminal racemes; the fifth largest petal variegated with white or yellow. Pods thick, deep brown. (Fl. Fr. March - July).

Local name : Gulmohur.

PPB. 231.

Grown in gardens at Dumas, Tithal, Nargol, etc.

A native of Madagascar, now grown in gardens more or less throughout India.

Delonix elata (Linn.) Gamble, Fl. Pres. Madras, 396, 1919; Sant. 78; Fl. Saur. 1: 185; Rao & Aggarwal, loc. cit. 21, 1966.

Poinciana elata Linn. Cent. Pl. 2: 16, 1756; FBI. 2: 260; C. 1: 441.

A small, deciduous tree. Leaves bi-pinnate; leaflets linear-oblong, 10-20 pairs, rounded and apiculate at the

apex. Flowers small, white or pale-yellow, in terminal, few-flowered, corymbose racemes. (Fl. Fr. July - September).

PPB. 523, 935.

Commonly noted in hedges, at Dhuvaran, Tithal.

A native of Abyssinia and perhaps Arabia, now widely grown in gardens and roadsides throughout Gujarat and Maharashtra.

Caesalpinia Linn.

Pods longer than broad, unarmed ..... pulcherrima

Pods not much longer than broad, armed ... crista

Caesalpinia pulcherrima (Linn.) Swartz, Obs. 166, 1791;
FBI. 2: 225; C. 1: 440; Fl. Saur. 1: 183;
Fl. Pavagadh, 94.

Poinciana pulcherrima Linn. Sp. Pl. 380, 1753; Bailey, Man. Cult. Pl. 589.

A large shrub. Leaves bi-pinnate, leaflets 8-12 pairs. Flowers yellow, orange or red, in large terminal or axillary racemes. Pods flat, oblong, (Fl. Fr. April - January).

Local name : Sankhasur, Sandeshro.

PPB. 218.

Commonly cultivated in gardens for its showy flowers in the backshore areas at Tithal, Nargol, Dumas.

Cultivated all over India and in some tropical countries.

Caesalpinia crista Linn. Sp. Pl. 380, 1753, pro maiore parte, excl. Fl. Zeyl. 157; Fl. Dang, 39; Fl. Saur. 1: 182; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

Caesalpinia bonducella Fleming, in Asiat. Res. 11: 159, 1810; FBI. 2: 254; C. 1: 437.

A large, armed, climbing shrub. Leaves abruptly bi-pinnate; leaflets oblong-elliptic, mucronate. Flowers yellow, in dense racemes. Pods oblong, broad, covered with sharp prickles; 2-seeded. (Fl. Fr. September - October).

PPB. 1076.

Noted in hedges at Chokari.

Gujarat, Maharashtra, Karnatak; throughout India.

Cosmopolitan in the tropics.

MIMOSACEAE

1. Stamens 5-10 :

2. Flowers in globose or oblong heads :

3. Anthers gland-crested, at least in early stage ..... Neptunia

3. Anthers not gland-crested ..... Mimosa

2. Flowers in elongate spikes :

4. Flowers all bisexual; pods straight, turgid ..... Prosopis

4. Upper flowers bisexual, lower neuter; Pods twisted, thin ..... Dichrostachys

1. Stamens many :

5. Stamens more or less free ..... Acacia

5. Stamens monadelphous :

6. Pods spirally twisted; seed with aril ..... Pithecolobium

6. Pods straight, flat; seeds without aril ..... Albizia

Neptunia Lour.

Aquatic herbs with floats ..... prostrata

Terrestrial herbs ..... triquetra

Neptunia prostrata (Lamk.) Baill., in Bull. Soc. Linn. Par. 1: 356, 1883.

Mimosa prostrata Lamk. Encycl. 1: 10, 1783.

Neptunia oleracea Lour. Fl. Cochinch. 654, 1790; FBI. 2:

285; C. 1: 464; Chavan & Padate, in Ind. For. 86(4): 212, 1960 and in JMSU. 11(3): 73, 1962.

An aquatic, floating annual with white, spongy, internodal floats. Leaves abruptly 2-pinnate; leaflets 8-15 pairs, sessile, oblong, glabrous. Flowers yellow, minute, in oblong heads, on long peduncles. Pods stalked, deflexed, slightly curved, depressed between the seeds, beaked, brown. (Fl. Fr. July - February).

Local name : Jalrisamani.

PPB. 758.

Noted as a floating herb.

Throughout the warmer parts of India in ponds and puddles.

Ceylon, Malay Archipelago and the tropics generally.

Neptunia triquetra (Willd.) Benth., in Hook. Journ. Bot. 4: 355, 1842; FBI. 2: 286; C. 1: 464; Fl. Saur. 1: 199; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

Desmanthus triquetrus Willd. Sp. Pl. 4: 1045, 1805; Gr. 57; Wt. Icon. t. 756.

A prostrate or sub-erect perennial. Leaves 2-pinnate; rachis grooved; stipules obliquely ovate. Flowers yellow, in globose heads on axillary peduncles. Pods oblong with a minute beak at the apex. (Fl. Fr. August - October).

Local name : Risamani.

PPB. 733.

Noted in moist soils with Cynodon dactylon along the coast at Umrat, Nargol and Tithal.

Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, W. Peninsula, Madras.

Mimosa Linn.

Pinnae 1-2 pairs ..... pudica

Pinnae more than 2 pairs ..... hamata

Mimosa pudica Linn. Sp. Pl. 518, 1753; FBI. 2: 291; C. 1: 470; Sant. 83; Maheshwari, 147.

A diffuse undershrub. Stems and branches sparingly prickly and bristly. Leaves 2-pinnate, sensitive; pinnae 4; leaflets small. Flowers pink, in globular heads. Pods flat, jointed, membranous with spinose-bristly margins. (Fl. Fr. September - November).

Local name : Lajjamani.

English name : Sensitive plant.

PPB. 938.

Noted in private gardens in the backshore areas.

Probably introduced from Trop. America, now naturalized

more or less throughout India.

Mimosa hamata Willd. Sp. Pl. 4: 1033, 1806; FBI. 2: 291; C. 1: 471; Sant. 83; Fl. Saur. 1: 202; Maheshwari, 147; Shah, in Ind. For. 89(4): 289, 1963; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 21, 1966.

A much-branched, prickly undershrub. Leaves 2-pinnate; main rachis prickly; leaflets 6-10 pairs. Flowers pink, in globose heads. Pods flat, curved, 4-8-jointed; joints prickly. (Fl. Fr. August - January).

PPB. 350.

Not common; noted along with Dichrostachys cinerea and Acacia nilotica ssp. indica.

Gujarat, Maharashtra, Karnatak, Andhra, Madras.

Pakistan (Baluchistan).

Prosopis Linn.

Plants usually without prickles;
pods compressed ..... juliflora

Plants with small, conical prickles;
pods cylindrical torulose ..... cineraria

Prosopis juliflora (Swartz.) DC. Prodr. 2: 447, 1825; Hubbard in Bailey, Stand. Cycl. Hort. 5: 2811, 1922;

Fl. Saur. 1: 201; Maheshwari, 145; Burkart Arturo in JAA. 57(4): 450-525, 1976.

Mimosa juliflora Sw. Prodr. 85, 1788.

A small tree, usually unarmed with drooping, spreading branches. Flowers yellowish, in pendulous spikes. Pods compressed, curved and torulose; seeds brown. (Fl. Fr. April - October).

PPB. 416, 569.

Very common, forming pure strands along the coast at Cambay, Hajira; Dumas and Dahej.

Planted in many dry parts of India for reclamation of land.

Native of arid regions of Mexico and Central America.

Prosopis cineraria (Linn.) Druce, Rep. Bot. Soc. Exch. Cl. Brit. Isles. 1913, 3: 422, 1914 (see index Kewensis. Suppl. 5, 1921); Raizada, Ind. For. 94(6): 449, 1968; Burkart Arturo in JAA. 57(4): 450-525, 1976; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

Mimosa cineraria Linn. Sp. Pl. 517, 1753.

Prosopis spicigera Linn. Mant. 68, 1767; FBI. 2: 288; C. 1: 467; Fl. Saur. 1: 200.

An armed, small tree. Leaves bipinnate; leaflets

obliquely oblong, sub-sessile. Flowers yellow, in axillary, short-peduncled spikes. Pods turgid, cylindrical. (Fl. Fr. October - December).

Local name : Shami.

PPB. 707, 1112.

Abundant, forming pure strands at Hajira along coast.

Gujarat, Rajasthan, Uttar Pradesh, Punjab and the dry regions of W. Peninsula.

Persia, Afghanistan, Pakistan (Sind, Baluchistan).

Dichrostachys (DC.) Wt. & Arn. (nom. cons.)

Dichrostachys cinerea (Linn.) Wt. & Arn. Prodr. 271, 1834; FBI. 2: 288; C. 1: 468; Wt. Icon. t. 357; Fl. Saur. 1: 201; Padate, in JMSJ. 17 & 18(3): 105, 1968 & 69; Sastry & Rao, loc. cit. 98, 1973.

Mimosa cinerea Linn. Sp. Pl. 520, 1753.

A rigid, armed shrub or a small tree. Leaves bipinnate; leaflets minute, sessile, linear; main rachis with a small, erect gland between each pair of pinnae. Flowers numerous, in dense, peduncled spikes; upper half yellow and lower half pink. Pods thin, dark brown, twisted. (Fl. Fr. August - January).

PPB. 680.

Noted forming scrubs along with certain species of *Acacia* and *Prosopis*.

Almost throughout the drier regions of India.

Ceylon, Malay Islands, N. Australia.

Acacia Willd.

1. Large, climbing or straggling shrubs ..... *torta*

1. Trees or erect shrubs :

2. Flowers in cylindric spikes :

3. Leaves reduced to phyllodes .....*auriculiformis*

3. Leaves not as above :

4. Leaflets 25-50 pairs; stipular spines two ..... *chundra*

4. Leaflets 8-15 pairs; stipular spines three ..... *senegal*

2. Flowers in globose heads :

5. Pods moniliform ..... *nilotica* ssp. *indica*

5. Pods flat ..... *tomentosa*

Acacia torta (Roxb.) Craib., in Kew Bull. 410, 1915;

Santapau, in JBNHS. 50: 312, 1951; Sant. 85.

Mimosa torta Roxb. Fl. Ind. 2: 566, 1832.

Acacia intsia auct. non Willd.; FBI. 2: 297; C. 1: 479; NG. 263.

A fairly large, climbing or straggling prickly shrub. Flowers pale yellow, in large panicled heads. Pods flat, brown, glabrous at maturity. (Fl. Fr. October - January).

Local name : Chilhar.

PPB. 734.

Commonly noted in hedges.

Throughout India.

Ceylon.

Acacia auriculiformis A. Cunn., in Hook. Lond. Jour. Bot. 1: 377, 1842; Maheshwari, 149.

A medium-sized tree with drooping branches. Leaves reduced to phyllodes; phyllodes curved, tapering at the ends. Flowers yellow, in cylindrical, lax spikes. Pods beaded, brown, coiled at maturity, dehiscent. (Fl. Fr. August - April).

Local name : Pardeshi Baval.

PPB. 1263.

Seen along the canals and along sea shores at Tithal, Hajira, Dumas etc.

A native of tropical Australia; now planted in many parts of India.

Acacia chundra Willd. Sp. Pl. 4: 1078, 1806; FBI. 2: 295 ('sundra'); Chatterjee, in Sc. & Cult. 14: 290, 1949; Fl. Raj. 58; Fl. Saur. 1: 207.

Acacia catechu var. sundra Prain, in Journ. Asiat. Soc. Beng. 66: 508, 1898; C. 1: 448.

A medium-sized tree, armed with two stipular spines. Leaves 2-pinnate; main rachis with a conspicuous absorption gland near the petiole. Flowers pale yellow, in axillary spikes. Pods flat, thin. (Fl. Fr. July - January).

Local name : Kher, Khair.

PPB. 504.

Common; noted at Valsad, Tithal, Nargol and Umargam.

Common throughout Gujarat, Rajasthan, W. Peninsula.

Ceylon, Burma.

Acacia senegal Willd. Sp. Pl. 4: 1077, 1806; FBI. 2: 295; C. 1: 478; Fl. Saur. 1: 208; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69; Rao & Aggarwal, loc. cit. 21.

A small tree. Leaves 2-pinnate; stipular spines 3, curved. Flowers white, fragrant, in spikes. Pods shortly stalked, flat, reticulately veined. (Fl. Fr. September - February).

PPB. 491.

Common throughout the area along with Acacia nilotica ssp. indica, Dichrostachys cinerea and Mimosa hamata.

In the drier parts, especially the N.W. and W. India. Tropical Africa, Arabia, Pakistan.

Acacia nilotica (Linn.) Del. ssp. indica (Benth.) Brenan, in Kew Bull. 84, 1957; Sant. 83; Sastry & Rao, loc. cit. 98, 1973.

Mimosa nilotica Linn. Sp. Pl. 521, 1753.

Acacia arabica (Lamk.) Willd. var. indica Benth., in Hook. Ind. Journ. Bot. 1: 500, 1842.

A. nilotica (Linn.) Del. Fl. Eg. Ill., 79, 1813; Fl. Saur. 1: 204.

A. arabica auct. Ind. non Willd. FBI. 2: 293; C. 1: 472; Fl. Dang, 40.

A moderate-sized tree, armed with straight, white, stipular spines. Leaves bipinnate. Flowers yellow, in globose heads on axillary peduncles. Pods moniliform, flat. (Fl. Fr. May - October).

Local name : Baval.

PPB. 415.

Noted in all stages of development throughout the area.

Probably indigenous in most of the drier and hotter parts of India as well as in Arabia and Africa.

Acacia tomentosa Willd. Sp. Pl. 4: 1087, 1805; FBI. 2: 294; Grah. Cat. 59; D. & G. 86; Bedd. For. Man. in Fl. Sylvat. P. xcv; Trim. Fl. Ceyl. 2: 124; Talb. Trees Bomb. 152; Woodr. in Journ. Bomb. Nat. Hist. Soc. 11: 429, 1898; Watt, Dict. Econ. Prodr. 1: 61; C. 1: 475; Rao & Aggarwal, loc. cit. 21.

A small tree; young parts tomentose. Leaves 2-pinnate; main rachis densely tomentose. Flowers in globose heads. Pods ligulate, compressed, falcate, at first pubescent, afterwards glabrous. (Fl. Fr. February - June).

Local name : Anjar.

PPB. 570.

Noted at Tithal, Nargol and Umargam.

India (W. Peninsula); Ceylon.

Pithecellobium Mart. (nom. cons.)

Pithecellobium dulce (Roxb.) Benth.; in Hook. Lond. Journ. Bot. 3: 199; 1844; FBI. 2: 302; C. 1: 485; Sant. 86; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1:211.

Mimosa dulcis Roxb. Pl. Cor. 1: 67, t. 99, 1795.

Inga dulcis Willd. Sp. Pl. 4: 1105, 1806.

A moderately large tree with stipular spines. Leaves with one pair of pinnae, each pinna with two leaflets. Flowers whitish, in dense heads, on elongated branches. Pods spirally twisted; seeds black with white edible aril. (Fl. Fr. January - March).

Local name : Goras-amli.

PPB. 404.

Noted wild in all stages of development, in coastal areas.

A native of South America, now common in most of the hotter parts of India.

Albizia Durazz.

Albizia lebbeck (Linn.) Benth.; in Hook. Lond. Journ. Bot. 3: 87, 1844; FBI. 2: 298; C. 1: 481; Talb. 1: 496; F. 281; Sant. 85; Fl. Saur. 1: 210; Padate, in JMSU. 17&18 (3): 105, 1978 & 69.

Mimosa lebbeck Linn. Sp. Pl. 516, 1753.

Acacia speciosa Willd. Sp. Pl. 4: 1066, 1806; Gr. 58.

A large, deciduous, unarmed tree. Leaves 2-pinnate, main rachis with a large gland on the petiole near the base and one below the upper most pair of pinnae. Flowers white, in globose, umbellate heads. Pods broad, flat, thin, shining, making a rattling sound with the wind during summer. (Fl. Fr. April - June).

Local name : Siris.

PPB. 239.

Grown in gardens at Tithal and Nargol.

Cultivated throughout India.

Arabia, Egypt, Senegal, China, Indo-China, Tropical America; not wild, but cultivated.

VAHLIACEAE

Vahlia Thunb.

Vahlia digyna (Retz.) O. Kuntze, Rev. Gen. Pl. 227, 1891; Sant. 87; Fl. Dang, 42; Fl. Saur. 1: 212.

Oldenlandia digyna Retz. Obs. 4: 23, 1786.

Vahlia viscosa Roxb. Hort. Beng. 86, 1814 nom. nud. & Fl. Ind. 2: 89, 1832; FBI. 2: 399; C. 1: 493; Wt. Icon. t. 563.

A small, erect, glandular-hairy herb. Leaves sub-sessile, exstipulate, oblong-lanceolate. Flowers pale yellow, axillary, solitary. Capsule sub-globose. (Fl. Fr. October - January).

Local name : Pilo Agyo.

PPB. 161.

Rare; noted as a weed in cultivated fields, also common along Mahi estuary at Chokari.

Throughout India in drier regions.

Egypt, Persia, Tropical Africa.

RHIZOPHORACEAE

Calyx 4-6-lobed :

Stamens 8-12; ovary 2-celled ..... Rhizophora

Stamens 10-12; ovary 3-celled ..... Ceriops

Calyx 8-14-lobed ..... Bruguiera

Rhizophora Linn.

Rhizophora mucronata Lamk. Encyc. Method. 6: 189, 1804; FBI. 2: 435; D. & G. 95; Wt. Icon. t. 238; Trim. Fl. Ceyl. 2: 151; Talb. Trees, Bomb. ed. 2: 158; Woodr. in JBNHS. 11: 636, 1898; Watt, Dict. Econ. Prod. 6(1): 491; C. 1: 501; Rao et al. Ind. For. 101(8): 467, 1975.

Rhizophora candelaria Wight & Arn. Prodr. 310; Gr. 68.

A large, evergreen glabrous shrub or small tree. Leaves elliptic, acute, mucronate, glabrous, bright-green above, paler, minutely rugulose beneath. Stipules caducous. Flowers pedicelled, in axillary, usually 3-flowered cymes slightly longer than the petioles. Fruit ovoid-conical, surrounded at the base by the persistent calyx-lobes. (Fl. Fr. August - January).

Local name : Kamo; Kandal.

PPB. 857.

Observed as a Mangrove along the coast only at Valsad, Umbergaon, Daman, Nargol.

India, along muddy shores and tidal creeks.

Ceylon, Tropics of the Old World and Australia.

Ceriops Arnott.

Ceriops candolleana Arn. in Ann. Nat. Hist. 1: 364, 1838; FBI. 2: 436; Wt. Icon. t. 240; Trim. Fl. Ceyl. 2: 152; Talb. Trees, Bomb. 159; Watt. Dict. Econ. Prod. 2: 261; C. 1: 503.

A glabrous shrub with branchlets marked with the scars of fallen leaves and stipules. Leaves obovate-oblong, rounded at the apex, much attenuated at the base. Flowers in axillary, peduncled, branched cymes. Fruit slightly conical, deeply grooved and angled, reddish-brown. (Fl. Fr. July - September).

Local name : Kirrari; Chauri.
PPB.706.
Noted along the muddy shore at Hajira, Nargol and Umargam.

India (Muddy shores and tidal creeks); Ceylon, Tropics of the Old World.

Bruguiera Lamk.

Bruguiera gymnorhiza Lamk. Tab. Encyc. 2: 517, 1793, t. 397; FBI. 2: 437; Trim. Fl. Ceyl. 2: 153; Talb. Trees Bomb. 160; Watt. Dict. Econ. Prod. 1: 541; C. 1: 504; Sastry & Rao, Bull. Bot. Surv. India 15(1.2): 98, 1973.

B. rheedii, Blume, Enum. Pl. Javae, Fasc. 1: 92; D. & G. 95; Wight Icon. t. 239.

Rhizophora gymnorhiza Linn. Sp. Pl. 443, 1753; Gr. 68.

A glabrous, evergreen shrub. Leaves elliptic-oblong, acute, bright green above, paler beneath; stipules caducous. Flowers solitary, axillary. Fruit less than 1 in. long, obconic. (Fl. Fr. December - March).

PPB. 690.

Common along the sea coast and in salt-marshes only at Nargol, Umargam.

Tropical Asia, Australia, Africa, and the Pacific.

COMBRETACEAE

Tall trees or shrubs; petals absent :

Flowers in spikes ..... Terminalia

Flowers in globose heads ..... Anogeissus

Climbing shrubs; petals present :

Petals 4; flowers under 1 cm. long ..... Combretum

Petals 5; flowers over 5 cm. long ..... Quisqualis

Terminalia Linn.

Fruits winged ..... crenulata

Fruits not winged ..... catappa

Terminalia crenulata Roth, Nov. Pl. Sp. 380, 1821; Santapau, in JBNHS. 50: 305-307, 1951-52; Sant. 90; Fl. Saur. 1: 216; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

Pentaptera crenulata Roxb. Hort. Beng. 34, 1814, nom. nud. & Fl. Ind. 2: 438, 1832.

Terminalia tomentosa var. crenulata Clarke, in FBI. 2: 448, 1878.

T. tomentosa Cooke, Fl. Pres. Bombay (Rep. ed.) t. 510; Talb. 2: 18, t. 297 (non Wt. & Arn. nisi partim, nec. Mart.).

A large deciduous tree, glabrous in all its parts. Leaves opposite or sub-opposite, ovate-oblong with 1 or 2 stalked glands on the midrib. Flowers bisexual, pale yellow, in terminal spikes or panicles. Fruit brown when mature, with five broad wings horizontally veined. (Fl. Fr. March - July).

Local name : Sadad.

PPB. 128.

Cultivated.

Gujarat, Maharashtra, W. Ghats, Madras; sub-Himalayan tracts.

Nepal, Sikkim, Burma, Ceylon.

Terminalia cattapa Linn. Mant. 519, 1771; FBI. 2: 444; C. 1: 511; Indraji, 328; Fl. Saur. 1: 216.

A small, deciduous tree with whorled, horizontal branches. Leaves large, obovate, obtuse, auricled at the base. Flowers yellow, in spikes; the upper most being male, the rest hermaphrodite. Drupe ellipsoid, compressed, glabrous. (Fl. Fr. April - October).

Local name : Deshi Badam.

PPB. 163, 538.

Cultivated; noted near habitation along the Mahi estuary at Dhuvaran and Chokari.

It is a native of Malaya, but is now cultivated in many parts of India, especially near the coast. It is common in the coastal forests of the Andamans.

Anogeissus Wall.

Anogeissus latifolia (Roxb.) Wall. ex Beddome, Fl. Sylv. t. 15, 1869; FBI. 2: 450; C. 1: 512; Talb. 2: 22, t. 301;

Sant. 91; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 220; Fl. Pavagadh, 98.

Conocarpus latifolia Roxb. Hort. Beng. 34, 1814 nom. nud. & Fl. Ind. 2: 442, 1824; D. & G. 91; Wt. Icon. t. 994.

A tall tree with whitish-brown bark. Leaves oblong-elliptic, obtuse, base rounded or cordate. Flowers in dense, globose heads; peduncles branched. Fruits winged, wings entire. (Fl. Fr. January - April).

Local name : Dhavada.

PPB. 227.

Common throughout the area; cultivated as well as wild.

Throughout the greater part of India.

Ceylon.

Combretum Loefling (nom. cons.)

Combretum ovalifolium Roxb. Hort. Beng. 28, 1814 nom. nud. & Fl. Ind. 2: 226, 1832; FBI. 2: 458; C. 1: 515; Talb. 2: 26, f. 303; Sant. 91; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 219.

A heavy climber. Leaves opposite, elliptic or elliptic-lanceolate. Flowers yellowish green, in axillary spikes. Fruit pale yellow to golden yellow, sometimes red, with four broad, papery wings. (Fl. Fr. February - June).

Local name : Madvel, Dhumasnivel.

PPB. 537.

Common throughout the area. Generally seen on hedges and trees, and on dense bamboo clumps.

Gujarat, Maharashtra, Karnatak, Andhra, Madras.

Ceylon.

Quisqualis Linn.

Quisqualis indica Linn. Sp. Pl. (ed. 2) 556, 1762; FBI. 2: 459; C. 1: 517; Talb. 2: 27-28, t. 304; Sant. 92; Bailey, Man. Cult. Pl. 724; Bor & Raizada, 178, Pl. 66.

A large climber. Leaves elliptic or ovate-oblong, superposed. Flowers large, in terminal, drooping spikes. Colour of the corolla changes with age of the flower; at first pure white, which gradually changes to pink, finally turning into pink. (Fl. Fr. April - November).

Local name : Madhumalati.

PPB. 651.

Commonly grown in gardens at Tithal, Umargam and Nargol.

Extensively cultivated in gardens in India. A native of Java, Malay Peninsula, W. Trop. Africa.

MYRTACEAE

Fruits indehiscent, fleshy :

Flowers large, white on 1 or few-flowered peduncles; fruit many-seeded ..... Psidium

Flowers small, greenish-white, in terminal, axillary or lateral cymes, fruit 1-seeded ..... Syzygium

Fruits dehiscent, dry :

Small tree; inflorescence a spike resembling a bottle brush ..... Callistemon

Tall tree; inflorescence not as above ..... Eucalyptus

Psidium Linn.

Psidium guajava Linn. Sp. Pl. 470, 1753; FBI. 2: 468; C. 1: 529; Talb. 2: 30; Bailey, Man. Cult. Pl. 729; Fl. Saur. 1: 223.

A small- or medium-sized tree with whitish-brown bark. Leaves oblong-elliptic. Flowers white, large. Fruits globose, ovoid or pyriform with many small seeds; pulp-yellow white or pink. (Fl. Fr. May - December).

Local name : Jamphal.

PPB. 1229.

Grown at most of the places for its edible fruits.

Cultivated throughout India and in most of the tropical

countries. A native of Mexico and possibly other parts of Tropical America.

Syzygium Gaertn. (nom. cons.)

Syzygium cumini (Linn.) Skeels, in U.S. Dept. Agric. Bur. Pl. Ind. Bull. 248; 2, 1912; Alston, in Trim. Hand. Fl. Ceylon, 6: 116, 1931; Fl. Saur. 1: 221; Rao et al. loc. cit. 467, 1975.

Myrtus cumini Linn. Sp. Pl. 471, 1753.

Eugenia jambolana Lamk. Encycl. 3: 198, 1789; FBI. 2: 499; C. 1: 523; Wt. Icon. t. 535.

Syzygium jambolanum DC. Prodr. 3: 259, 1828; G. 481.

A large tree with shining leathery leaves. Flowers white or greenish-white, fragrant in short cymes; Fruit a purple-black; ovoid berry. (Fl. Fr. February - July).

Local name : Jambuda.

PPB. 1230.

Grown along the fields for its shade and edible fruits.

Throughout India, except the dry regions.

Indochina and Australia.

Callistemon R. Br.

Callistemon lanceolatus DC. Prodr. 3: 223, 1828; Benthall,

Trees Calc. 249; Maheshwari, 158.

A large shrub or a small tree with drooping branches. Leaves linear-lanceolate, alternate. Flowers red-crimson in terminal drooping spikes, resembling a bottle brush. Fruit a pyxis, truncate at the apex. (Fl. Fr. July - May).

English name : Bottle brush.

PPB. 1281, 1283.

Cultivated in gardens. Noted at Valsad, Umrat and Nargol.

A native of Australia, now often planted in gardens in India.

Eucalyptus L'Herit.

Eucalyptus globulus Labill. Voy. 1: 153, t. 13, 1800; Bailey, Man. Cult. Pl. 727; Maheshwari, 159.

A tall tree with bark peeling in long strips or sheets. Leaves lanceolate, acute. Flowers in stalked, few-flowered umbels. Fruits dry, dehiscent. (Fl. Fr. December - March).

Local name : Nilgiri.

PPB. 1167.

Grown in public and private gardens.

A native of Australia, now planted all over India.

LYTHRACEAE

Herbs :

Capsule dehiscing through valves ..... Rotala

Capsule indehiscent or dehiscing irregularly..Ammannia

Shrubs .....Lawsonia

Rotala Linn.

Rotala serpyllifolia (Roth) Bremek., in Acta. Bot. Neerland 3(1): 149, 1954; Sant. 99; Fl. Saur. 1: 224.

Micranthus serpyllifolius Roth, Nov. Pl. Sp. 282, 1821.

Rotala tenuis (Wt.) Koehne, in Bot. Jahrb. 1: 177, 1880; Santapau, in RBSI. 16(1): 113, 1960.

Ameletia tenuis Wt. Icon. t. 257, 1840; D. & G. 96.

Ammannia tenuis Clarke, in FBI. 2: 567, 1879; C. 1: 538.

A small, much-branched, erect annual herb. Stems purplish, filiform. Leaves opposite, sessile, rounded-ovate, turning purple with age. Flowers purplish, in long, terminal, spike-like racemes. (Fl. Fr. September - March).

PPB. 18, 76.

Commonly observed on sandy beds in dense patches.

Gujarat, Maharashtra, Karnatak, W. Peninsula, Central

India, Bihar and Bengal.

Ammannia Linn.

Flowers sessile, solitary in the axils of bracts...pentandra

Flowers in cymes :

Cymes sessile or sub-sessile;
petals 0 or very small ..... baccifera

Cymes distinctly peduncled; petals 4 ..... multiflora

Ammannia pentandra Roxb. Fl. Ind. 1: 427, 1832; FBI. 2: 568; Trim. Fl. Ceyl. 2: 224; Woodr. in Journ. Bomb. Nat. Hist. Soc. 11: 636, 1898.

Glabrous, annual herbs with quadrangular stems. Leaves opposite, sessile, oblong, obtuse. Flowers sessile, solitary in the axils of nearly horizontal floral leaves; the lower whorls of flowers distant, the upper approximate, almost spicate. Capsule sub-globose, 3-valved. (Fl. Fr. August - November).

PPB. 972.

Commonly observed in moist localities at Tithal, along the coast. Not reported from any other part of Gujarat state.

Throughout tropical India.

Ceylon, China, Malaya, Australia, Tropical Africa.

Ammannia baccifera Linn. Sp. Pl. 120, 1753; FBI. 2: 569; C. 1: 541; Sant. 97; Fl. Dang, 44; Fl. Saur. 1: 226; Padate, in JMSU. 11(3): 64-78, 1962; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

A. salicifolia Hiern, in Oliv. Fl. Trop. Afr. 2: 278, 1871 (excl. Syn.; non Monti.); FBI. 2: 569; C.1: 542.

An erect, much-branched, annual herb, variable in size and form. Leaves opposite, sessile, oblong-lanceolate. Flowers in dense, axillary clusters. Capsule globose, reddish, forming dense clusters round the stem. (Fl. Fr. August - December).

PPB. 958, 1106.

Common and abundant in all moist situations, at Chokari, Ganguva, Tithal along the coast.

Throughout India in moist places.

Africa, Europe, Afghanistan, Ceylon, Malaya, China, Australia.

Ammannia multiflora Roxb. Fl. Ind. 1: 447, 1820; FBI. 2: 570; Koehne, in Pfreich. 17: 46, 1903; C. 1: 541; Sant. 97; Fl. Dang, 44; Fl. Saur. 1: 225; Padate, in JMSU. 17 & 18(3): 105, 1968 & 69.

An erect, annual herb. Leaves linear-oblong, opposite. Flowers red, in axillary, pedunculate cymes. Petals 4, red or pink, often warting. Fruit a globose, purple capsule. (Fl. Fr. October - November).

PPB. 971.

Commonly noted in moist situations.

Throughout the plains of India.

Africa, Persia, Afghanistan, S. China, Formosa, S. Japan, Philippines, Australia.

Lawsonia Linn.

Lawsonia inermis Linn. Sp. Pl. 349, 1753; Koehne, in Pfreich. 17: 270, t. 59; C. 1: 544; G. 1: 363; Sant. 100; Fl. Dang, 44; Fl. Saur. 1: 228.

L. alba Lamk. Encycl. 3: 106, 1789; FBI. 2: 573; Gr. 67; D. & G. 97; Talb. 2: 60.

An erect, much-branched, shrub. Leaves small, opposite, lanceolate, elliptic, acute, entire. Flowers yellowish-white, in large, terminal panicles. Capsules globose. (Fl. Fr. October - December).

Local name : Mendi.

PPB. 152.

Commonly noted in hedges at Chokari along Mahi estuary.

Cultivated throughout India.

Indigenous in Arabia and Persia; elsewhere cultivated.

SONNERATIACEAE

Sonneratia Linn. f.

Sonneratia apetala Buch.-Ham. in Syme, Emb. Ava. 3: 313, 1800; FBI. 2: 579; Gr. 72; Trim. Fl. Ceyl. 2: 229; Talb. Trees Bomb. 177; Woodr. JBNHS. 11: 638, 1838; Watt. Dict. Econ. Prodr. 6: p. 3: 276; C. 1: 547; Sastry & Rao, Bull. Bot. Surv. India 15(1 & 2): 98, 1973.

Trees growing near the sea. Leaves opposite, glabrous, thick, much attenuated at the base into a short petiole. Flowers solitary or commonly 3 together, large, articulated on pedicels. Capsule depressed-globose, tipped with the style, smooth. (Fl. Fr. February - April).

PPB. 627.

Noted along the sea coast at Daman, Nargol and Umargam. Not reported from any other part of Gujarat.

India (in tidal creeks of Bengal), the Western Peninsula, Burma.

CARICACEAE

Carica Linn.

Carica papaya Linn. Sp. Pl. 1036, 1753; FBI. 2: 599; C. 1: 557; Fl. Saur. 1: 236; Padate, in JMSU. 17 & 18 (3): 106, 1968 & 69.

A small, usually unbranched, soft-wooded tree, with milky juice. Leaves large, peltate, palmately lobed; petiole long and hollow. Male flowers in long, drooping panicles; female ones in short clusters. Fruits large, succulent, edible. (Fl. Pr. Almost all the year round).

Local name : Papaiya.

PPB. 589.

Planted in private gardens in the backshore areas.

A native of West Indies, now widely cultivated throughout the tropics.

PUNICACEAE

Punica Linn.

Punica granatum Linn. Sp. Pl. 472, 1753; FBI. 2: 581; C. 1: 548; Fl. Saur. 1: 234; Maheshwari, 163; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

A shrub or a small tree. Leaves oblong, obovate. Flowers

red, terminal, solitary. Fruits reddish-brown, globose; seeds angled; aril filled with juice. (Fl. Fr. April - September).

Local name : Dadam.

PPB. 240, 536.

Cultivated for the edible fruits, at Dhuvaran, along Mahi estuary.

Indigenous to Persia, Afghanistan and Pakistan; now cultivated throughout India.

ONAGRACEAE

Ludwigia Linn.

Ludwigia perennis Linn. Sp. Pl. 119, 1753 (excl. Foliis oppositis); Raven, in Reinwardtia 6: 367, 1963; Sant. 101; Padate, in JMSU. 17 & 18(3): 106,1968 & 69.

Jussiaea perennis (Linn.) Brenan, in Kew Bull. 163, 1953; Fl. Saur. 1: 235.

Ludwigia parviflora Roxb. Fl. Ind. 1: 440, 1820; FBI. 2: 588; C. 1: 550.

An erect, glabrous herb with reddish stems. Leaves simple, lanceolate, alternate, acute, sub-sessile. Flowers yellow, solitary, axillary, tetramerous. Capsule oblong,

brown, many-seeded, capped by persistent calyx. (Fl. Fr. August - October).

PPB. 56, 956.

Common and abundant in all moist situations at Chokeri, Tithal.

Throughout India.

Persia, Abyssinia, Ceylon, Malaya, N. Australia.

TURNERACEAE

Turnera Linn.

Turnera ulmifolia Linn. Sp. Pl. 271, 1753; Gilg. in Pfam. 3(6A): 64, t. 23 J; Fl. Saur. 1: 237; Sastry & Rao, Bull. Bot. Surv. India 15(1 & 2): 99, 1973.

An erect shrub. Leaves alternate, glandular, elliptic, irregularly serrate, or dentate. Flowers large, bright yellow. (Fl. September - April).

PPB. 759.

Noted wild along the coast at Dumas.

A native of Trop. America, planted in gardens and often run wild in some parts of India.

PASSIFLORACEAE

Passiflora Linn.

Passiflora foetida Linn. Sp. Pl. 959, 1753; Bor & Raizada, 258; Fl. Saur. 1: 238; Sastry & Rao, Bull. Bot. Surv. India 15(1 & 2): 99, 1973.

A herbaceous climber. Leaves digitately 5 lobed. Flowers axillary, solitary; corona purple violet and white. (Fl. September - October).

PPB. 1056.

Noted as a Climber at Dahej.

A native of Tropical America, common in gardens and is frequently found as an escape.

CUCURBITACEAE

1. Leaves with large fimbriate stipules ..... *Blastania*

1. Leaves without stipules :

   2. Flowers yellow or pinkish yellow :

      3. Anther cells conduplicate or flexuose :

         4. Corolla divided almost to the base :

            5. Stamens inserted on the mouth of calyx tube ..... *Luffa*

5. Stamens inserted below the mouth of the calyx tube :

6. Tendrils simple :

7. Male flowers in racemes ..... Momordica

7. Male flowers in small clusters or solitary ..... Cucumis

6. Tendrils 2-fid ..... Diplocyclos

4. Corolla campanulate, divided about half way down ..... Cucurbita

3. Anther cells straight ..... Mukia

2. Flowers white or dirty white :

8. Petals fimbriate ..... Trichosanthes

8. Petals not fimbriate :

9. Tendrils simple ..... Coccina

9. Tendrils branched :

10. Leaves pinnatifid ..... Colocynthis

10. Leaves not lobed ..... Lagenaria

Blastania Kotsch. & Peyr.

Blastania cerasiformis (Stocks) Meeuse, in Bothalia 8(1):12,1962.

Zehneria cerasiformis Stocks, in Kew Journ. Bot. 4:149, 1852.

Blastania fimbristipula (Fenzl.) Kotsch. & Peyr., Pl. Tinn. 15, t, 7, 1865; C. 1: 576; Fl. Dang, 44; Chakravarty, in RBSI. 17(1): 174, 1959; Fl. Saur. 1: 240.

Ctenolepis cerasiformis (Stocks) Hook. f., in Oliver, Fl. Trop. Africa, 2: 558, 1871; FBI. 2: 630.

An extensive herbaceous climber with simple tendrils. Leaves usually 3-lobed; stipules scabrid, foliaceous and fimbriate. Flowers yellow. Fruit glebose, scarlet, 2-seeded. (Fl. Fr. August - October).

Local name : Ankh-Phutamani.

PPB. 509.

Very common all along the hedges at Dhuvaran, Kavi, Ganguva, Chokari, Dahej, Dumas etc.

Gujarat, Maharashtra, dry districts of India.

Arabia, Tropical and S. Africa, Pakistan (Sind).

Luffa Cav.

Fruit strongly ribbed; stamens 3 ..... acutangula

Fruit not ribbed; stamens 5 ..... cylindrica

Luffa acutangula (Linn.) Roxb. var. amara (Roxb.) C.B.Clarke, in FBI. 2: 615; Cogn. & Harms, in Pfreich. 88: 69,

1924; C. 1: 567; Sant. 103; Chakravarty, loc. cit. 81; Fl. Pavagadh, 107; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

L. amara Roxb. Hort. Beng. 70, 1814 & Fl. Ind. 3: 715, 1832; Gr. 77; D. & G. 102.

A herbaceous climber. Stems angled; tendrils 3-fid. Leaves orbicular, palmately 5-7-lobed. Flowers yellow; male flowers in erect, axillary racemes, female ones solitary. Stamens 3. Fruit clavate-oblong, ribbed with 10 angles, seeds not winged. (Fl. Fr. August - October).

Local name : Turia.

PPB. 525.

Noted as a climber in hedges at Dhuvaran.

Cultivated in many parts of India, often run wild.

Africa, Ceylon, Malaya, China, Australia, America.

Luffa cylindrica (Linn.) Roem. Syn. Mon. 2: 63, 1846; Cogn. & Herms, in Pfreich. 88: 62; Chakravarty, loc. cit. 75; Jeffrey, in Kew Bull. 15: 355, 1962; Fl. Saur. 1: 246.

Momordica cylindrica Linn. Sp. Pl. 1009, 1753.

Luffa aegyptica Mill. Gard. Dict. 1768; FBI. 2: 614; C. 1: 565; Chavan & Padate, in Ind. For. 86(4): 212, 1960.

A large monoecious climber with 3-fid tendrils. Leaves palmately 5-lobed, dentate, cordate. Flowers yellow; fruits cylindric, not ribbed; seeds winged. (Fl. Fr. September - January).

Local name : Galeka.

PPB. 512.

Noted on hedges at Dhuvaran, Kavi, Dahej, Nargol etc.

Native country uncertain; cultivated throughout India and the tropics.

Africa, Malaya, China, Japan, Australia, New Zealand, America.

Momordica Linn.

Plants dioecious; fruits softly spiny ..... dioca

Plants monoecious; fruits not as above :.....

Bracts of male flowers at the apex of the peduncle ..... balsamina

Bracts of male flowers about the middle or below the middle of the peduncle ..... charantia

Momordica dioca Roxb. ex Willd. Sp. Pl. 4: 605, 1805; FBI. 2: 617 (excl. syns.); C. 1: 563; Wt. Icon. t. 505-506; Chakravarty, loc. cit. 91; Fl. Saur. 1: 244.

A climber with simple, filiform tendrils. Leaves entire or deeply 3-5-lobed, membranous, glabrous, acute, cordate. Flowers yellow, dioecious. Fruit ovoid, softly and densely spiny, rounded. (Fl. Fr. August - October).

Local name : Kankoda, Kantola.

PPB. 791.

Cultivated, noted on hedges at Dumas.

Cultivated in the drier region of Western India and throughout India.

Ceylon, Malaya.

Momordica balsamina Linn. Sp. Pl. 1009, 1753; FBI. 2: 617; C. 1: 562; Chakravarty, loc. cit. 90; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 243.

A monoecious climber with simple, filiform tendrils. Leaves 3-5-lobed, cordate. Male flowers solitary; bracts inserted just below the flowers. Female flowers ebracteate or bracteate. Fruit orange-red, ovoid or sub-globose. (Fl. Fr. August - September).

PPB. 1282.

Not common, noted in hedges; not cultivated.

Gujarat, Maharashtra, Karnatak, Punjab, N.W. India.

Africa, Pakistan (Sind), W. Asia, Malaya, Australia.

Momordica charantia Linn. Sp. Pl. 1009, 1753; FBI. 2: 616; C. 1: 562; Wt. Icon. t. 504; Chakravarty, loc. cit. 88; Fl. Saur. 1: 243.

A much-branched, climbing annual with angled stem and simple tendrils. Leaves orbicular, 5-7-lobed, coarsely spinous dentate. Flowers yellow. Fruits fusiform, obscurely ribbed and tuberculated. (Fl. Fr. August - December).

Local name : Karela.

PPB. 471.

Cultivated; noted on hedges.

Widely cultivated throughout India.

Trop. Africa, Ceylon, Malaya, China.

Cucumis Linn.

Fruit sparingly tuberculate, muricate with prickles...sativus

Fruit smooth at least at maturity .....callosus

Cucumis sativus Linn. Sp. Pl. 1012, 1753; FBI. 2: 620; C.1: 570; Chakravarty, loc. cit. 105.

A scabrous, trailing or climbing annual. Leaves 3 to 5-lobed, cordate, very rough. Flowers yellow; male ones in axillary clusters and female solitary or fascicled. Fruit cylindric, oblong, very variable in size. Seeds numerous,

white. (Fl. Fr. August - April).

Local name : Kakadi.

PPB. 486.

Cultivated for its edible fruits; not common.

Cultivated throughout India.

Africa, China and America.

Cucumis callosus (Rottl.) Cogn. ex Cogn. & Harms. in Pfreich. 88: 129, 1924; Sant. 103; Fl. Dang, 46; Chakravarty, loc. cit. 100; Fl. Saur. 1: 249; Padate, in JMSU. 17 & 18 (3): 106, 1968 & 69.

Bryonia callosa Rottl. in Neuc. Schr. Ges. Nat. Fr. Berlin 4: 210, 1803 ('callosa').

Cucumis trigonus Roxb. Hort. Beng. 70, 1814 & Fl. Ind. 2: 619, 1824 & 3: 722, 1832; FBI. 2: 619 (excl. syn.); C. 1: 569; Wt. Icon. t. 497.

A perennial, monoecious, scabrid, prostrate or climbing herb. Leaves suborbicular, hairy, deeply 5-7-lobed. Tendrils simple. Flowers yellow, axillary; males in 2-3-flowered clusters, females solitary. Fruit obovoid with white and yellow stripes; not edible. (Fl. Fr. August - October).

Local name : Kothimdu.

PPB. 389.

Commonly noted on hedges at Cambay, Dumas, Nargol.

Throughout India.

Africa, N. Africa, Persia, Afghanistan, Ceylon, Malaya, China, N. Australia.

Diplocyclos (Endl.) Von Post & Kuntze
(Bryonopsis Arn.)

Diplocyclos palmatus (Linn.) Jeffrey, in Kew Bull. 15: 352, 1962; Maheshwari, in Bull. Bot. Surv. India 5(2): 128, 1963; Fl. Pavagadh, 107.

Bryonia palmata Linn. Sp. Pl. 1012, 1753 (excl. syn.)

B. laciniosa sensu Linn. Sp. Pl. 1013, 1753 pro parte; FBI. 2: 622; Roxb. Fl. Ind. 3: 728; Wt. Icon. t. 500.

Bryonopsis laciniosa sensu Naud. in Ann. Sc. Nat. (Ser. 4) 12: 141, 1859, pro majore parte, et sensu auct. mult; non (Linn.) Naud. loc. cit. sensu Stricto; Cogn. & Harms, in Pfreich. 88: 160; C. 1: 568; Chakravarty, loc. cit. 135.

An extensive, slender, climbing herb. Tendrils slender, 2-fid. Leaves 3-7-lobed, denticulate. Flowers greenish-yellow, small, monoecious; male and female clustered in axillary fascicles. Fruit globose. (Fl. Fr. August - October).

Local name : Shiv-Lingi.

PPB. 1284.

Rare; noted on shrubs and in hedges during monsoon.

Throughout India.

Trop. Africa, Australia, Mauritius, Ceylon, Malaya, China, Java, Philippines, Pegu.

Cucurbita Linn.

Cucurbita maxima Duch. in Lamk. Encycl. 2: 151, 1786; FBI. 2: 622; C. 1: 582; Sant. 95; Fl. Raj. 64; Fl. Saur. 1: 252; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

An annual trailing, hairy herb with branched tendrils. Leaves suborbicular to reniform. Flowers large, yellow. Fruits large and heavy. (Fl. Fr. September onwards).

Local name : Lal-kolu.

PPB. 1286.

Commonly cultivated for its fruits which are used as vegetable.

Cultivated throughout India and in most of the warm and temperate regions of the world.

Congo, Tanganyika, China, Java, Philippines.

Mukia Arn.

Mukia maderaspatana (Linn.) Roem. Syn. Pep. 47, 1846; Sant. 104; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

Cucumis maderaspatanus Linn. Sp. Pl. 1012, 1753.

Melothria maderaspatana Cogn. in DC. Mon. Phan. 3: 623, 1881; C. 1: 573; Chakravarty, loc. cit. 141; Fl. Saur. 1: 244; Rao & Aggarwal, loc. cit. 22.

A scandent, monoecious, scabrid, climber with simple tendrils. Leaves small, deltoid-ovate, 3-5-lobed, acute, cordate. Flowers yellow; male in fascicles, female ones solitary. Fruit small, globose, red when ripe. (Fl. Fr. July - October).

Local name : Chana-chibhadi.

PPB. 934.

Commonly noted on hedges throughout the area during monsoon.

Throughout India.

Africa, Ceylon, Malaya, China, New Zealand, Australia.

Trichosanthes Linn.

Trichosanthes cucumerina Linn. Sp. Pl. 1008, 1753; FBI. 2: 609; C. 1: 560; Gr. 79; D. & G. 102; Chakravarty, in RBSI. 17(1): 31, 1959; Fl. Saur. 1: 241.

An annual climber with furrowed, hairy stems. Leaves orbicular, membranous, thin, deeply 3-5-lobed. Flowers white, dioecious; male flowers in racemes. Fruit ovoid-fusiform, scarlet coloured when ripe. (Fl. Fr. August - October).

Local name : Jangali-Padval.

PPB. 341.

Commonly noted in hedges at Cambay, Dahej, Dumas, Hajira, Nargol.

Gujarat, Maharashtra, Karnatak; throughout India.

Ceylon, Malaya, Java, Philippines, N. Australia.

Coccinia Wt. & Arn.

Coccinia grandis (Linn.) Voigt. Hort. Sub. Cal. 59, 1845; Fl. Saur. 1: 241.

Bryonia grandis Linn. Mant. 1: 126, 1767.

Coccinia cordifolia (Linn.) Cogn. in DC. Monog. Phan. 3: 529, 1881; Bailey, Man. Cult. Pl. 956; Chakravarty, in RBSI. 17(1): 117, 1959; Sastry & Rao, loc. cit. 99.

Bryonia cordifolia Linn. Sp. Pl. 1012, 1753.

Coccinia indica Wt. & Arn. Prodr. 347, 1834; C. 1: 572; Chavan & Padate, in Ind. For. 86(4): 212, 1960.

Cephalandra indica Naud. in Ann. Sc. Nat. (Ser. 5) 5: 16, 1866; FBI. 2: 621.

A perennial, slender climber with glabrous, grooved stems and simple tendrils. Leaves 3-5-lobed, cordate, orbicular, shining. Flowers white, axillary, solitary. Fruits ovoid, elongate, greenish with white stripes,

turning red on ripening. (Fl. Fr. July - January).

Local name : Ghiloda, Tindora.

PPB. 933.

Commonly observed on hedges throughout the coastal area.

Throughout India.

Tropical Africa, Ceylon, Burma, Malaya; China, Central America.

Colocynthis Mill.

Fruits globose, less than 7 cm. in diameter .....vulgaris

Fruits sub-globose or ellipsoid, 15-25 cm. in diameter .....citrullus

Colocynthis vulgaris Schr. Ind. Sem. Hort. Gotting 2: 1833; Andrews, Fl. Pl. Ang.-Eg. Sudan I: 166, 99, 1950; Chakravarty, loc. cit. 33 & 113; Fl. Saur. 1: 251.

Cucumis celocynthis Linn. Sp. Pl. 1011, 1753.

Citrulus colocynthis (Linn.) Schrad., in Linnaea 12: 414, 1838; FBI. 2: 620; C. 1: 571; Wt. Icon. t. 498; Oza, in Taxon 11: 252, 1962; Sastry & Rao, loc. cit. 99.

A perennial, trailing, scabrid herb. Leaves ovate or triangular in outline, deeply 3-lobed, lobes sinuately pinnatifid. Flowers yellow. Fruits globose, striped with

dark green and white lines. (Fl. Fr. March - November).

Local name : Kadu-indrayan.

PPB. 346.

Commonly noted in sandy tracts at Cambay, Hajira, Nargol etc.

Throughout India, wild or sparingly cultivated; Ceylon, W. Asia, Arabia, Africa, Spain.

Colocynthis citrullus (Linn.) O. Kuntze, Rev. Gen. 1: 256, 1891; Chakravarty, loc. cit. 114; Fl. Saur. 1: 251.

Cucurbita citrullus Linn. Sp. Pl. 1010, 1753.

Citrullus vulgaris Schrader, in Ecklon & Zeyher, Enum. Pl. Afr. Aust. Extra-trop. 279, 1836; FBI. 2: 621; C. 1: 571; D. & G. 102; Maheshwari, 171; Fl. Pavagadh, 109.

An annual herb. Leaves thin, cordate, broadly 5-lobed. Flowers yellow. Fruit large, ellipsoid or oblong, more than 25 cm. in diameter. (Fl. Fr. August - May).

PPB. 1287.

Cultivated on sandy soils.

Cultivated throughout India and in all warm countries of the world.

Indigenous in Tropical Africa, Europe, Japan, China, Malaya.

Lagenaria Ser.

Lagenaria siceraria (Mol.) Standl. in Publ. Field. Mus. Bot. (Ser. 3, non 279) 435, 1930; Meeuse, in Bothalia, 8: 83, 1962.

Cucurbita siceraria Mol. Sagg. Storia. Nat. Chile 133, 1782.

Lagenaria vulgaris Ser. Mem. Soc. Phys. Hist. Nat. Geneve 3(1): 25, 1825, t. 2; FBI. 2: 613; C. 1: 581; Fl. Saur. 1: 252.

A soft pubescent, trailing or climbing herb. Leaves large, lobed. Flowers white, large, solitary, axillary. Fruit varies much in shape and size, light-green, soft, smooth. (Fl. Fr. August - November).

Local name : Dudhi.

PPB. 514.

Cultivated in most of the villages along the coast.

Wild in some parts of India, Molucces and Abyssinia, but cultivated almost throughout India and in tropical and warm regions throughout the world.

CACTACEAE

Opuntia Mill.

Opuntia elatior Mill. Gard. Dict. no. 4, 1768; Burkill, in RBSI. 4: 313, 1911; Sant. 107; Fl. Saur. 1: 253.

O. dillenii Graham, Cat. 546, 1839; FBI. 2: 657, pro parte;

O. nigricans Woodrow, in RBSI. 1: 89, 1895; C. 1: 587.

A tall, much-branched, armed shrub. Phylloclades obovate, flattened with dark coloured spines. Leaves small, scale-like, deciduous. Flowers yellow, berries red. (Fl. Fr. January - March).

Local name : Pafedo Thor.

PPB. 241, 594.

Observed in hedges at Kavi, Ganguva, Dhuvaran, Tithal.

Throughout Western and Southern India.

The plant is a native of Tropical America; now spread in parts of India, Malay Islands and Australia.

AIZOACEAE (FICOIDACEAE)

Ovary 3-5-celled ..... Sesuvium

Ovary 1-2-celled :

Leaves oblong, obovate; stamens inserted on calyx tube :

Stamens less than 10; Styles 2 .....Zaleya

Stamens 10 to 20; style 1 .....Trianthema

Leaves spathulate; stamens inserted on the thalamus .....Gisekia

Sesuvium Linn.

Sesuvium portulacastrum Linn. Syst. ed. 10: 1058, 1759; FBI. 2: 659; Grah. Cat. 248; Trim. Fl. Ceyl. 2: 268; Pax, in Engl. & Prantl, Pflanzenf. 3, p. I, B: 42, fig. 17; Woodr. in Journ. Bomb. Nat. Hist. Soc. 11: 642, 1898; C. 1: 589; Sastry & Rao, loc. cit. 99.

An erect or prostrate, succulent, branched undershrub. Leaves opposite, spathulate-oblong, fleshy, obtuse, glabrous. Flowers purple, axillary, solitary. Capsules 3-celled, enclosed within the persistent calyx. (Fl. Fr. November - January).

PPB. 79, 1036.

A common weed on the sea coast, especially on saline soils.

PLATE No. 22

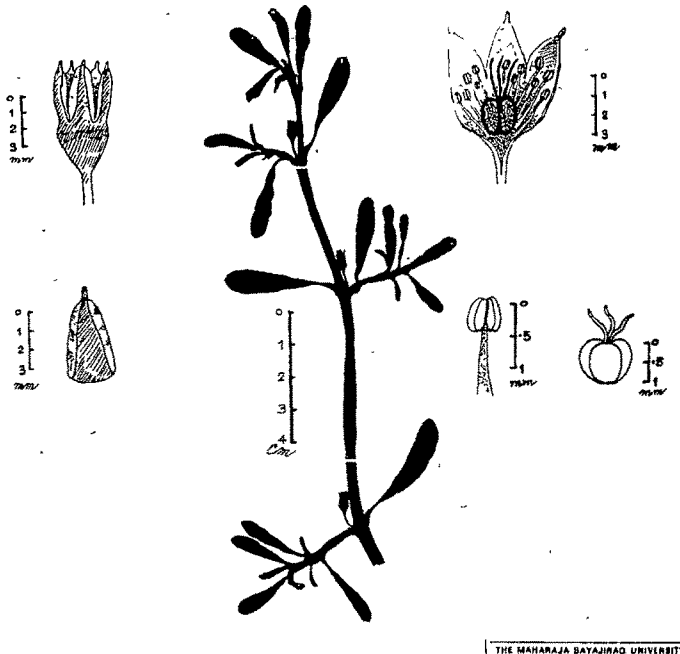
India (on sea shores); Ceylon, shores of tropical and sub-tropical regions.

Zaleya Burm. f.

Zaleya govindia (Buch.-Ham. ex G. Don) Nair, in Bull. Bot. Surv. India 8: 88, 1966.

Trianthema govindia Buch.-Ham. ex G. Don, Gen. Syst. 3: 72, 1834; Melville, in Kew Bull. 264, 1952; Fl. Saur. 1:232.

T. pentandra auct. plur. (non Linn.); C. 1: 590.



Sesuvium portulacastrum Linn.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PPB/1036

Family AIZOACEAE
Genus SESUVIUM
Species PORTULACASTRUM LINN.
Local Name —
Locality DAHEJ
Remarks A BRANCHED SUCCULENT HERB, STEMS PROSTRATE, CREEPING AND ROOTING AT NODES, OFTEN BURIED IN THE SAND. COMMONLY OBSERVED AS A WEED ON THE SEA COAST.
Date 8-11-77 Collected by

PLATE No. 22.

A prostrate, much-branched herb with grooved, angled and purple tinged stems. Leaves sub-succulent, elliptic-obovate, petioles distinct with dilated leaf-bases. Flowers rosy-pink, in sub-sessile, axillary clusters. Styles 2. Stigmas recurved. Capsule exserted, seeds 2, reniform, black. (Fl. Fr. August - September).

PPB. 444.

Observed on sandy exposed banks at Dhuvaran along Mahi estuary and Cambay.

Gujarat, Maharashtra, Karnatak, Andhra, Punjab, N.W.India.

Tropical Africa, Pakistan (Sind).

Critical notes :

Jeffrey (KB. 14(2): 237, 1960) proposed the transfer of the digynous plants to another genus Zaleya Burm. f.; Nair (loc. cit.), therefore, made this new combination. He has also listed characters to separate the two genera viz. Trianthema and Zaleya.

Trianthema Linn.

Capsule 2-seeded; seeds concentrically striate ... triquetra

Capsule 3-5-seeded; seeds muriculate ..... portulacastrum

Trianthema triquetra Rottl. & Willd. in Ges. Naturf. Fr.

Neue. Schhr. 4: 181, 1803; C. 1: 590; NG. 269; Fl. Saur. 1: 231; Sastry & Rao, loc. cit. 99.

T. crystallina Wt. & Arn. (non Vahl) Prodr. 355; FBI. 2: 660; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

A small, diffuse, much-branched; succulent herb, beset with crystalline papillae. Leaves small, linear or linear-lanceolate, fleshy, opposite or alternate. Flowers several in an axil, but not enclosed in the sheath of the petiole. Capsule 2-seeded; seeds orbicular-reniform, compressed, concentrically striated, black. (Fl. Fr. August-October).

PPB. 448.

Common, observed on sandy soils.

Punjab, Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, Karnatak, W. Peninsula, Madras.

Pakistan (Sind), Ceylon.

Trianthema portulacastrum Linn. Sp. Pl. 223, 1753; G. 350; Backer, in Fl. Males (Ser. I) 4(3): 274, 1951; Jeffrey, in Fl. Trop. E. Afr. 27, 1961; Fl. Saur. 1: 229; Sastry & Rao, loc. cit. 99.

T. monogyna Linn. Mant. 1: 69, 1767; FBI. 2: 660; C. 1: 589; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

T. obcordata Roxb. Hort. Beng. 34, 1814; D. & G. 14; Wt. Icon. t. 288.

A prostrate, succulent herb. Stems and also the leaf margins tinged reddish-purple. Leaves fleshy, unequal, sub-opposite, obovate, rounded, petiole dilated into a triangular peuch at the base. Flowers white, sessile, solitary, enclosed in the petiolar pouch. Fruit truncate. (Fl. Fr. May-October).

PPB. 739.

Common and abundant in moist situations along the coast.

Throughout India.

Ceylon and most tropical regions.

Gisekia Linn.

Gisekia pharnaceoides Linn. Montiss, 562, 1771; FBI. 2: 663; Gr. 250; Wt. Icon. t. 1167; Trim. Fl. Ceyl. 2: 273; Woodr. in JBNHS. 11: 642, 1898; Watt. Dict. Econ. Prod. 3: 502; C. 1: 595.

A diffuse succulent glabrous herb. Leaves sub-fleshy, sub-opposite; entire. Flowers numerous in almost sessile umbellate cymes. Ripe carpels membranous, as long as the sepals and surrounded by them. Seed solitary, rounded on the back. (Fl. Fr. August - October).

PPB. 1288.

Common and abundant in moist situations along the coast.

India (Punjab, W. Peninsula); Ceylon; Baluchistan, Afghanistan, Africa.

MOLLUGINACEAE

Flowers in terminal cymes; seeds minutely appendaged or not ..... Mollugo

Flowers in axillary fascicles; seeds appendaged ..... Glinus

Mollugo Linn.

Leaves all radical ..... nudicaulis

Leaves in whorls at the nodes :

Seeds with raised tubercular points ..... pentaphylla

Seeds without raised tubercular points ..... cerviana

Mollugo nudicaulis Lamk. Encycl. 4: 234, 1787; FBI. 2: 664; Saxton, in RBSI. 9(3): 254, 1922; Fl. Saur. 1: 234; Shah, in JBNHS. 59(1): 319, 1962; Rao, et al., Ind. For. 101 (8): 467, 1975.

A delicate, tiny herb, measuring up to 15 cm. Leaves all radical, oblong-spathulate forming a rosette. Flowers white, on slender, wiry scapes. Capsule brown; seeds reticulately veined. (Fl. Fr. September - November).

PPB. 47.

Commonly noted at Dahej, Umrat, Nargol and Umargam.

In the plains of Gujarat, Rajasthan and Punjab.

Mollugo pentaphylla Linn. Sp. Pl. 89, 1753; C. 1: 594; Sant. 97; Fl. Saur. 1: 334.

M. stricta Linn. Sp. Pl. (ed. 2) 131, 1762; FBI. 2: 663.

An erect, slender, much-branched herb. Leaves linear-lanceolate, whorled. Flowers white, in terminal cymes; stamens 3. Capsule many-seeded; seeds reniform. (Fl. Fr. July - October).

Local name : Jharasi.

PPB. 1073.

Common in wet places at Chokari.

Throughout India.

Ceylon, Malacca, China, Japan, Fiji.

Mollugo cerviana (Linn.) Ser. in DC. Prodr. 1: 392, 1824; FBI. 2: 663; C. 1: 594; Maheshwari, 174; Fl. Pavagadh, 114; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1 & 2): 99,1973.

Pharnaceum cerviana Linn. Sp. Pl. 272, 1753.

An erect, slender, small, glabrous herb. Branches umbellate. Leaves in whorls of 4-8 at each node. Flowers in umbellate or trichotomous cymes; calyx white margined,

sepals persistent. Capsules pale brown, globose, many-seeded; dehiscence by 3 valves. (Fl. Fr. September - October).

Local name : Pada.

PPB. 1074.

Common, noted on loose sandy soils.

From the Punjab to Cape Camorin, in the hotter, drier parts of India; not in Bengal.

Tropical Africa, Pakistan (Sind), Ceylon, Australia.

Glinus Linn.

Prostrate, densely stellately hairy herb ..... lotoides

Erect or sub-erect, glabrous herb ..... oppositifolius

Glinus lotoides Linn. Sp. Pl. 463, 1753; Backer, in Fl. Males. (Ser. I) 4(3): 269, 1951; Jeffrey, in Fl. Trop. E. Afr. 15, t. 5, 1961 (under Aizoaceae); Sant. 108; Chavan & Padate, in Ind. For. 86(4): 212, 1960; Fl. Saur. 1: 232.

Mollugo lotoides O. Kuntze, Rev. Gen. Pl. 264, 1891; G. 552.

M. hirta Thunb. Prodr. Fl. Cap. 24, 1794; FBI. 2: 662; C. 1: 593.

A prostrate or sub-erect, stellately hairy herb. Leaves

orbicular-obovate, opposite, sub-opposite or whorled, cuneate at the base. Flowers pink-white, in axillary fascicles. Capsule ovoid, many-seeded. (Fl. Fr. October - June).

Local name : Dasara-sag, Kotrak.

PPB. 636, 1123.

Very common and abundant throughout the area.

Common throughout India.

Ceylon, Malaysia and warmer regions of the world.

Glinus oppositifolius (Linn.) DC. in Bull. Herb. Boiss. (Ser. 2) 1: 559, 1901; Backer, loc. cit. 270, t. 1; Sant. 108; Fl. Saur. 1: 233; Sastry & Rao, loc. cit. 99.

Mollugo oppositifolia Linn. Sp. Pl. 89, 1753; C. 1: 593; G. 1: 552.

M. spergula Linn. Syst. 881, 1759; FBI. 2: 662.

A slender, dichotomously-branched, glabrous, yellowish-green, trailing or diffuse herb. Leaves unequal, obovate-spathulate, usually in whorls. Flowers white, in axillary fascicles. Capsule ellipsoid, 3-celled, many-seeded. (Fl. Fr. July - December).

PPB. 55.

Commonly found in moist places at many places along

the coast.

From the base of the Eastern Himalaya to South India, Delhi, Upper Gangetic plains.

Tropical Africa, Ceylon, Burma, Australia.

APIACEAE (UMBELLIFERAE)

1. Leaves simple; umbels simple ..... Centella

1. Leaves compound; umbels compound :

2. Primary ridges of fruit conspicuous; secondary ridges inconspicuous or absent :

3. Fruits laterally compressed ..... Pimpinella

3. Fruits not laterally compressed :

4. Fruit oblong or ellipsoid; ribs not winged ..... Foeniculum

4. Fruit dorsally compressed; ribs narrowly winged ..... Anethum

2. Secondary ridges of fruit prominent :

5. Fruit sub-globose; bracts absent ..... Coriandrum

5. Fruit cylindric; bracts linear ..... Cuminum

Centella Linn.

Centella asiatica (Linn.) Urban, in Mart. Fl. Braz. 11: 287, 1879; Fyson, Fl. Nilgiri and Pulney Hill Tops 3: 346; Sant. 109; Fl. Saur. 1: 253; Maheshwari, 176.

Hydrocotyle asiatica Linn. Sp. Pl. 234, 1753; FBI. 2: 669; C. 1: 598; Wt. Icon. t. 565.

A creeping herb, rooting at nodes. Leaves reniform, 1-4 from each node, petioles long. Flowers pink in simple fascicled umbels. Cremocarp ovoid with thickened pericarp. (Fl. Fr. May - December).

Local name : Brahmi.

PPB. 1300.

Cultivated along Mahi estuary at Dhuvaran, Chokari, Ganguva etc.

Throughout India from Himalayas to South India, in moist localities.

Ceylon, Malacca; Tropical and sub-tropical regions of the world.

Pimpinella Linn.

Pimpinella heyneana Wall; FBI. 2: 684; C. 1: 601; G. 1: 395.

An annual, erect herb. Leaves 3-foliolate, uppermost

often simple. Flowers white, in decompound umbels. Fruit glabrous, furrowed, with 2-3 vittae in each furrow. (Fl. Fr. September - December).

PPB. 1309, 1311.

Fairly common; at many places in the area.

India (Circars, Chittagong, W. Peninsula); Ceylon.

Foeniculum Adans.

Foeniculum vulgare Mill. Gard. Dict. n. 1, 1768; FBI. 2: 695; C. 1: 609; Bailey, Man. Cult. Pl. 751.

A small, erect, glabrous herb. Leaves much divided, segments thread-like. Flowers yellow, in compound umbels. Cremocarp oblong, ellipsoid, ribbed, pale green when dry. (Fl. Fr. January - March).

Local name : Valiyari.

PPB. 1125.

Noted in cultivated fields at Chokari, Titha; Dumas and Nargol.

A native of the Mediterranean region, now cultivated in some parts of India.

Anethum Linn.

Anethum graveolens Linn. Sp. Pl. 263, 1753; Fl. Saur. 1: 254.

Peucedenum graveolens Hiern, in Oliver, Fl. Trop. Afr. 3: 19, 1871; FBI. 2: 709; C. 1: 606.

A glabrous, branched, strongly scented annual herb. Leaves finely dissected, 2-3-pinnate. Flowers yellow, in large umbels. Cremocarp compressed and narrowly winged. (Fl. Fr. January - April).

Local name : Suva.

PPB. 373, 1096.

Noted in cultivated fields at Chokari and even observed cultivated on sea shore at Dumas.

Cosmopolitan in distribution.

Coriandrum Linn.

Coriandrum sativum Linn. Sp. Pl. 256, 1753; FBI. 2: 717; C. 1: 609; Fl. Raj. 69; Fl. Saur. 1: 256.

A small, strongly aromatic, annual herb. Leaves pinnatisect; segments ovate. Flowers white or with purple tinge, in compound umbels. Cremocarp sub-globose, ribbed. (Fl. Fr. November - March).

Local name : Dhana, Kothmir.

PPB. 300, 522.

Cultivated in private encloures in certain villages along the coast.

Cultivated in many parts of India.

Southern Europe and S. W. Asia.

Cuminum Linn.

Cuminum cyminum Linn. Sp. Pl. 254, 1753; FBI. 2: 718, Gr. 84; D. & G. Suppl. : 41; Wall. Dict. Econ. Prodr. 2: 642; C. 1: 609.

An annual, glabrous herb. Leaves twice or thrice partite; segments filiform. Flowers yellow, in compound umbels. Fruit cremocarp; mericarp half terete, ribbed and flattened. (Fl. Fr. September - December).

Local name : Jire.

PPB. 1303, 1307.

Often noted as an escape or weed in winter crops.

Punjab Plain, Deccan, cultivated.

Widely cultivated.

ALANGIACEAE

Alangium Lamk. (nom. cons.)

Alangium salvifolium (Linn. f.) Wang, in Engl. Pfreich. Alangiac, 41: 9, 1910; G. 572; Fl. Saur. 1: 206; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

Grewia salvifolia Linn. f. Suppl. 409, 1781.

Alangium lamarckii Thw. Enum. 133, 1859; FBI. 2: 741; C. 2: 1; D. & G. 109; Talb. 2: 79, t. 333.

A small, deciduous tree; branches spiny or unarmed. Leaves narrowly oblong, sub-obtuse. Flowers white, sweet scented, few, in axillary fascicles on leafless branches. Berry sub-globose, purple or purple-black, 1-seeded. (Fl. Fr. January - May).

Local name : Ankol.

PPB. 408, 944.

Not common; noted in hedges at Cambay, Tithal.

Throughout the dry regions of India.

Ceylon, Malaya, S. China, Philippines, E. Africa.

RUBIACEAE

1. Herbs :

   2. Prostrate or creeping herb; fruit densely and coarsely hairy ..... Dentella

   2. Erect or procumbent herbs; fruits more or less pubescent, not covered with coarse hairs :

      3. Flowers in axillary and terminal paniculate cymes; ovules many in each cell of the ovary..Hedyotis

3. Flowers in whorls or in axillary heads; ovule one in each cell of the ovary ..... Borreria

1. Shrubs or trees :

4. Flowers in dense, globose heads :

5. Fruit a sorosis ..... Morinda

5. Fruit a globose, warty capsule ..... Mitragyna

4. Flowers not in globose heads :

6. Branches spiny ..... Xeromphis

6. Branches not spiny :

7. Corolla tubular ..... Hamelia

7. Corolla salver-shaped ..... Ixora

Dentella Forst.

Dentella repens (Linn.) Forst. Charact. Gen. 26, t. 13, 1776; FBI. 3: 42; C. 2: 12; Sant. 114; Fl. Dang, 49; Fl. Saur. 1: 260.

Oldenlandia repens Linn. Mant. 1: 40, 1767 (non Burm.)

A slender, prostrate herb, rooting at nodes. Leaves small, minute, lanceolate, stipules scarious. Flowers minute,

white, solitary or on forks. Fruit a capsule, coarsely hairy. (Fl. Fr. January - April).

PPB. 349.

Fairly common in moist places throughout the area.

Throughout India in moist places.

Ceylon, Malay Islands, China, N. Australia, Polynesia.

Hedyotis Linn.

Hedyotis corymbosa (Linn.) Lamk. Tab. Encycl. 1: 272, 1791; Rao & Hemadri, in Ind. For. 99(6): 375, 1973.

Oldenlandia carymbosa Linn. Sp. Pl. 119, 1753; FBI. 3: 64; C. 2: 15; Blatter & McCann. in JBNHS. 36: 784, 1933; Sant. 115; Fl. Dang, 50; Fl. Saur. 1: 263.

A small, annual, erect or straggling herb. Leaves linear, lanceolate, sub-sessile; stipules membranous with few bristles. Flowers white, usually 2 or 3, rarely 1, on axillary peduncle. Capsule globose; calyx teeth not touching in fruit. (Fl. Fr. May - December).

Local name : Pitpado.

PPB. 468, 898.

Very common and abundant in the area. Observed in moist situations.

Throughout India.

Trop. Africa, Trop. E. Asia, Ceylon, Java, Philippines and America.

Borreria C.F.W. Meyer (nom. cons.)

Herbs procumbent; flowers purple; seeds granulate ..... articularis

Herbs erect; flowers white; seeds polished and shining ..... stricta

Borreria articularis (Linn. f.) F.N.Will. in Bull. Herb Boiss. II, 5: 956, 1905; Fl. Saur. 1: 261; Santapau & Merchant, in Bull. Bot. Surv. India 3(2): 107, 1962; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

Spermacoce articularis Linn. F. Suppl. 119, 1781 (excl. syn. Rumph.).

S. hispida Linn. Sp. Pl. 102, 1753; FBI. 3: 200; C. 2: 53.

Borreria hispida K. Schum. in Pflam. 4(4): 144, 1891, non Spruce ex K. Schum. 1888; G. 654; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

A decumbent, quadrangular, hispid herb. Leaves subsessile, oblong-elliptic, margins ciliate; stipules membranous with a few bristles longer then the sheath. Flowers pale blue, in whorls within the stipular cup. Capsule oblong, hairy. (Fl. Fr. August - October).

PPB. 870.

Commonly observed as a monsoon weed in most of the localities.

Throughout India, from W. Himalaya to Assam.

Ceylon, S. China, Malayan Archipelago.

Borreria stricta (Linn. f.) K. Schum. in Pfam. 4(4): 143, 1891; G. 654; Sant. 121; Fl. Saur. 1: 262; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

Spermacoce stricta Linn. f. Suppl. 120, 1781; FBI. 3: 200; C. 2: 52.

An erect, annual herb with furrowed, quadrangular stem. Leaves linear-oblong, sub-sessile, whorled; acute. Flowers white, in dense, capitate, terminal and axillary cymes. Mericarps dehiscing ventrally without a persistent septum. (Fl. Fr. August - October).

PPB. 320.

Fairly common in moist situations along with grasses.

Throughout India.

Africa, Ceylon and Trop. Asia.

Morinda Linn.

Morinda tomentosa Heyne ex Roth, Nov. Pl. Sp. 147, 1821; D. & G. 114; Fl. Saur. 1: 258; Fl. Pavagadh, 119;

Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

M. tinctoria Roxb. var. tomentosa Hook. f. FBI. 3: 156, 1880; C. 2: 43.

A small or a medium-sized tree. Leaves oblong-lanceolate or broadly elliptic and shortly acuminate. Flowers white, pleasant smelling, on a stalked, globose heads. Fruit a spherical or globular sorosis with polygonal marking. (Fl. Fr. June - October).

Local name : Aal.

PPB. 1301, 1306.

Wild but rare; noted at Valsad, Umrat and Nargol.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, Ceylon, Burma.

Mitragyna Korth. (nom. cons.)

Mitragyna parvifolia (Roxb.) Korth. Obs. Naucl. Ind. 19, 1839; C. 2: 8; G. 585; Sant. 112; Fl. Saur. 1: 259; Maheshwari, 181; Fl. Pavagadh, 118.

Nauclea parvifolia Roxb. Pl. Cor. 1: 40, t. 52, 1795.

Stephegyne parvifolia Korth. Verh. Nat. Ges. Bot. 161, 1840; FBI. 3: 25; Talb. 2: 86-87, t. 335.

A large, deciduous tree. Leaves greatly variable in size and shape; stipules large, soliaceous, caducous. Flowers

greenish-yellow in globose heads. Fruit a globose head of capsules. (Fl. Fr. April - September).

Local name : Kadamb.

PPB. 1305, 1308.

Not common; cultivated in gardens at Valsad, Tithal and Umargam.

Throughout the drier parts of India.

Ceylon, Burma.

Xeromphis Rafin.

Xeromphis spinosa (Thunb.) Keay, in Bull. Jard. Bot. Elat. Brux. 28: 38, 1958; Sant. 117.

Gardenia spinosa Thunb. Diss. Gard. No. 7, 1780; Linn. f. Suppl. 164, 1781.

Randia spinosa (Thunb.) Blume, Bijdr. 981, 1826; Fl. Saur. 1: 266; Fl. Pavagadh, 119.

R. dumetorum Lamk. Encycl. Suppl. 2: 829, 1811; FBI. 3: 110; C. 2: 27.

R. brandisii Gamble, 434 (Reprinted).

A small to a medium-sized, armed tree; thorns are absent on old branches. Flowers fragrant, white, turning yellow with age, fruit a globose, ribbed berry. (Fl. Fr. April - October).

Local name : Mindhal.

PPB. 1302, 1304.

A few trees observed at Nargol and Umargam.

Throughout India in the deciduous forests; also in Assam, Manipur, Tripura, Coochabehar.

Ceylon, Java, Sumatra, S. China, Trop. E. Africa.

Hamelia Jacq.

Hamelia patens Jacq. Enum. Pl. Carib. 16, 1760 & Select. Am. 72; Bor & Raizada, in Some Beaut. Ind. Climb. & Shrubs 96, f. 61, Pl. 32, 33; Maheshwari, 182.

An evergreen shrub. Leaves elliptic, ovate or oblanceolate, whorled, green above, pale below. Flowers scarlet-yellow, in polychasial, helicoid cymes. Berries ovoid or globse. (Fl. Fr. April - December).

PPB. 41, 54, 412.

Noted in public gardens at Tithal and Umargam, Valsad etc.

Native of Trop. America; now commonly cultivated throughout the tropics.

Ixora Linn.

Flowers white ..... arborea

Flowers red or scarlet ..... coccinea

Ixora arborea Roxb. ex Smith in Rees, Cycl. 19: no. 5, 1811; Sant. 119; Fl. Saur. 1: 269.

I. parviflora Vahl, Symb. 3: 11, t. 52, 1794 (non Lamk.); FBI. 3: 142; C. 2: 39; Wt. Icon. t. 711.

Large shrub or a small tree. Leaves oblong-elliptic, glabrous and shining. Flowers white, fragrant, in sub-globose, cymose clusters. (Fl. January - April).

Local name : Raikuda, Nevri.

PPB. 499.

Cultivated in gardens at Umrat, Nargol and Umergam.

Indigenous to W. Peninsular India, but throughout the country, chiefly in hilly regions.

Ceylon, Burma.

Ixora coccinea Linn. Sp. Pl. 110, 1753; Wt. Icon. t. 153; Bor & Raizada, Some Beaut. Climb. & Shrubs 96, t. 20; Bailey, Man. Cult. Pl. 929; Maheshwari, 183.

A small, glabrous shrub. Leaves coriaceous, elliptic, ovate or obovate, sessile with amplexicaul base. Flowers red or scarlet in compact corymbs; corolla salver-shaped with a long, slender tube. (Fl. April - September).

PPB. 704.

Grown in the gardens in the backshore area at Tithal and Nargol.

Indigenous to W. Peninsular India; now cultivated throughout India and the tropics generally.

ASTERACEAE (COMPOSITAE)

(Key to the genera of Asteraceae adapted from Santapau, in Indian Ecologist I(1): 1-4, 1946).

1. All florets on the same head white :

   2. All florets tubular :

      3. Stems with white, cottony pubescence :

         4. Leaves pinnatifid, spinous, cottony beneath ..... Echinops

         4. Leaves entire, not spinous, cottony on both sides ..... Dicoma

      3. Stems without cottony pubescence :

         5. Stems glabrous; plant suberect or prostrate; pappus of 2 scales ..... Caesulia

         5. Stems more or less pubescent, erect; pappus of 5 scales ..... Ageratum

   2. Outer florets ligulate, inner tubular :

      6. Leaves petiolate :

         7. Palea concave, embracing the achene;

pappus of a few scales or
short bristles ..... Blainvillea

7. Palea narrow, flat; pappus of 2-4
retrorsely hispid, slightly
spreading awns ..... Bidens

6. Leaves sessile ..... Eclipta

1. All florets on the same head coloured
but not white :

8. Florets all yellow on the same head :

9. Leaves entire or serrate
(or only obscurely lobed) :

10. Leaves opposite :

11. Achenes spinous :

12. Achenes with 2 horn-like
spines at the top ..... Acanthospermum

12. Achenes of ray florets winged
and spinous on the wings .... Synedrella

11. Achenes not spinous :

13. Achenes glabrous, ribbed .....Flaveria

13. Achenes gibbous, curved .....Sclerocarpus

10. Leaves not opposite :

    14. Leaves mainly radical ..... Launaea

    14. Leaves cauline, never radical :

        15. Outer florets ligulate, inner tubular :

            16. Leaves sessile or sub-sessile:

                17. Involucral bracts few-seriate, subequal ..... Pulicaria

                17. Involucral bracts many-seriate, unequal with scarious margins ..... Vicoa

            16. Leaves petiolate :

                18. Achenes truncate, triquetrous ..... Blainvillea

                18. Achenes not truncate or triquetrous :

                    19. Achenes hairy ..... Vicoa

                    19. Achenes glabrous ..... Sclerocarpus

        15. All florets tubular, or tubular and ligulate on the same head, but

ligulate ones small, inconspicuous :

20. Leaves petiolate, pappus 1-seriate... Blumea

20. Leaves sessile or nearly so :

21. Pappus 1-2-seriate :

22. Pappus 1-seriate :

23. Heads in dense clusters... Gnaphalium

23. Heads solitary ..... Blumea

22. Pappus 2-seriate ..... Pulicaria

21. Pappus many-seriate;
achenes silky ..... Dicoma

9. Leaves lobed :

24. Leaves opposite :

25. Pappus of 2-4, retrorsely hispid
hairs ..... Bidens

25. Pappus of many, aristate,
feathery bristles ..... Tridax

24. Leeves not opposite :

26 : Leaves always radical :

27. Achenes compressed ..... Sonchus

27. Achenes columnar ..... Launaea

26. Leaves not radical, mostly cauline :

28. Plants prostrate; pappus a short tube with fimbriate mouth ..... Grangea

28. Plants prostrate or erect; pappus of 2 small, stiff awns ..... Glossocardia

8. Florets never yellow on the same head :

29. Florets of two or more colours on the same head :

30. Leaves simple ..... Tridax

30. Leaves compound ..... Bidens

29. Florets of one colour only, red, pink, purple or violet-blue :.....

31. All leaves petiolate :

32. Involucre of fertile heads hard, tough, 2-beaked ..... Xanthium

32. Involucre not as above :

33. Lower leaves stalked, the upper amplexicaul and auricled... Emilia

33. All leaves petiolate :

34. Pappus uniseriate :

35. Anthers tailed ..... Blumea

35. Anthers appendiculate at the apex ..... Ageratum

34. Pappus 2-many-seriate :

36. Achenes ribbed ..... Centratherum

36. Achenes not ribbed ..... Vernonia

31. All leaves sessile :

37. Leaves decurrent into stem, giving it a winged appearance ..... Sphaeranthus

37. Leaves not decurrent, stems not winged :

38. Pappus zero or of a few short hairs :

39. Leaves spinous-toothed or spinous-serrate ..... Tricholepis

39. Leaves pinnatifid but not spinous-toothed ..... Cyathocline

38. Pappus present ..... Oligochaeta

Echinops Linn.

Echinops echinatus Roxb. Fl. Ind. 3: 447, 1832; FBI. 3: 358; C. 2: 112; Fl. Dang, 51; Padate, in JMSU.

17 & 18(3): 106, 1968 & 69; Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

A rigid, much-branched, spiny, white, woolly annual. Leaves pinnatifid, sessile, oblong, lobes ending in long, narrow spines. Flowers white, in globose, solitary, terminal, spiny heads. Achenes elongate, villous. (Fl. Fr. November - May).

PPB. 1078.

Frequent, in open gravelly situations along Mahi estuary.

Gujarat, Maharashtra, Karnatak, Madras, Andhra, Upper Gangetic Plain, Bihar, N.W. Himalaya.

Pakistan (Sind), many tropical and sub-tropical regions of the world.

Dicoma Cass.

Dicoma tomentosa Cass. in Bull. Soc. Philom. 47, 1818; FBI. 3: 387; C. 2: 116; N.G. 273; Fl. Raj. 78.

D. lanuginosa DC. in Wight, Contrib. 26, 1834; D. & G. 132.

An erect, much-branched herb. Stems and branches terete, clothed with white cottony hairs. Leaves linear, densely white-tomentose, sessile. Flowers heads yellow,

shortly peduncled, solitary, axillary; involucral bracts membranous spinescent. Achenes clothed with long silky hairs. (Fl. Fr. November - March).

PPB. 274.

Rare, noted in open places at Kavi, Dhuvaran.

Gujarat, Maharashtra, N.W. India and W. Peninsula.

Tropical Africa, Pakistan (Sind).

Caesulia Roxb.

Caesulia axillaris Roxb. Pl. Cor. 1: 64, t. 93, 1795; FBI. 3: 291; C. 2: 92; Wt. Icon. t. 1102; Sant. 132; Padate, in JMSU. 17 & 18(3): 196, 1968 & 69.

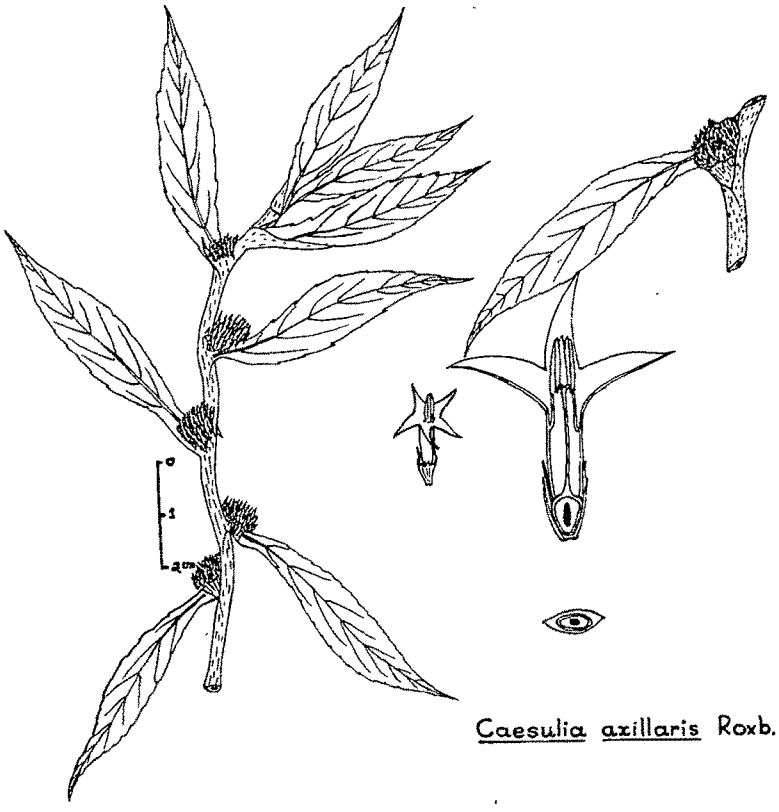
A sub-erect or prostrate succulent herb. Leaves linear-lanceolate, alternate, serrulate, acute. Flower heads axillary, homogamous, white or pale blue, sessile, partly covered by basal leaf sheath. Achenes flat, obovoid, winged on each side. (Fl. Fr. September - January).

PPB. 159.

A marsh-loving herb; commonly noted near ditches.

PLATE No. 23

More or less throughout India.



Caesulia axillaris Roxb.

PLATE No. 23.

Ageratum Linn.

Ageratum conyzoides Linn. Sp. Pl. 839, 1753; FBI. 3: 243; C. 2: 70; G. 677; Sant. 124; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

An erect, hairy, annual herb. Leaves opposite, broadly ovate, crenate. Flowers heads in terminal corymbs. Flowers white, pale-blue or pinkish-purple, odorous. Achenes black, 5-angled; pappus of 5 scales. (Fl. Fr. June - January).

Local name : Ajagandha.

PPB. 672.

Observed near ditches and muddy banks at Chokari, Ganguva, Dahej.

The plant is native of Mexico, throughout India and all hot countries.

Blainvillea Cass.

Blainvillea acmella (Linn.) Philipson, in Blumea 6(2): 350, 1950; Raizada, in Ind. For. Rec. 5(1): 7, (N.S.) Botany, 1958; Fl. Pavagadh, 125; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

Verbesina acmella Linn. Sp. Pl. 901, 1753.

Blainvillea rhomboidea Cass. in Dict.Sc. Nat. 29: 294, 1823; C. 2: 97.

B. latifolia DC. in Wight's Contrib. 17, 1834; FBI. 3: 305; Maheshwari, 198.

An erect, dichotomously branched, scabrous-hairy, robust herb. Leaves ovate-lanceolate or ovate-rhomboid, crenate-serrate, 3-nerved, hairy. Heads white or yellowish-white, on long, stiff, axillary peduncles. Achenes triquetrous. (Fl. Fr. August - October).

PPB. 757.

Common in moist places at Dumas.

Throughout the greater part of India.

Trop. Asia, Africa, Ceylon, Java, Australia and America.

Bidens Linn.

Bidens biternata (Lour.) Merr. & Scherff., in Bot. Gaz. 88: 293, 1929; Sant. 133; Fl. Dang, 51; Fl. Pavagadh, 125; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

Coreopsis biternata Lour. Fl. Cochinch. 508, 1790.

Bidens wallichii DC. Prodr. 5: 598, 1836; Gr. 101; D. & G. 128.

B. pilosa auct. (non Linn.); FBI. 3: 309; C. 2: 101.

A tall, erect, glabrous herb. Leaves variable, opposite, pinnately divided; basal leaflets tripartite. Heads yellowish-

white, heterogamous. Achene black, ribbed. (Fl. Fr. July - November).

PPB. 756.

Commonly noted in sandy moist soils.

Throughout India.

Eclipta Linn. (nom. cons.)

Eclipta prostrata (Linn.) Linn. Mant. 2: 286, 1771; Santapau, in JBNHS. 54: 475-76, 1957; Sant. 133; Chavan & Padate, in Ind. For. 86(4): 213, 1960; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

Verbesina prostrata Linn. Sp. Pl. 902, 1753.

Eclipta erecta Linn. Mant. 2: 286, 1771; C. 2: 95; D. & G. 127.

E. alba (Linn.) Hassk. Fl. Jav. Rar. 528, 1848; FBI. 3: 304; Fl. Dang, 52.

An erect or prostrate herb. Leaves sessile, variable, linear or oblong-lanceolate, turning black when dry. Heads white, solitary or 2-3 together, axillary or terminal. Achenes winged on the margin, with warty excrescences. Pappus absent. (Fl. Fr. May - February).

Local name : Bhangro.

PPB. 735.

Very common and abundant, near water-logged situations, also noted on dry sandy places.

Gujarat, Maharashtra, Karnatak, Madras, W. Peninsula, Central India, Himalaya, Punjab and Bengal; almost throughout India.

Ceylon, Burma, Malaya, Cosmopolitan in warm climate.

Acanthospermum Schrank.

Acanthospermum hispidum DC. Prodr. 5: 522, 1836; G. 495; Santapau, in JBNHS. 45: 445, 1944-45; Sant. 139; Fl. Pavagadh, 132; Pedate, in JMSU. 17 & 18(3): 106, 1968 & 69; Rao & Aggarwal, loc. cit. 22.

An erect, rigid, hairy herb. Leaves sessile or sub-sessile, ovate-lanceolate. Heads small, solitary, yellow, heterogamous, placed at the base of the forking branches; flowers minute, pale-yellow. Achenes spinescent, provided with 2 horn-like spines at the top. (Fl. Fr. August - October).

PPB. 463.

Frequent weed on gravelly soil in open situations at Dhuvaran.

A native of S. America, which has become quite a troublesome weed like Xanthium strumarium in various

parts of the country such as S. India, Maharashtra, Gujarat, Rajasthan, Madhya Pradesh.

Synedrella Gaertn. (nom. cons.)

Synedrella nodiflora Gaertn., Fruct. 2: 456, 1791, G. 2: 498; Saldanha & Nicolson, 624.

Verbesina nodiflora L. Juslenius, Cent. I. Pl. 28, 1755.

Annual herbs. Leaves opposite, crenate, palmately veined. Heads few-many, sessile, axillary. Corollas of female flowers ligulate. Achenes of the ray florets winged and spinous on the wings and of disk-florets triquetrous, often muricate. (Fl. Fr. July - December).

I could not collect the specimen but it has been included here on the authority of Mr. J. V. Joshi.

JVJ. 756.

Noted at Magdalla near Surat, along the coast.

A native of Tropical America. Common in Plains and Ghats.

Flaveria Juss.

Flaveria rependa Lag. Gen. & Spec. Nov. 33, 1816; Haines 2: 510; Sant. 138; Ommachan, 218.

Flaveria contrayerba Pers. Syn. 2: 489; D. & G. Suppl. 47; Woodr. in JBNHS. 11; 650, 1898; C. 2: 125.

A weed, leaves 3-nerved with spinous margins. Flowers yellow, in dense heads. Achene obovate, shining black, pappus O. (Fl. Fr. October - February).

I could not collect the specimen but it has been included here on the authority of Mr. J. V. Joshi.

JVJ. 50.

A weed in the area, noted at Dumas, along the coast.

A native of Peru, probably introduced from Australia, which has become naturalized in certain regions of India.

Sclerocarpus Jacq.

Sclerocarpus africanus Jacq. Icon. Pl. Rar. 1: 17, t. 176, 1782; FBI. 3: 305; C. 2: 96; Rao and Mukherjee, Bull. Bot. Surv. India 9(1-4): 85, 1967.

An erect, hispid herb with terete stems and branches. Leaves alternate, ovate, acute, dentate, clothed with appressed hairs. Heads yellow, terminal or leaf-opposed, heterogamous; involucral bracts foliaceous, hairy. Achenes ribbed, beaked. (Fl. Fr. August - October).

PPB. 335, 370.

Common in cultivated fields and plantations along the coast.

Gujarat, Maharashtra, W. Peninsula, Punjab, W. Himalaya.

Tropical Africa.

Launaea Cass.

Stems and branches not rooting at the nodes...fallax

Stems and branches rooting at the nodes .....pinnatifida

Launaea fallax (Jaub. & Spach.) Kuntze, Rev. Gen. Pl. 351, 1891; Kitamura, Fl. Afghan, 431, 1960; Sant. 137.

Microrhynchus fallax Jaub. & Spach. Pl. Or. t. 276, 1849.

Launaea nudicaulis (Linn.) Hook. f. FBI. 3: 416, 1881; C. 2: 122; Fl. Dang, 53.

Chondrilla nudicaulis Linn. Mant. 2: 278, 1767.

An erect or sub-erect, glabrous herb with radical leaves. Leaves lobed or pinnatifid, teeth white. Heads yellow, more or less sub-racemose on a usually naked scape. Achenes ribbed; pappus of many simple hairs. (Fl. Fr. June - March).

Local name : Bhonyapatri.

PPB. 362.

Common on open grounds along with grasses, also observed as a weed in cultivated and fallow fields.

More or less throughout the plains of India.

A Mediterranean, oriental species known from Canary Islands, Spain, North Africa, Egypt, Arabia and the Middle East, eastwards to Persia.

Launaea pinnatifida Cass. in Ann. Sc. Nat. Ser. 1, V. 23: 85, 1831; FBI. 3: 416; Trim. Fl. Ceyl. 3: 52; Watt, Dict. Econ. Prod. 4: 595; C. 2: 122.

Microrhynchus sarmentosus DC. Prodr. 7: 181; D.& G.132.

Prenanthes sarmentosa Willd. Sp. Pl. 3: 1540; Grah.Cat.94.

Perennial, glabrous, flagelliform, procumbent herbs rooting and leaf-bearing at the nodes. Leaves radical and springing from the nodes. Heads solitary or in clusters of 1-2, arising from the nodes together with the cauline leaves. (Fl. Fr. December - August).

Local name : Pathari.

PPB. 1152.

Noted on sandy sea-shores along the coast at many places.

India on sandy sea-shores; Ceylon, Mauritius, Egypt, E. Africa.

Pulicaria Gaertn.

Annual herb ..... angustifolia

Perennial herb or undershrub... crispa

Pulicaria angustifolia DC. Prodr. 5: 479, 1836; FBI. 3: 298; C. 2: 90; N.G. 272; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69; Rao & Aggarwal, Bull. Bot. Surv. India 6(2-4): 181, 1964.

A small, branched, annual herb. Leaves sessile, linear-oblong or ovate, often serrulate. Heads yellow, solitary, ligulate. Achenes glabrous, shining. (Fl. Fr. September - October).

PPB. 173.

Not common; noted as a weed in cultivated fields and in open waste places.

Gujarat, Maharashtra, W. Peninsula, Karnatak, Madras, Bengal, Bihar, Orissa; almost throughout India.

Pakistan.

Pulicaria crispa (Forsk.) Oliv. in Trans. Linn. Soc. 29: 96, 1873; Adams, in Fl. West Trop. Afr. 2: 258, 1963.

Aster crispus Forsk. Fl. Aegypt.Arab. 150, 1775.

Pulicaria crispa Benth. & Hook. f. Gen. 2: 336; FBI. 3: 299; Fl. Raj. 75; Chavan & Padate, in Sc. & Cult. 25: 606, 1960.

A small, perennial herb or undershrub; branches and leaves densely clothed with fine white cottony hairs; leaves simple, spathulate. Flower heads yellow or forked

peduncles. (Fl. Fr. March - October).

PPB. 51, 111.

Noted along the dried ditches at Dhuvaran, Kavi and Chokari along the Mahi estuary.

Gujarat, Rajasthan, Punjab, Upper Gangetic Plains, Bihar.

Africa, Arabia, the Canary and Cape de Verd Islands.

Vicoa Cass.

Vicoa indica (Willd.) DC. in Wight's Contrib. 10: 1834; Gr. 97; D.& G. 126; Wt. Icon. t. 1184; Sant. 132; Fl. Dang, 55.

Inula indica Willd. Sp. Pl. 3: 2092, 1804.

Vicoa auriculata Cass. in Ann. Sc. Nat. (Ser. I) 17: 418, 1829; FBI. 3: 297; C. 2: 88.

An erect, branched, rigid herb. Leaves sessile, linear-lanceolate, acute, auricled at the base. Heads yellow, on slender peduncles, heterogamous. Achenes terete, sparsely hairy. (Fl. Fr. September - January).

Local name : Sonasali.

PPB. 197, 487.

Fairly common and abundant in the area.

Gujarat, Maharashtra, W. Peninsula, Karnatak, Madras; throughout drier parts of India.

Ceylon, Burma.

Blumea DC. (nom. cons.)

Heads all solitary ..... obliqua

Heads few, in axillary and terminal corymbs :

Prostrate herbs with branches radiating from the root ..... oxyodonta

Erect or ascending herbs ..... eriantha

Heads many ..... mollis

Blumea obliqua (Linn.) Druce, in Rep. Bot. Exch. Club Brit. Isles. 4: 609, 1917; Randeria, in Blumea 19(1): 286, 1960; Fl. Mel. 196.

Erigeron obliquus Linn. Mant. 573, 1771.

Blumea amplectens DC. in Wight's Contrib. 13: 1834; FBI. 3: 260; C. 2: 75.

An annual herb with densely villous branches. Leaves

sessile, semi-amplexicaul, oblong, dentate. Heads yellow, solitary, disciform; involucral bracts tipped with long bristles. Achenes oblong, hairy. (Fl. Fr. January - May).

Local name : Kapurio.

PPB. 201.

Frequent in moist shady areas at Dhuvaran.

More or less throughout India.

Ceylon.

Blumea oxyodonta DC. in Wight, Contrib. 15, 1834; FBI. 3: 266; C. 2: 77; Sant. 128; Randeria, in Blumea 10(1): 279, 1960.

A prostrate, slender, hairy, annual herb with typical, strong odour. Leaves generally small, silky-pubescent especially the lower ones. Flowers yellow, solitary or in corymbose heads. Achenes slightly hairy. (Fl. Fr. November - March).

PPB. 1103.

Observed on dry sandy and gravelly beds of river Mahi and also noted as a weed in dry, fallow fields throughout the area.

Almost throughout India.

Pakistan, Burma, China, Philippines.

Blumea eriantha DC. in Wight Contrib. 15, 1834; FBI. 3: 266; C. 2: 78; Sant. 128; Randeria, in Blumea 10(1): 279, 1960; Fl. Pavagadh, 129.

A slender, dichotomously branched, erect, hairy herb. Leaves membranous, obovate, silky on both the sides. Heads yellow, in dichotomous cymes. Achenes angled, sparsely hairy. (Fl. Fr. December - March).

PPB. 1086.

Noted in cultivated fields at Chokari.

Gujarat, Maharashtra, W. Peninsula, Karnatak, Andhra, Madras; endemic to W. Peninsular India.

Blumea mollis (D. Don) Merrill, in Phil. J. Sc. (Bot.) 5: 395, 1910; Sant. 127; Maheshwari, 195.

Erigeron molle D. Don, Prodr. 172, 1825.

Blumea wightiana DC. in Wt. Contrib. 14: 1834; FBI. 3: 261; C. 2: 75.

An erect, much-branched, villous, leafy herb. Leaves ovate, obovate or lanceolate, thin, serrate. Heads purple, in terminal, spiciform, dense cymes or panicles, involucral bracts hairy. Achenes 4-5-angled, not ribbed. (Fl. Fr. October - January).

PPB. 1034.

Commonly noted in moist places and in sandy back shore at Dahej, Hajira etc.

Gujarat, Maharashtra, Karnatak; throughout the Plains of India.

Africa, Pakistan, Ceylon, Burma, China and Indo-China.

Gnaphalium Linn.

Heads in leafy spikes ..... polycaulon

Heads in clusters :

Heads in corymbose leafless clusters, leaves sessile, more or less amplexicaul ..... luteo-album

Heads in rounded leafy clusters, leaves petiolate and not amplexicaul ..... pulvinatum

Gnaphalium polycaulon Persoon, Syn. 2: 421, 1807; Grierson, Notes Roy. Bot. Gard. Edinburgh 31: 137, 1972; Saldanha and Nicolson, 616.

G. indicum Linn. Sp. Pl. 852, 1753; FBI. 3: 289; C. 2: 87; Gr. 97; D. & G. 130; Sant. 131; Fl. Dang, 52.

An erect, sub-erect, or prostrate, white-woolly herb.

Leaves linear-obovate or spathulate. Heads whitish yellow or straw-coloured; in spikes. Achenes ovoid, minutely papillose. (Fl. Fr. December - April).

PPB. 98.

Noted in wet ditches along with Ageratum conyzoides and Polygonum plebejum and on sandy banks.

Throughout India.

Africa, Pakistan, Burma, China, Japan, Australia, most of the hot and warm temperate countries.

Gnaphalium luteo-album Linn. Sp. Pl. 851, 1753; FBI. 3: 288; C. 2: 86; Sant. 131.

An erect, ascending or decumbent herb resembling G. polycaulon in general appearance. Leaves woolly on both surfaces, sessile, more or less amplexicaul. Flower heads yellow, in dense, leafless clusters. Achenes oblong, papillose. (Fl. Fr. February - April).

PPB. 189, 539.

Observed growing in ditches or moist soil along with G. polycaulon, but not as common.

Throughout India.

Throughout most hot and warm temperate countries.

Gnaphalium pulvinatum Delile, Descript. de l' Egypte, 266, t. 44, 1812; FBI. 3: 289; C. 2: 87; Fl. Raj. 74.

A small, prostrate, woolly herb with numerous radiating stems. Leaves spathulate, mucronate, shortly petiolate. Flower heads whitish-yellow, in leafy rounded clusters, covered by white, woolly involucral bracts. Achenes oblong, minutely papillose. (Fl. Fr. January - March).

PPB. 590, 744.

Not as common as G. polycaulon. Noted on wet muddy or sandy bansk of rivers and ponds.

Throughout the Plains of India.

Egypt.

Tridax Linn.

Tridax procumbens Linn. Sp. Pl. 900, 1753; FBI. 3: 311; C. 2: 102; Sant. 134; Fl. Dang, 54; Rao et al. loc. cit. 64.

A straggling herb with hairy, spreading branches. Leaves glandular, ovate-elliptic, pinnatifid, acute, hairy. Heads yellowish-white, solitary, on long, slender peduncles. Achenes oblong, silky hairy. (Fl. Fr. August - January).

Local name : Pardesi Bhangro.

PPB. 953.

Very common and abundant on lawns, in the shade of hedges, borders of cultivated fields along the coast.

A native of Central America, which has become completely naturalized in various parts of India.

Sonchus Linn.

Sonchus oleraceus Linn. Sp. Pl. 794, 1753; FBI. 3: 414; C. 2: 119; Sant. 137; Maheshwari, 190.

An erect annual herb, stem glaucous. Leaves entire, toothed, auricled, semi-amplexicaul. Heads yellow, homogamous, in umbellate cymes. Achenes ovoid, compressed, ribbed. (Fl. Fr. February - April).

PPB. 1313, 1315.

Commonly observed as a weed in cultivated fields.

Throughout India sparingly; all temperate and many tropical countries, wild or introduced.

Grangea Adans.

Grangea maderaspatana (Linn.) Poir. Encycl. Suppl. 2: 825, 1811; FBI. 3: 243; C. 2: 72; Wt. Icon. t. 1097; Sant. 126; Fl. Dang, 53.

Artemisia maderaspatana Linn. Sp. Pl. 849, 1753.

A prostrate, spreading, villous herb. Leaves sinuately pinnatifid, thick, sessile, alternate. Heads yellow, globose, solitary, on leaf-opposed peduncles. Achenes glandular. (Fl. Fr. April - July).

Local name : Mundi.

PPB. 647, 1111.

Very common, found in association with Heliotropium supinum, Polygonum plebeium.

Throughout India.

Africa, Tropical and Sub-Tropical Asia and Ceylon.

Glossocardia Cass.

Glossocardia bosvallea (Linn. f.) DC. in Wight's Contrib. 19, 1834; Fl. Dang, 52; Rao and Mukherjee, Bull. Bot. surv. India. 9(1-4): 85, 1967.

Verbesina bosvallea Linn. f. Suppl. 379, 1781.

Glossocardia linearifolia Cass. in Dict. Sc. Nat. 19: 62, 1821; FBI. 3: 308; C. 2: 100.

A small, much-branched, prostrate or diffuse annual herb. Leaves bipinnatisect; segments narrowly linear. Flowers heads small, yellow, heterogamous, axillary or terminal. Achenes compressed, densely bearded along the edges. (Fl. Fr. August - October).

PPB. 1174.

Commonly noted in dry, grassy places at Tithal, Meh Dungri.

Throughout India.

Xenthium Linn.

Xanthium strumarium Linn. Sp. Pl. 987, 1753; FBI. 3: 303; C. 2: 94; Sant. 132; Fl. Dang, 55; Rao et al. loc. cit. 64.

X. indicum Koen. ex Roxb. Hort. Beng. 67, 1814 & Fl. Ind. 3: 601, 1832; Gr. 101; Wt. Icon. t. 1104.

An erect, scabrid herb or undershrub. Leaves irregularly toothed scabrid, triangular-cordate. Heads bisexual and female flowers arranged in racemes. Fruiting involucres clothed with hooked prickles. Achenes ovoid-oblong, compressed. (Fl. Fr. September - October).

Local name : Gadariyun.

PPB. 613, 1101.

Common in the coastal areas at Chokari, Cambay, Tithal, Dumas.

Throughout India.

Ceylon and warmer parts of the world; cosmopolitan in distribution.

Emilia Cass.

Emilia sonchifolia (Linn.) DC. in Wight's Contrib. 24, 1834 & Prodr. 6: 302; FBI. 3: 336; C. 2: 107; Sant. 135; Padate, in JMSU. 17 & 18(3): 106, 1968 & 69.

A slender, glabrous, annual herb. Leaves stalked, the upper amplexicaul and auricled, lyrate, pinnatifid. Heads pinkish or purplish, in lax corymbs; pappus copious, of white long hairs. Achenes narrowly oblong, 5-ribbed, hispid on the edges. (Fl. Fr. August - October).

PPB. 1077.

Common in shaded, moist places during monsoon at Ganguva, Hajira, Dumas, Umbergaon.

Gujarat, Maharashtra, Karnatak, Madras; throughout India.

Ceylon, Japan and all tropical and sub-tropical regions of the world.

Centratherum Cass.

Centratherum anthelminticum (Willd.) O. Kuntze, Rev. Gen. 1: 320, 1891; G. 2: 469.

Vernonia anthelmintica Willd. Sp. Pl. 3: 1634, 1800; FBI. 3: 236; C. 2: 66; Fl. Dang, 54.

An erect annual, robust herb with pubescent, grooved branches. Leaves lanceolate or elliptic-lanceolate, acute, coarsely serrate. Heads purple, sub-corymbose, many-flowered, with a linear bract near the top of the peduncle. Achenes oblong-cylindric, ribbed, pubescent. (Fl. Fr. October - December).

PPB. 1028.

Commonly noted in hedges and sandy backshore at Dahej, Chokari, Dhuvaran.

Throughout India, often cultivated; Ceylon.

Vernonia Schreb. (nom. cons.)

Vernonia cinerea (Linn.) Less, in Linnaea 4: 291, 1829;
FBI. 3: 233; C. 2: 65; Sant. 122; Fl. Dang, 54;
Rao et al. Bull. Bot. Surv. India 8(1): 64, 1966.

Conyza cinerea Linn. Sp. Pl. 862, 1753.

An erect, annual or perennial herb. Leaves ovate to lanceolate, irregularly toothed. Heads purple to pinkish-violet, in terminal corymbs, heterogamous. Achenes oblong, hairy, not ribbed. (Fl. Fr. August - February).

Local name : Sahadevi.

PPB. 548.

A herb found in abundance all along the coast.

Throughout India in various situations and under varying conditions of moisture and soil.

Africa, Tropical Asia and Australia.

Sphaeranthus Linn.

Sphaeranthus indicus Linn. Sp. Pl. 927, 1753; FBI. 3: 275; C. 2: 84; Sant. 130; Fl. Dang, 531.

A prostrate or procumbent, divaricately branched, aromatic herb. Leaves sessile, alternate, ovate-oblong, densely glandular-pubescent. Heads purple, globose, terminal on winged peduncles. Achenes glabrous, angular. (Fl. Fr. December - May).

Local name : Bodiyo Kalhar, Gorakh Mundi.

PPB. 619.

Common and abundant in moist localities and cultivated fields at Chokari.

Gujarat, Maharashtra, Madras, Karnatak; throughout India.

Africa, Ceylon, Malay Isles, Australia.

Tricholepis DC.

Tricholepis glaberrima DC. Prodr. 6: 754, 1837; FBI. 3:

381; C. 2; 115; G. 726; Sant. 136; Fl. Pavagadh, 127; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

A glabrous, spiny herb with distinctly ribbed stems and branches. Leaves linear-oblong, spinous-toothed. Heads purple, ovoid; involucral-bracts linear-lanceolate. Achenes oblong, faintly ribbed. (Fl. Fr. October - May).

Local name : Utkateri, Utkanti.
PPB. 1310, 1312.
A weed of cultivated fields; not common.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, W. Peninsula, Madhya Pradesh.

Cyathocline Cass.

Cyathocline purpurea (Ham. ex D. Don) Kuntze, Rev. Gen. Pl. 338, 1891; Sant. 124.

Tanacetum purpureum Don, Prodr. 181, 1825.

Cyathocline lyrata Cass. in Ann. Soc. Sci. Nat. (Ser. I) 17: 420, 1829; FBI. 3: 246; C. 2: 71; Wt. Icon. t.1098.

A slender, erect herb. Leaves sessile, pinnatifid, segments toothed, aromatic, alternate, more or less hairy. Heads rose-purple, in corymbose panicles. Achenes small, smooth, oblong, pappus absent. (Fl. Fr. September-January).

PPB. 35.

Commonly observed in shaded, moist localities.

Throughout India - N.W. Himalayas, Bihar, Central India, Assam, W. Peninsula.

Oligochaeta C. Koch.

Oligochaeta ramosa (Roxb.) Wagen; Santapau & Janardhanan, 28.

Carduus ramosus Roxb. Fl. Ind. 3: 407, 1832.

Amberboa ramosa (Roxb.) Jafri, in Scientist (Karachi) III : 29, 1959; Fl. Pavagadh, 127.

Volutarella divaricata Benth. & Hook. f. Gen. Pl. 2: 476, 1873 (excl. syn. quibus dam); FBI. 3: 383; C. 2: 115; G. 727.

An erect or divaricately diffuse annual herb. Stem dichotomously branched, glabrous or scaberulous. Leaves oblong or obovate, entire, toothed or pinnatifid with mucronulate lobes. Heads purple, oblong-ovoid; involucral bracts with long, recurved, spreading spines; pappus palaeceous. (Fl. Fr. October - April).

PPB. 147.

A weed of waste places and cultivated fields at Chokari, Kavi, Dhuvaran.

N.W. Himalayas, Central, Western and Southern India.

Pakistan, Afghanistan.

PLUMBAGINACEAE

Plumbago Linn.

Plumbago zeylanica Linn. Sp. Pl. 151, 1753; FBI. 3: 480; C. 2 : 136; Sant. 140; Maheshwari, 203; Fl. Pavagadh, 134; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

A scandent, perennial herb or undershrub. Leaves thin, ovate, entire, glabrous. Flowers white, in terminal, elongate, spike-like racemes; rachis glandular; calyx sticky, covered with stalked glands. Capsule oblong. (Fl. Fr. September - January).

Local name : Chitrak.

PPB. 869.

Commonly noted in shaded moist localities,in hedges.

Gujarat, Maharashtra, Western Peninsula, Bengal; throughout India.

Ceylon, Burma and tropics of the old world.

SAPOTACEAE

Calyx lobes 4, rarely 5; staminodes absent ..... Madhuca

Calyx lobes 6-8; staminodes present :

Flowers generally trimerous ..... Manilkara

Flowers generally tetramerous ..... Mimusops

Madhuca J. F. Gmel.

Madhuca indica J. F. Gmel. Syst. Nat. 2: 799, 1791; Sant. 126; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

Basia latifolia Roxb. Pl. Cor. 1: 20, t. 19, 1795; FBI. 3: 544; C. 2: 152; Talb. 2: 156, f. 372.

Madhuca latifolia (Roxb.) Macbride, in Contr. Gray. Herb. (N.S.) 3(53): 17, 1918.

A large or medium-sized, deciduous tree with dull black bark. Leaves elliptic or elliptic-oblong, clustered at the end of the branches. Flowers cream-coloured, sweet-scented, drooping, in dense fascicles near the ends of the leafless branches. Fruit ovoid, fleshy, 1-4-seeded. (Fl. Fr. March - May).

Local name : Mahudo, Mahuwa.

PPB. 93, 190.

Commonly noted throughout the area.

Throughout Gujarat, Maharashtra, Western Peninsula, Madhya Pradesh.

Ceylon, Burma, Malaya; Cultivated in the tropics.

Manilkara Adans. (nom. cons.)

Fruit globose, epicarp rusty brown ..... zapota

Fruit ovoid, epicarp yellow when ripe .... hexandra

Manilkara zapota (Linn.) Van Royen, in Blumea 7: 410, 1953.

Achras zapota Linn. Syst. Nat. (ed. 10) 2: 988, 1759 (A. zapota Linn. 1753); Bailey, Man. Cult. Pl. 790; FBI. 3: 534; C. 2: 156.

A much-branched, evergreen tree. Leaves oblong-lanceolate or elliptic, crowded at the end of the branches. Flowers white, long-pedicelled, scentless. Fruits globose, with thin rusty-brown scurfy skin and yellow-brown pulp. (Fl. Fr. November - April).

Local name : Chiku.

PPB. 230, 566.

Cultivated on large scale in most of the private gardens at Bilimora, Nargol, Umargam, Valsad.

It grows fairly well in "black cotton soil" of Gujarat and Maharashtra. Cultivated more or less throughout India.

West Indies; introduced from America.

Manilkara hexandra (Roxb.) Dubard, in Ann. Mus. Col. Marseille (Ser. 3) 3: 9, 1915; Bor, Man. Ind. For. Bot. 235.

Mimusops hexandra Roxb. Pl. Cor. 1: 16, t. 15, 1795 & Fl. Ind. 1: 238; FBI. 3: 549; C. 2: 155; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

A medium-sized, evergreen tree with greyish-black or grey-white bark. Leaves elliptic or ovate-oblong, coriaceous, obtuse or emarginate. Flowers white, axillary, solitary or in fascicles of 2-6. Berry 1-seeded, ellipsoid, yellow when ripe. (Fl. Fr. September - January).

Local name : Rayan.

PPB. 685.

A tree along the coast at Dahej, Dumas, Ganguva, Nargol.

India (W. Peninsula, cultivated in N.W. India); Ceylon.

Mimusops Linn.

Mimusops elengi Linn. Sp. Pl. 349, 1753; FBI. 3: 548; Merr. Enum. 3: 288; C. 2: 155; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

A medium-sized, evergreen tree with dark grey, smooth bark. Leaves oblong, elliptic or elliptic-ovate, coriaceous. Flowers muddy white, fragrant, solitary or in fascicles. Berries yellow when ripe. (Fl. Fr. February - May).

Local name : Borsali, Bakuli.

PPB. 297, 520.

Cultivated in private and public gardens in back shore area.

India (W. Peninsula), often cultivated.

Ceylon, Malaya; cultivated in the tropics.

EBENACEAE

Diospyros Linn.

Diospyros cordifolia Roxb. Pl. Cor. 1: 38, t. 50, 1795 & Fl. Ind. 2: 538, 1832; FUGP. 2: 17; C. 2: 165.

D. montana Clarke, in FBI. 3: 555, 1882, in part; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

A shrub or small tree. Leaves ovate-oblong, sub-acuminate. Male flowers pale yellow, in small, few-flowered panicles. Calyx of female flowers persistent, enlarged in fruits, reflexed. Fruits pendulous, globose. (Fl. Fr. January - June).

PPB. 543.

Observed in hedges along the coast.

W. Peninsular India.

Ceylon.

SALVADORACEAE

Salvadora Linn.

Leaves ovate to ovate-lanceolate; flowers pedicellate; ripe fruits red ..... persica

Leaves linear-lanceolate; flowers sessile; ripe fruits yellow ..... oleoides

Salvadora persica Linn. Sp. Pl. 122, 1753; FBI. 3: 619; C. 2: 182; Chavan & Padate, in Ind. For. 86(4): 213, 1960; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

A much-branched, medium-sized tree. Leaves coriaceous, opposite, entire, elliptic-lanceolate, obtuse. Flowers greenish-yellow, in axillary and terminal, lax panicles. Drupes globose, red when ripe. (Fl. Fr. November - March).

Local name : Piludi.

PPB. 683, 897.

Commonly noted in hedges and as a stunted tree near sea-shore. Very common at Dahej.

Drier parts of India.

Ceylon, dry regions of W. Asia, Egypt, Abyssinia.

Salvadora oleoides Decne, in Jacq. Voy. Bot. 140, t. 144, 1844; FBI. 3: 620; C. 2: 183; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

S. stocksii Wight, III. 2: 229 & Icon. t. 1621.

An evergreen small tree. Bark grey. Leaves dull green, coriaceous, linear-lanceolate, glabrous. Flowers greenish-white, in paniculate spikes. Drupes globose, yellow when ripe. (Fl. Fr. December - March).

Local name : Piludi.

PPB. 298, 381, 521.

Common in the saline soils.

In the dry, arid regions of N.W. W. India; Aden.

APOCYNACEAE

1. Erect herbs or undershrubs ..... Catharanthus

1. Erect diffuse or climbing shrubs and trees:

2. Climbers :

3. Anthers exserted ..... Vallaris

3. Anthers included ..... Allamanda

2. Erect or diffuse shrubs or trees ..... Thevetia

4. Trees ..... Plumeria

4. Shrubs :

5. Leaves whorled, flowers white or pink; connective feathery .....Nerium

5. Leaves opposite; flowers white; connective not feathery .....Tabernaemontana

Catharenthus G. Don

Plants wild; stems four-angled, leaves lanceolate, corolla white, about 1 cm. long.. pusillus

Plants cultivated; stems not four-angled, leaves oblong, mucronate, corolla white or rosy-purple, more than 1 cm. long..... roseus

Catharanthus pusillus (Murr.) D. Don, Gen. Syst. 4: 15, 1837; Santapau, in Bull. Bot. Surv. India 3: 15; Maheshwari, 211; Raizada, in Ind. For. 92(5): 304, 1966; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

Vinca pusilla Murr. in Act. Goett. 3: 66, t. 2, f. 1, 1773; FBI. 3: 640; D. & G. 144.

Lochnera pusilla K. Schum. in Pfam. 4(2): 145, 1895; C. 2: 191; Saxton & Sedgwick, 276; Raizada, in Ind. For. Rec. (N.S.) Botany 5(1): 28.

An erect, much-branched, glabrous, annual herb. Leaves linear-lanceolate, acute, glabrous with subulate stipular glands. Flowers white, small, axillary, solitary, or in pairs. Follicles linear, in pairs. Seeds black, linear-oblong, rounded at both ends. (Fl. Fr. August - October).

PPB. 483, 728.

Common and abundant in the area; observed growing in cultivated fields and sandy soil throughout the area.

India (W. Himalayas, Upper Gangetic Plains, W. Peninsula).

Ceylon.

Catharanthus roseus (Linn.) G. Don, Gen. Syst. 4: 95, 1837; Gr. 115; D. & G. 53; Santapau, in Bull. Bot. Surv. India 3: 15; Raizada, in Ind. For. 92(5): 304, 1966; Rao and Aggarwal, Bull. Bot. Surv. India 6(2-4): 176, 1964.

Vinca rosea Linn. Syst. Nat. (ed. 10) 944, 1759; Bor and Raizada, 200, f. 119.

Lochnera rosea Reicheb. Consp. Regn. Veg. 134, 1828; C. 2: 192; Sant. 131; Raizada, in Ind.For. Rec. (N.S.) Botany 5(1): 28.

An erect, ever-blooming undershrub. Leaves opposite, oblong with mucronulate apex. Flowers white or rosy-purple;

axillary solitary or in clusters; corolla hypocrateriform. Fruit a pair of cylindric follicles; seeds many. (Fl. Fr. mostly throughout the year).

Local name : Barmasi.

PPB. 999.

Very common; cultivated in private as well as public gardens.

Cultivated throughout India. Probably a native of West Indies.

Vallaris Burm.

Vallaris solanacea (Roth) Kuntze, Rev. Gen. 2: 417, 1891; Bor, Man. Ind. For. Bot. 284.

Vallaris heynei Spreng. Syst. 1: 635, 1824; FBI.3: 650; C. 2: 199; Bor & Raizada, 208, f. 123.

V. dichotoma Wall. Cat. 1621, nom. nud.; Wt. Icon. t. 438.

A twining, spreading or straggling shrub. Leaves ovate-oblong or elliptic, sub-acuminate. Flowers white, or creamy, fragrant, in axillary cymes; anthers exserted. (Fl. Fr. February - April).

PPB. 1314.

Cultivated in gardens of holiday camps at Tithal, Dumas, Nargol.

A native of India and Burma.

Allamanda Linn.

Allamanda cathartica Linn. Mant. 2: 215, 1771; C. 2: 207; Bor. & Raizada, 196, f. 117; Bailey, Man. Cult. Pl. 810.

A scandent or climbing shrub with milky latex. Leaves obovate-lanceolate, acuminate, whorled. Flowers yellow, conspicuous; corolla campanulate from a tubular base; stamens 5, included. (Fl. Almost throughout the year).

PPB. 1316.

Commonly cultivated in all private and public gardens along sea coast at Nargol, Tithal, Umargam etc.

A native of Trop. America, now extensively grown throughout the tropical and sub-tropical parts of the world.

Thevetia Linn. (nom. cons.)

Thevetia peruviana (Pers.) Merr. in Philip. Jour. Sci. (Bot.) 9: 130, 1914 & Enum. 3: 331; Bailey, Man. Cult. Pl. 809.

Cerbera thevetia Linn. Sp. Pl. 209, 1753.

Thevetia neriifolia Juss. ex Steud. Nom. 2: 680, 1841; C. 2: 207; Bor & Raizada, 193, f. 194.

An evergreen, large shrub or a small tree. Leaves linear, alternate, dark green above, paler beneath. Flowers yellow, fragrant, in axillary or sub-terminal few-flowered cymes.

Drupe four-angled, compressed with two ridges, seed one. (Fl. Fr. Throughout the year).

Local name : Pili Kaner, Bitti.

PPB. 1318.

Commonly cultivated in public gardens ant Bilimora, Valsad, Nargol etc. along the coast.

A native of Trop. America, cultivated throughout India.

Plumeria Linn.

Plumeria rubra L. forma acuminata (Ait.) Sant. & Irani ex Shah, in J. Univ. Bomb. 30: 35, 1961-62; Raizada, in Ind. For. 92(5): 301, 1966; Padate, in JMSU. 17 & 18 (3): 107, 1968 & 69.

P. acuminata Ait. Hort. Kew (ed. 2) 2: 70, 1811; Gr. 119.

P. rubra Linn.var. acutifolia Bailey, Man. Cult. Pl. 810.

P. rubra Linn. forma acutifolia (Poir.) Woodson, in Ann. Miss. Bot. Gard. 25: 211, 1938; Raizada, in Ind. For. Rec. Bot. (N.S.) 5(1): 37, 1959; Maheshwari, 214.

A small, deciduous tree with an apparently dichotomous branching habit. Flowers waxy, white with a yellow centre. (Fl. May - October).

Local name : Khadchampo, Nag Champo.

PPB. 1317.

Cultivated in holiday camps along sea coast at Umrat, Dandi, Tithal and Nargol.

A native of Trop. America, now cultivated throughout India.

Nerium Linn.

Nerium indicum Mill. Gard. Dict. n. 2, 1768; Merr. Enum. 3: 336; Sant. 133; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

N. odorum Soland, in Ait. Hort. Kew 1: 297, 1789; FBI. 3: 655; C. 2: 206; Bor & Raizada, 199, f. 118.

A large, erect, evergreen shrub. Leaves linear-lanceolate, thickly coriaceous. Flowers white, rose-white or red, in terminal, racemese cymes. Follicles long, cylindric; seeds comose. (Fl. Throughout the year).

Local name : Karen.

PPB. 1319.

Noted in cultivation throughout the area.

Native of W.Himalaya and Nepal; frequently grown in gardens throughout the country; from Persia to China and Japan.

Tabernaemontana Linn.

Tabernaemontana divaricata (Linn.) R. Br. in Roem. &

Schult. Syst. 4: 427, 1819; Merr. in Contr. Arn. Arb. 8: 140, 1934; Maheshwari, 215.

Nerium divaricatum Linn. Sp. Pl. 209, 1753 (Quod Syn. Fl. Zeyl. Excl. Syn. Hernann.).

Tabernaemontana coronaria Willd. Enum. Hort. Berol. 275, 1809; FBI. 3: 646; Wt. Icon. t. 477; Bor & Raizada,205.

Ervatamia coronaria Stapf, in This.-Dyer, Fl. Trop. Africa 4: 127, 1902; C. 2: 197; Bailey, loc. cit. 813.

An evergreen, glabrous, much-branched shrub. Leaves oblong to lanceolate, shining, acuminate. Flowers white, fragrant at night, in few-flowered cymes. Follicles with recurved beaks. (Fl. Fr. April - October).

Local name : Chandani, Tagar.

PPB. 1320.

Commonly cultivated at all places for its glossy leaves and snow-white flowers.

Believed to be indigenous to N. India, now grown throughout India.

ASCLEPIADACEAE

1. Filaments free from each side;
pollen masses granular ..... Hemidesmus

1. Filaments connate into a tube;
   pollen masses waxy :

   2. Anthers without a membranous appendage .... Leptadenia

   2. Anthers with a membranous appendage :

      3. Pollen masses pendulous :

         4. An erect shrub ..... Calotropis

         4. Climbing herbs or shrubs :

            5. Follicles echinate ..... Pergularia

            5. Follicles glabrous ..... Cryptostegia

               6. Corolla divided half way down;
                  leaves linear; flowers showy... Sarcostemma

               6. Corolla divided nearly to the
                  base; flowers small, not showy..Pentatropis

      3. Pollen masses erect or horizontal ..... Telosma

Hemidesmus R. Br.

Hemidesmus indicus (Linn.) Schultes, in Roem. & Schult. Syst. Veg. 6: 126, 1819; Wt. Icon. t. 594; FBI. 4: 5; C. 2: 210; Santapau & Irani, loc. cit. 96.

Periploca indica Linn. Sp. Pl. 211, 1753.

A perennial twiner, thickened at the nodes. Leaves opposite, elliptic-oblong or linear-lanceolate, dark green. Flowers greenish-yellow, small, in axillary cymes. Follicles in pairs, divaricate, striate; seeds with silvery-white coma. (Fl. Fr. September - November).

PPB. 310.

Commonly observed as a climber.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, W. Peninsula, Northern Provinces.

Ceylon.

Leptadenia R. Br.

Leptadenia reticulata (Retz.) Wt. & Arn. in Wight, Contrib. 47: 1834; Wt. Icon. t. 350; FBI. 4: 63; C. 2: 237; Talb. 2: 260; Santapau & Irani, loc. cit. 60; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

Cynancum reticulatum Retz. Obs. 2: 15, 1781.

A twining shrub. Leaves opposite, ovate, thick, subcoriaceous. Flowers greenish-yellow, in lateral, umbellate cymes. Follicles usually solitary, smooth, turgid; seeds comose. (Fl. Fr. April - July).

PPB. 965.

Commonly observed on hedges.

Common throughout Gujarat, Maharashtra, Karnatak, Western Peninsula, Punjab.

Ceylon, Singapore, Burma.

Calotropis R. Br.

Corona lobes narrow, with two obtuse auricles just below the entire apex ..... gigantea

Corona lobes broad, without auricles below the bifid apex ..... procera

Calotropis gigantea (Linn.) R. Br. in Ait. Hort. Kew (ed. 2) 2: 78, 1811; FBI. 4: 17; C. 2: 214; Sant. 151; Santapau & Irani, in Bot. Mem. Univ. Bomb. 4: 17, 1962; Rao and Aggarwal, loc. cit. 22.

Asclepias gigantea Linn. Sp. Pl. 214, 1753.

A tall, much-branched, shrub covered with soft hairs. Leaves broadly ovate, decussate, sub-sessile. Flowers purple, in lateral, umbellate, cymes. Follicles in pairs; fleshy; seeds comose. (Fl. Fr. March - October).

PPB. 519.

Common in waste places in the backshore and hinterland areas.

Throughout India.

Ceylon, Malay Islands, South China.

Calotropis procera (Ait.) R. Br. in Ait. Hort. Kew (ed. 2) 2 : 78, 1811; FBI. 4: 18; C. 2: 215; Santapau & Irani, loc. cit. 19; Rao et al. loc. cit. 64.

Asclepias procera Ait. Hort. Kew (ed. 1) 1: 305, 1789.

An erect shrub covered with cottony tomentum. Leaves opposite, thick, oblong-obovate, acute at the apex. Flowers purple, in terminal and axillary, corymbose cymes. Follicles in pairs; smooth, recurved. (Fl. Fr. March - August).

PPB. 392.

Very frequent plant all along the coastal areas.

Throughout India in the drier regions.

Tropical Africa, Persia.

Pergularia Linn.

Pergularia daemia (Forsk.) Chiov. Result. Sc. Miss. Stefan-Paoli Somal. Ital. 1: 115, 1916; Blatter & MacCann, 528, 19133; Santapau & Irani, loc. cit. 74; Rao et al. loc. cit. 64.

Asclepias daemia Forsk. Fl. Aeg.-Arab. 51, 1775.

Daemia extensa R. Br. in Mem. Wern. Soc. 1: 50, 1809; FBI. 4: 21; C. 2: 219; Wight, Contrib. 59 & Icon. t.596.

A perennial, twiner with hispid stem. Leaves ovate, deeply cordate, pubescent on lower surface. Flowers greenish-yellow, in axillary, lateral paniculate cymes. Follicles reflexed, echinate with soft spines. (Fl. Fr. August - February).

PPB. 947.

Commonly noted on hedges along the coast.

Common in hotter parts of India.

Afghanistan, Ceylon, Arabia, Trop. & S. Africa, Madagascar.

Cryptostegia R. Br.

Cryptostegia grandiflora R. Br. in Bot. Reg. 5: t. 435, 1818; Wt. Icon. t. 832 & Ill. 2: t. 182, f. 9; Gr. 122; D. & G. Suppl. 54; FBI. 4: 6; C. 2: 245; Bailey, Man. Cult. Pl. 816; Santapau & Irani, loc. cit. 93; Rao & Aggarwal, loc. cit. 22.

A woody, climbing shrub; branches terete, whip-like, sarmentose. Leaves elliptic oblong, glabrous. Flowers large, pink-purple; follicles 3-winged, ovate, glabrous; seeds comose. (Fl. February - December).

Local name : Rabarvel.

PPB. 1080.

In sandy backshore at Kavi.

A Tropical African plant, widely cultivated in gardens in India; also common as an escape.

Sarcostemma R. Br.

Sarcostemma secamone (Linn.) Bennet, in Ind. For. 95 (10): 692, 1969; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

Periploca secamone Linn. Mant. 2: 216, 1771.

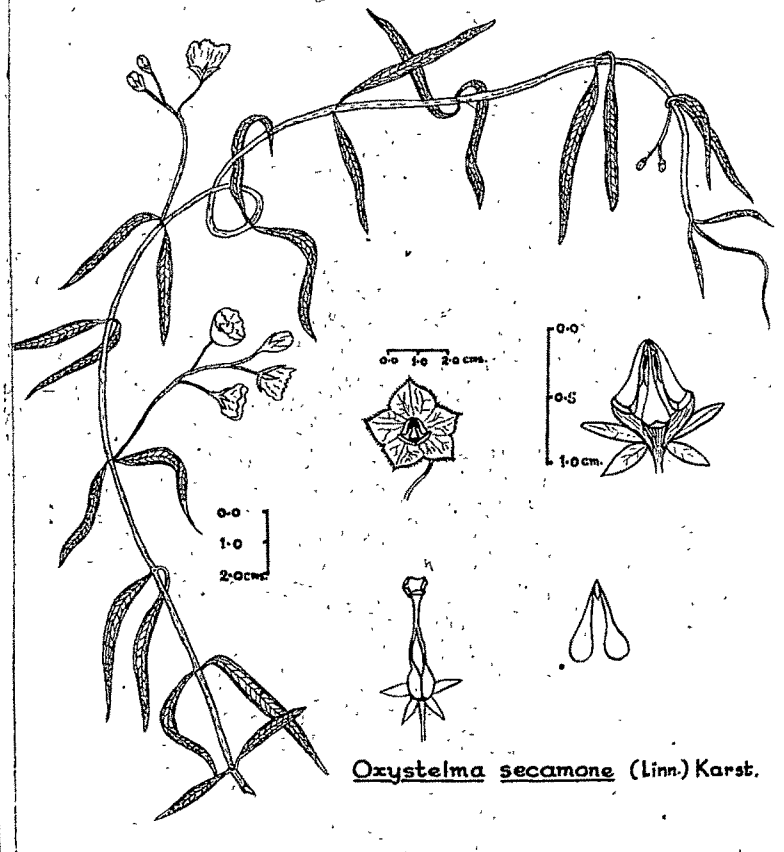
P. esculenta Linn. f. Suppl. 168, 1781.

Sarcostemma esculentum (Linn. f.) Holm, in Ann. Miss. Bot. Gard. 37: 482, 1950; Backer & Brink, Fl. Java, 2: 259, 1965.

Oxystelma esculentum (Linn. f.) R. Br. ex Schult. Syst. Veg. 4: 89, 1820; FBI. 4: 17; C. 2: 216.

O. secamone (Linn.) Karst. Dent. Fl. 1031, 1880-1883; Santapau & Irani, loc. cit. 67.

A slender, perennial twiner. Leaves thin, narrow, linear-lanceolate, deciduous. Flowers yellow with white-purple patches, large, in drooping, pedunculate, lateral sub-umbellate cymes. Follicles glabrous, ovoid-lanceolate, pointed; seeds many, minute, comose. (Fl.Fl. August-December).



Oxystelma secamone (Linn.) Karst.

PLATE No. 24.

PPB. 765.

Noted on hedges as a climber at Meh Dungri, Tithal.

PLATE No. 24

Throughout the plains and lower hills of India.

Ceylon, Burma, Java.

Pentatropis Wight & Arn.

Pentatropis spiralis (Forsk.) Decaisne, in Ann. Sc. Nat. (Ser. 2) 9: 327, t. 11, E, 1838; FBI. 4: 19; Bullock, in Kew Bull. 1955; 284, 1955; Sant. & Irani, loc. cit.70.

Asclepias spiralis Forsk. Fl. Aegypt.-Arab. 49, 1775.

Pentatropis cynanchoides R. Br. in Salt. Voy. Abyss. App. 64, 1814; C. 2: 218.

A slender, twining undershrub. Leaves variable, ovate, oblong or elliptic, glabrous, mucronate. Flowers greenish, in lateral umbellate 3-6-flowered cymes; corolla lobes with long linear tails. Flower buds acuminate. Follicles lanceolate, tapering into a beak, smooth, glabrous. (Fl. Fr. August - January).

PPB. 726.

Rare; noted on hedges.

In the drier regions of N., N.W. and W. India.

Trop. Africa, Arabia, Afghanistan, Pakistan.

Telosma Coville.

Telosma pallida (Roxb.) Craib, in KB. 418, 1911; Blatter & McCann, 531; Santapau & Irani, loc. cit. 83; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

Asclepias pallida Roxb. Fl. Ind. 2: 48, 1832.

Pergularia pallida Wt. & Arn. in Wight, Contrib. 42, 1834; Wt. Icon. t. 585; FBI. 4: 38; C. 2: 229; Talb. 2: 251.

A twining, pubescent, undershrub. Leaves opposite, ovate, shortly acuminate, darker above, pale-green beneath. Flowers pale-yellow, in many-flowered, lateral umbellate cymes. Follicles lanceolate, terete. (Fl. Fr. July - September).

PPB. 503.

Noted as a climber on hedges.

Gujarat, Madhya Pradesh, Maharashtra, Karnatak, Andhra, Madras, Tropical Himalaya, Bihar.

Burma.

MENYANTHACEAE

Nymphoides Medic.

Corolla lobes entire, with a longitudinal crest down the middle; seeds few, large with prominent,

glochidiate tubercles ..... cristatum

Corolla lobes fimbriate, without a longitudinal crest; seeds many, smooth or minutely tuberculate ..... indicum

Nymphoides cristatum (Roxb.) O. Kuntze, Rev. Gen. Pl. 429, 1891; Sent. 162; Subramanyam, in Aquat. Angios. 24, t. 16.

Menyanthes cristata Roxb. Pl. Cor. 2: 3, t. 105, 1798.

Limnanthemum cristatum Griseb. Gen. Spec. Gent. 342, 1839; FBI. 4: 131; C. 2: 261.

A floating hydrophyte. Leaves sub-orbicular, deeply cordate, purplish beneath. Flowers white, in dense clusters at the base of petiole; corolla lobes with a median crest and a tuft of white hairs round the throat. (Fl. February - April).

PPB. 1059.

Noted in shallow waters in ditches.

Common throughout India.

Ceylon, China.

Nymphoides indicum (Linn.) O. Kuntze, Rev. Gen. Pl. 429, 1891; Subramanyam, in Aquat. Angiosp. 24, f. 17, Pl. II; Bailey, Man. Cult. Pl. 808; Sant. 163.

Menyanthes indica Linn. Sp. Pl. 145, 1753.

Limnanthemum indicum (Linn.) Griseb. emend. Thw. Enum. Pl. Zeyl. 205, 1860; FBI. 4: 131; C. 2: 261; Chavan & Padate, in Ind. For. 86(4): 213, 1960 & JMSU. 11(3): 63-78, 1962.

A floating hydrophyte. Leaves orbicular, deeply cordate. Flowers white with a yellow centre; corolla fimbriate, cottony, pubescent. (Fl. Fr. August - March).

PPB. 1058.

In a small pond at Dumas, Tithal, Hajira.

Common throughout India.

Afghanistan, Ceylon, Malaya, Australia, Mascarens, Fiji Islands.

GENTIANACEAE

Ovary 2-celled ..... Exacum

Ovary 1-celled :

Corolla regular ..... Enicostema

Corolla irregular :

Flowers yellow; stigma scarcely lobed... Hoppea

Flowers pink; stigma deeply 2-lobed .... Canscora

Exacum Linn.

Exacum pedunculatum Linn. Sp. Pl. 112, 1753; FBI. 4: 97; C. 2: 253; Fl. Dang, 60; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

E. pedunculare Arn. in Ann. Sc. Nat. Ser. 2, 11: 176, 1839; Wt. Icon. t. 336.

An erect, much-branched, annual herb with quadrangular stems. Leaves sub-sessile, elliptic-lanceolate. Flowers blue, in terminal, much-branched cymes; pedicels rigid; calyx strongly winged. Capsule globose. (Fl. Fr. December - April).

PPB. 1057.

Rare; noted in muddy soil and sandy alkaline area at Tithal.

Gujarat, Maharashtra, Karnatak; throughout India.

Ceylon.

Enicostema Blume (nom. cons.)

Enicostema hyssopifolium (Willd.) Verdoorn, in Bothalia & 7: 462, 1961, nomencl.; Back. & Bakh. f. Fl. Java 2: 439, 1965; Rao and Aggarwal, loc. cit. 22.

Exacum hyssopifolium Willd. Sp. Pl. 1: 2, 1798.

Enicostema littorale Bl. Bijdr. 848, 1826; FBI. 4: 101;

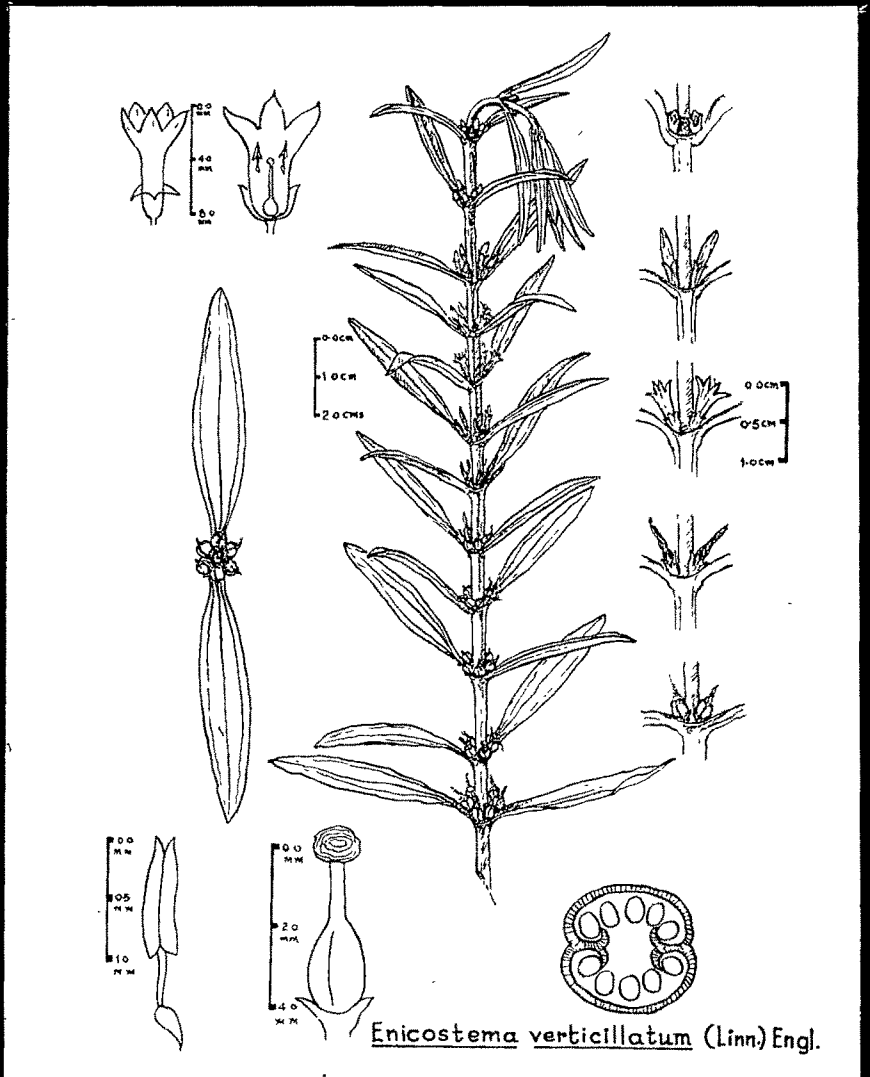


PLATE No. 25.

C. 2: 255; Chavan & Padate, in Ind. For. 86(4):213,1960.

E. verticillatum (Linn.) Engl. Pflanzen. Ost.-Afr. C. 313, 1895; Engler & Prantl, Pfam. 4: 67, f. 31.

Gentiana verticillata Linn. Syst. (ed. 10) 952, 1759.

An erect or decumbent, perennial, glabrous herb with square stems. Leaves sessile, opposite, linear-oblong, obtuse. Flowers white, sessile, in axillary clusters all along the stem. Capsule ellipsoid, slightly apiculate; seeds minute, brown. (Fl. Fr. May - October).

PPB. 710.

Very common in grasslands, and all moist places.

PLATE No. 25

Throughout greater part of India.

Ceylon, Malaya, Trop. Africa, W. Indies.

Hoppea Willd.

Hoppea dichotoma Willd. in Ges.Naturf. Fr. Neue. Schr. 3: 434, 1801; FBI. 4: 100; C. 2: 256; Fl. Dang, 60.

A small, divaricately branched herb. Leaves small, ovate, acute, opposite. Flowers pale-yellow, in di- or trichotomous cymes. Capsule ellipsoid, septicidally 2-valved. (Fl. Fr. October - December).

PPB. 859.

Fairly common on moist, shallow soils and in shaddy places along the coast at Tithal and Hajira.

Throughout India.

Canscora Lamk.

Canscora diffusa R. Br. Prodr. 451 in Obs. 1810; D. & G. 158; FBI. 4: 103; C. 2: 257; Sant. 161; Fl. Dang. 59.

C. lawii Wight, Ic. t. 1327, 1848 (non Clarke).

An erect, glabrous, slender, much-branched herb with obtusely, quadrangular stem. Leaves membranous, sessile, broadly ovate, acute. Flowers pink, in lax, paniculate cymes. Capsule membranous. (Fl. Fr. July - February).

PPB. 960.

Noted along the banks of river Vaki at Tithal.

Gujarat, Maharashtra, Karnatak; throughout India.

Tropical Africa, Ceylon, Malaya, Australia.

CORDIACEAE

Cordia Linn.

Flowers bright scarlet to orange-red ..... sebestena

Flowers smaller than those of above, white :

Leaves alternate, broad ovate, elliptic to suborbicular, with basal nerves ..... dichotoma

Leaves subopposite, oblong to oblanceolate, with no distinct, basal nerves ..... gharaf

Cordia sebestena Linn. Sp. Pl. 190, 1753; C. 2: 268; Bailey, Man. Cult. Pl. 839.

A small tree. Leaves large, rough hairy, cordate, entire or undulate. Flowers 2-5 to 5 cm. long, bright scarlet to orange-red in large, open, terminal cymes. (Fl. Fr. January - June).

PPB. 174.

Grown in the gardens at holiday camps at Tithal, Hajira and in private enclosure at Dumas.

A native of Cuba, now grown in gardens in India.

Cordia dichotoma Forst. f. Prodr. 18, 1786; Merr. Enum. 3: 373; Sant. 145.

C. obliqua Willd. Phytogr. 4, t. 4, 1794; FBI. 4: 137 excl. vars.; G. 887; Shah in Ind. For. 89(4):289,1963.

C. myxa auct. plur.; C. 2: 265 (non. Linn.); Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

A large tree. Leaves ovate to suborbicular. Flowers white, in lax cymes. Berry ovoid, greenish yellow, supported by the accrescent calyx; pulp mucilaginous. (Fl. Fr. March - May).

Local name : Mota Gunda.

PPB. 191.

Often cultivated in the gardens at Valsad and Nargol.

Throughout India, wild and cultivated.

Ceylon, Egypt, Cochinchina, Philippines, Trop. Australia.

Cordia gharaf (Forsk.) Ehrenb. & Asch. in Bitzung. Bericht Ges. Naturf. Fl. Berl. 46, 1879; Johnston, in JAA. 37: 297; Raizada, in Ind. For. 92(5): 307, 1966; Kazami, in Journ. Arn. Arb. 51(2): 140, 1970; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

Cornus gharaf Forsk. Fl. Aeg.-Arab. 94, 1775.

Cordia rothii Roem. & Schult. Syst. 4: 798, 1819; FBI. 4: 138; Wt. Icon. t. 1379; C. 2: 268.

A small tree with furrowed, greyish bark. Leaves subopposite, oblong-oblanceolate, rounded at the apex, feather nerved. Flowers small, white in pedunculate cymes. Drupe ovoid, 1-seeded, bearing orange-yellow pulp when ripe. (Fl. Fr. December - June).

Local name : Nana-Gunda.

PPB. 541.

Noted in number of villages along the coast.

In the dry districts of Punjab and W. Peninsular India; often planted.

Ceylon, Egypt, Arabia, Abyssinia.

BORAGINACEAE

Ovary entire or slightly 4-lobed; style terminal :

Flowers in scorpoid cymes or spikes, white ...Heliotropium

Flowers not as above; yellow .....Coldenia

Ovary deeply 4-lobed; style gynobasic (except in Trichodesma) :

Anthers connivent into a cone, subexserted; connectives much produced .....Trichodesma

Anthers not connivent into a cone, included; connectives not much produced .....Sericostoma

Heliotropium Linn.

Corolla lobes acuminate .....subulatum

Corolla lobes not acuminate :

Anthers free, not connate by their connectives :

Calyx lobes short, less than ½ the length of the tube; nutlets rounded ..... supinum

Calyx lobes long, more than ½ the length of the tube; nutlets acute at the apex:

Nutlets densely pubescent .....ovalifolium

Nutlets glabrous .....curassavicum

Anthers connate by their produced connectives..marifolium

Heliotropium subulatum Hochst. ex DC. Prodr. 9: 528, 551, 1845; Maheshwari, 226.

H. zeylanicum Clarke, in FBI. 4: 148, 1883 (non Lamk.) Wt. Icon. t. 892; C. 2: 274; Rao & Aggarwal, Bull. Bot. Surv. India 6(2-4): 181, 1964.

An erect, woody, much-branched, hispid herb. Leaves narrowly lanceolate, acute. Flowers greenish-yellow, in elongated spikes. Nutlets 4, tuberculate on the back. (Fl. Fr. October - April).

PPB. 661, 1047.

MEHTA LIBRARY UNIVERSITY OF BARODA

Rare; noted as a weed in cultivated fields along the coast at Chokari.

India (Punjab, W. Peninsula); Tropical Africa.

Heliotropium supinum Linn. Sp. Pl. 130, 1753; D. & G. Wt. Icon. t. 1387; FBI. 4: 149; C. 2: 275; Sant. 165; Fl. Dang, 61; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

A prostrate, softly, densely, villous herb. Leaves elliptic, ovate or sub-orbicular, obtuse. Flowers white, villous, sub-sessile, in simple or forked spikes. Fruit ovate to sub-globose, enclosed by the persistent calyx; nutlets margined, rounded. (Fl. Fr. January - February).

Local name : Hathi Shundra.

PPB. 643.

Commonly found in ditches in association with Polygonum plebeium and Glinus lotoides.

N.W. India, Punjab, Upper Gangetic Plain and W. Peninsular India.

S. Europe, N. & S. Africa, Canary Islands, Ceylon, W. Asia.

Heliotropium ovalifolium Forsk. Fl. Aeg.-Arb. 38, 1775;

FBI. 4: 150; C. 2: 278; Sant. 165; Fl. Dang, 61; Shah, in Ind. For. 89(4): 289, 1963; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

H. coromandelianum Retz. Obs. 2: 29, 1781; D. & G. 171; Wt. Icon. t. 1388.

A decumbent, hispid herb. Leaves obovate, spathulate, obtuse, clothed with appressed silky hairs. Flowers white, in ebracteate pairs of spikes. Nutlets pubescent, acute at the apex. (Fl. Fr. May - September).

PPB. 595.

Noted as a weed in cultivated fields.

E. India, W. Peninsular India.

Tropical Africa, Australia.

Heliotropium curassavicum Linn. Sp. Pl. 130, 1753; G. 2, 630; Nair and Nair, Bull. Bot. Surv. India 6(1): 69-71, 1964; Padate, in JMSU. 19 & 20(3): 1970 & 71.

Perennial, fleshy herb with woody base. Stems usually many from the base and hollow. Leaves linear or lanceolate, glabrous, fleshy, exstipulate. Flowers generally in once forked leaf-opposed or terminal scarpioid cymes; flowers ebracteate and white. Nutlets glabrous, smooth on the back with a corky margin. (Fl. Fr. February - May).

PPB. 1120.

Not common, on salt back waters at Kavi, Khambhat and Dahej.

This plant is a new record for Gujarat State.

Along the Coromandel Coast, on salt backwaters at Madras, Vizagapatnam and Tuticorin.

Probably introduced from W. Indies.

Heliotropium marifolium Retz. Obs. 2: 8, 1781; H. Riedl. Wien. in Fl. Iranica 15(48): 16, 1967; FBI. 4: 152; C. 2: 280; Wt. Icon. t. 1390; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

Heliotropium scabrum Retz. Obs. 2: 8, 1781.

A much-branched, decumbent, hairy herb, woody at base. Leaves ovate-lanceolate, covered with appressed hairs. Flowers white, in short, axillary and terminal bracteate spikes; anthers connate by their produced connective. Nutlets subglobose. (Fl. Fr. July - September).

Local name : Hathi Shundha.

PPB. 943.

Commonly observed on dry open ground.

Throughout India.

Ceylon.

Coldenia Linn.

Coldenia procumbens Linn. Sp. Pl. 125, 1753; FBI. 4: 144; C. 2: 271; Gr. 135; D. & G. 171; Sant. 164; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

A prostrate, hairy herb with trailing stem. Leaves crisped, obovate-oblong, coarsely serrate. Flowers white or pale-yellow, small, axillary, solitary. Drupes pyramidal, separating into 4, 1-seeded pyrenes. (Fl. Fr. January - June).

Local name : Okhrad.

PPB. 1079.

Very commonly observed in ditches usually in association with Chrozophora prostrata, Grangea maderaspatana.

Thrcughout India.

Trop. Africa, Pakistan, Ceylon, Australia and America.

Trichodesma R. Br. (nom. cons.)

Calyx rounded at the base ..... zeylanicum

Calyx cordate or hastate at the base ..... indicum

Trichodesma zeylanicum (Burm. f.) R. Br. Prodr. 496, 1810; FBI. 4: 154; C. 2: 282; Gr. 134; D.& G. 173; Chavan & Padate, in Ind. For. 86(4): 213, 1960.

Borago zeylanica Burm. f. Fl. Ind. 41, 1768; Linn. Mant. 202, 1771.

An erect herb, covered with appressed hairs. Leaves oblong-lanceolate, densely clothed with hairs. Flowers blue or violet-blue, solitary or in leaf-opposed cymes; calyx rounded at the base. (Fl. Fr. December - April).

Local name : Undhafuli.

PPB. 885.

Noted as a weed in cultivated fields at Tithal.

E. India and W. Peninsular India.

Ceylon, Malaya, Australia, Philippines, Mascarene Islands.

Trichodesma indicum R. Br. Prodr. 496, 1810; FBI. 4: 153; C. 2: 281; Chavan & Padate, in Ind. For. 86(4): 213, 1960; Fl. Raj. 90; Rao and Aggarwal, loc. cit. 22.

A low, woody, annual herb. Leaves sessile, variable in size, clothed with stiff hairs. Flowers blue or pale-violet, solitary or in leaf-opposed cymes; calyx cordate or hastate at the base. (Fl. Fr. August - October).

PPB. 886.

Observed as a weed in cultivated fields at Tithal.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, Rajasthan.

Persia, Afghanistan, Pakistan, Ceylon, Mauritius.

Sericostema Stocks.

Sericostoma pauciflorum Stocks. in Wight, Icon. t. 4: 1377, 1848; FBI. 4: 175; C. 2: 288; Bhandari, 238; Rao and Aggarwal, loc. cit. 22.

A small, much-branched, straggling undershrub, 6-18 in. high. Stems woody at the base. Leaves sessile, linear-lanceolate, sub-obtuse, oblique, clothed with stiff appressed hairs from bulbous bases. Flowers white, in short, 2-5-flowered sub-scorpioid leaf-opposed racemes. Corolla white, densely clothed with silky hairs in the throat. Stamens inserted at the sinuses of the corolla. Ovary 4-lobed. (Fl. Fr. July - December).

PPB. 1178.

Very common along the sandy coast at Nargol.

PLATE No. 26

Pakistan (Sind), India (Rajasthan, Saurashtra, Kutch).



Sericostoma pauciflorum Stocks.

PLATE No. 26.

CONVOLVULACEAE

1. Pollen grains spiny :

   2. Fruits indehiscent, baccate, coriaceous or crustaceous :

      3. Corolla white, salvar-shaped; stigmas 2, linear oblong ..... Rivea

      3. Corolla not white, infundibuliform; stigma globose ..... Argyreia

   2. Fruits dehiscent, capsular, rarely indehiscent ..... Ipomoea

1. Pollen grains not spiny :

   4. Styles 2, free or partly united below, stigmas capitate or linear :

      5. Plants erect; flowers usually solitary or in small clusters in the axils of upper leaves ..... Cressa

      5. Plants usually procumbent; flowers axillary solitary or in few-flowered pedunculate cymes, never forming clusters ..... Evolvulus

   4. Style 1, stigmas usually 2-lobed :

6. Stigma lobes elongate :

7. Plants climbing or twining; leaves cordate-ovate, acuminate ..... Jacquemontia

7. Plants erect or prostrate, rarely twining; leaves not as above ..... Convolvulus

6. Stigma globose ..... Merremia

Rivea Choisy.

Rivea hypocrateriformis Choisy, in Mem. Soc. Phys. Geneve 6: 408, 1833; FBI. 4: 184; C. 2: 323; Talb. 2: 282, f. 427; G. 635; Fl. Mel. 232.

A large climber with terete stem. Leaves orbicular, obtuse, cordate, slightly hairy above, appressed silky beneath with a pair of purplish glands at the base of lamina. Flowers white or muddy white, axillary, solitary, pleasantly scented, peduncles sometimes 2 or more flowered. Stigma linear oblong. Fruit globose, glabrous. (Fl. Fr. August - December).

Local name : Phan, Phani.

PPB. 873.

Commonly noted as a climber on hedges and small trees.

Gujarat, Maharashtra, W. Peninsula, Bihar and Assam.

Pakistan.

Argyreia Lour.

Argyreia nervosa (Burm. f.) Boj. Hort. Maurit. 224, 1837; Sant. 171; Oostr. in Fl. Males Ser. I, 4(4): 499, 1953; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

A. speciosa Sweet, Hort. Brit. 289, 1827; FBI. 4: 185; C. 2: 324.

A large climber with white, hairy. stem. Leaves large, ovate, green above and white-velvery below. Flowers rosy-purple in sub-capitate cymes. Capsule apiculate, glabrous. (Fl. Fr. August - November).

Local name : Samudra sosh.

PPB. 1322.

Noted in some private and public gardens at Valsad, Umrat and Nargol.

A native of India, often cultivated.

Java, China, Mauritius and other tropical countries.

Ipomoea Linn.

1. Corolla tubular or salver-shaped; stems muricate, peduncle thickened below the fruit ..... muricata

1. Corolla companulate or infundibuliform;
   stems and peduncle not as above :

   2. Plants floating or amphibious ..... aquatica

   2. Plants terrestrial :

      3. Large erect or ascending shrub;
         stems hollow ..... fistulosa

      3. Twiners, climbers or trailers;
         stems not hollow :

         4. Leaves entire (rarely lobed
            (I. arachosperma) :

            5. Flowers in sessile or sub-sessile
               axillary heads :

               6. Flowers pink; capsule hairy.... eriocarpa

               6. Flowers white;capsule glabrous..sindica

            5. Flowers in pedunculate, 1-few-
               flowered cymes :

               7. Leaves silvery-white,
                  woolly beneath .....dichroa

               7. Leaves not as above :

                  8. Flowers whitish-yellow with
                     purple centre; sepals acute.. obscura

8. Flowers white or pale purple, without purple centre; sepals obtuse ..... sepiaria

4. Leaves lobed or compound :

9. Prostrate (rarely twining) herbs :

10. Leaves deeply 2-lobed; corolla rose-purple ..... pes-caprae

10. Leaves digitate, lobes pinnately divided, corolla white ..... coptica

9. Twining herbs :

11. Flowers in many-flowered, pedunculate heads ..... pes-tigridis

11. Flowers in lax, 1-3-flowered cymes :

12. Leaves 3-lobed; sepals with long ligulate tips ..... nil

12. Leaves 5-lobed or rarely palmately compound; sepals without ligulate tips .....cairica

Ipomoea muricata (Linn.) Jacq. Hort. Schoenbr. 3: 40, t. 323, 1898 (non cav. 1799); FBI. 4: 197; Oostr. in Blumea 3: 351, 1940; and in Fl. Males. Ser. I, 4(4):

481, 1953; Santapau, in JBNHS. 47: 349, 1947.

Convolvulus muricatus Linn. Mant. 44, 1767.

Calonyction muricatum G. Don, Gen. Syst. 4: 264, 1837; C. 2: 322; G. 920.

A climbing shrub with muricate stems. Leaves ovate, deeply cordate with long petiole, acuminate, entire. Flowers large, showy, rose-purple, in axillary, 1-5-flowered cymes; pedicels greatly thickened below the fruit. Capsule globose, apiculate, usually 4-seeded; seeds glabrous. (Fl. Fr. August - November).

PPB. 1016.

Fairly common; noted on hedges as a climber.

Local uses : Pedicels used as vegetables.

Himalayas extending from Kangra to Sikkim, Deccan hills and Plains; throughout India.

Ceylon, Japan. An American plant now widely distributed in the tropics of the Old World.

Ipomoea aquatica Forsk. Fl. Aeg.-Arab. 44, 1775; FBI. 4: 210; C. 2: 315; Santapau, in JBNHS. 47: 346, 1947; Oostr. in Fl. Males Ser. I, 4(4): 473, f. 47- 8, 1953; Chavan & Padate, in Ind. For. 86(4): 214, 1960 and JMSU. 11(3): 63-78, 1962.

Convolvulus repens Vahl, Symb. 1: 17, 1790 (non Linn.).

Ipomoea reptans Poir in Lamk. Encycl. Suppl. 3: 460, 1814; Gr. 130; D. & G. 164.

A trailing, aquatic herb,usually floating on the water surface, sometimes occupies the muddy banks of ponds, rooting at the nodes. Leaves elliptic, ovate-oblong, cordate-hastate, glabrous, acute. Flowers purple-pink, in 1-few-flowered peduncles. Capsule ovoid, glabrous. (Fl. Fr. November - February).

Local name : Nali, Nalni Bhaji.

PPB. 355.

Frequent water plant in pools in the hinter land at Cambay, Chokari, Dhuvaran.

Throughout India.

Tropical America, Trop. Africa, Trop. Asia and North Australia.

Ipomoea fistulosa Mart. ex Choisy, in DC. Prodr. 9: 349, 1845; Shah, in Journ. Univ. Bom. 30 (3 & 5): 36, 1962; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

I. carnea Auct. non Jacq. 1760; C. 2: 321; Bor & Raizada, 6, f. 3; Fl. Dang, 63.

A large, erect or ascending shrub with milky juice and

fistular stems. Leaves large, ovate, cordate, acuminate. Flowers large, pink, in lax, dichotomous, axillary or terminal dichotomous cymes. Capsule ovoid. Seeds black, sericeo-villose. (Fl. October - January).

PPB. 963.

In moist areas, in the hinter land.

Native of America, from Mexico, Florida and the West Indies, South as far as Brazil and Paraguay, but now commonly cultivated in the Plains.

Ipomoea eriocarpa R. Br. Prodr. 484, 1810; FBI. 4: 204; C. 2: 312; Oostr. in Fl. Males I, 4(4): 462, t. 35, 1953; Verdc. in Fl. Trop. E. Afr. 91: 1963.

A slender, twining or prostrate, villous annual. Leaves ovate-lanceolate, with cordate base, and acute to acuminate apex. Flowers pink, axillary, on short peduncles. Capsule globose, hairy; seeds glabrous. (Fl. Fr. August - November).

PPB. 559, 920.

Observed on hedges and often seen twining round tall grasses.

Throughout India.

Ceylon, Afghanistan, tropics of the Old World, N. Australia.

Ipomoea sindica Stapf, in Kew Bull. 346, 1894; C. 2: 313; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

A slender, hispid, twining herb, usually twining round itself. Leaves triangular to oblong-hastate, acute. Flowers small, white, solitary or in few-flowered, axillary, sessile heads. Bracts and sepals hispid. Capsule globose, glabrous. (Fl. Fr. August - December).

PPB. 286, 919.

Observed in hedges throughout the area.

In drier regions of North a West and West India.

Pakistan.

Ipomoea dichroa (Roem. et Schult.) Choisy, in DC. Prodr. 9: 364; 1845; Santapau et Patel, in Trans. Bose Res. Inst. Cal. 22: 38, 1958; Bhandari, 254.

Convolvulus dichrous Roem. et Schult. Syst. 4: 263,1819.

Ipomoea arachnosperma Welw. Apont. Phyto-geogr.588,1858.

I. pilosa Sweet, Hort. Brit. (ed. 2): 372, 1830; FBI. 4: 213; C. 2: 313 (non Houtt. 1777, nec. cav. 1791-1801).

An annual, twiner with long, spreading hairs. Leaves broadly ovate, cordate, silvery white, woolly beneath. Flowers pink or rose-purple, in lax cymes; calyx densely hairy. Capsule sub-globose, hairy towards the apex.

(Fl. Fr. August - December).

PPB. 323.

Commonly seen in the hedges throughout the area.

Gujarat, Punjab, Bengal, W. Himalayas; throughout most of the tropical India.

Tropical Africa, Pakistan.

Ipomoea obscura (Linn. f.) Ker-Gawl. Bot. Reg. 3, t. 239, 1817; FBI. 4: 209; C. 2: 318; Oostr. in Fl. Males Ser. I, 4(4): 471, f. 44, 1953; Verdc. in Fl. Trop. E. Afr. 116, 1963; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Convolvulus obscurus Linn. Sp. Pl. (ed. 2): 220, 1762.

A slender, twining, glabrous or sometimes slightly villous, annual herb. Leaves ovate-cordate, entire, with cordate base and rounded lobes. Flowers white, small, axillary, solitary or a few in dichasial cymes. Capsule globose or ovoid. (Fl. Fr. September - February).

Local name : Bhamri.

PPB. 507.

Commonly seen in the hedges throughout the area in association with Luffa acutangula, Rhyncosia minima.

Gujarat, Maharashtra, throughout India.

Ceylon, Malaya, China, Tropical Africa to South Africa.

Ipomoea sepiaria Koening ex Roxb. Hort. Beng. 14, 1814 nom. nud. & Fl. Ind. 2: 90, 1824; FBI. 4: 209; C. 2: 315; Verdc. in KB. 15(1): 7-8, 1961 & in Fl. Trop. E. Afr. 117, 1963; Raizada, in Ind. For. 92(5): 314, 1966; Wt. Icon. t. 838.

A perennial, prostrate or twining herb. Leaves entire, ovate, acute, with broad sinus and rounded lobes. Flowers white, bluish-purple or pale purple, in sub-umbellate, axillary, pedunculate cymes. Capsule ovoid; seeds grey, minutely hairy. (Fl. Fr. August - April).

PPB. 962.

Observed as a climber on hedges of Lawsonia and Euphorbia throughout the area.

Gujarat, Maharashtra, Karnatak; throughout India.

Ceylon, Malaya, Indochina.

Ipomoea pes-caprae Sweet, Hort. Suburb. : 35, 1818; Gr. 130; Aitch. Pb. & Sind. Pl.: 99; Rao et al., Bull. Bot. Surv. India 8(1): 65, 1966.

I. biloba Forsk. Fl. Aeg.-Arab. : 44, 1775; C. 2: 318.

Convolvulus pes-caprae Linn. Sp. Pl. 159, 1753.

Glabrous plant with latex. Stems from a thick, woody base, long-trailing and rooting at the nodes. Leaves broadly cordate or orbicular, often with bilobed tip. Flowers purple, 1-6 in long-peduncled umbels. (Fl. More or less throughout the year).

PPB. 730.

Common throughout the coastal area, on sandy shores, where it serves to bind the sand.

Sea-shores of both hemispheres throughout the tropics.

Ipomoea coptica (Linn.) Roth, apud. Roem. and Schult. Syst. 4: 208, 1819; Constr. in Blumea 3: 544, 1940; Santapau, in JBNHS. 47: 347, 1947;

Convolvulus copticus Linn. Mant. 2, append. 559, 1771.

Ipomoea dissecta Willd. Phyto-geogr. 5, t. 2, 1794; FBI. 4: 200; C. 2: 318.

A slender, glabrous, prostrate or twining annual herb. Leaves digitately lobed, lobes 3-7, deeply serrate. Small leaves of young axillary shoot, pseudostipules, present at the base. Flowers white, axillary, 1-3-flowered pedunculate cymes. Sepals oblong-lanceolate, with small protuberances on its outer surface. Capsule glabrous, globose, with persistent calyx; seeds densely greyish tomentose. (Fl. Fr. September - November).

PPB. 872.

Found in fallow and cultivated fields on moist, shady situations, often twining amongst the grasses.

Some parts of Western India.

Tropical and South Africa, Trop. Asia and N.Australia.

Ipomoea pes-tigridis Linn. Sp. Pl. 162, 1753; FBI. 4: 204; C. 2: 320; Wt. Icon. t. 856; Santapau, in JBNHS. 47: 348, 1949; Oostr. loc. cit. 504 & Fl. Males Ser. I, 4(4): 4, f. 40, 1953; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

I. hepatifolia Linn. L. C. 161.

I. pestigridis var. hepaticifolia Clarke, in FBI. 4: 204, 1883.

A large, twining, hairy herb. Leaves usually 3-5-lobed, hairy on both the surfaces. Flowers white or whitish-pink, in many-flowered pedunculate heads, surrounded by large ovate-oblong bracts; bracts and sepals hairy. Capsule globose, glabrous, papery, concealed in the hairy calyx and bracts. (Fl. Fr. August - December).

Local name : Vaghpadini Vel.

PPB. 874.

Common and abundant during the monsoon, throughout the area.

More or less throughout India.

Ceylon, Malaya, Polynesia, Trop. Africa.

Ipomoea nil (Linn.) Roth, Cat. Bot. 1: 36, 1797; Oostr. loc. cit. 497; Santapau, in JBNHS. 47: 348, 1947; Sant. 170; Verdc. in Fl. Trop. E. Afr. 113, 1963; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

Convolvulus nil Linn. Sp. Pl. 219, 1762.

Ipomoea hederacea Clarke, in FBI. 4: 199, 1883; C. 2: 321 (et al. Plur. auct. non Jacq.).

A large twiner with retrosely hairy stems. Leaves ovate-cordate, generally 3-lobed. Flowers large, very showy, blue or purple with white bonds at the back, closing before noon. Capsule sub-globose, glabrous. (Fl. Fr. September - November).

PPB. 506, 921.

Observed as a climber on hedges.

Cultivated or run wild in many parts in India.

Tropical and Sub-tropical regions of both the hemispheres.

Ipomoea cairica (Linn.) Sweet, Hort. Brit. 287, 1827; G. 918 (excl. syn. I. Pulchella Roth); Santapau, in JBNHS. 47: 348, 1947; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69.

Convolvulus cairicus Linn. Syst. (ed. 10) 922, 1759.

Ipomoea palmata Forsk. Fl. Aeg.-Arab. 43, 1775; FBI. 4: 214; C. 2: 319.

I. pulchella Wight, Icon. t. 156, 1839. (non Roth).

A large, perennial twiner. Leaves deeply palmately lobed; lobes lanceolate or elliptic. Flowers large, showy, purple, in 1-3-flowered pedunculate cymes. (Fl. All throughout the year).

PPB. 963.

Very common all along the coast, in private enclosures.

Cultivated throughout India and most of the tropical countries of the world.

Cressa Linn.

Cressa cretica Linn. Sp. Pl. 223, 1953; FBI. 4: 225; C. 2: 296; Chavan & Padate, in Ind. For. 86(4): 214, 1960; Rao and Aggarwal, loc. cit. 22.

C. indica Retz. Obs. 4: 24, 1786; Gr. 133.

A small, much-branched, erect or diffuse hairy herb. Leaves small, sub-sessile, ovate, acute, greyish green, densely silky hairy. Flowers white or pinkish-white, in small clusters, in the axils of upper leaves. Stamens exserted. Capsule ovoid, 4-seeded. (Fl. Fr. April - July).

Local name : Khari, Padiyo.

PPB. 517.

In gregarious patches on Saline, flat areas.

Throughout India.

Ceylon and all warm regions.

Evolvulus Linn.

Leaves orbicular, corolla white ..... nummularius

Leaves elliptical, corolla bright blue ..... alsinoides

Evolvulus nummularius (Linn.) Linn. Sp. Pl. 391, 1762; Hall. f.in Engler, Bot. Jahrd. 18: 85, 1894; Van Ooststroom, in Mon. Gen. Evolv. 114, 1934; Santapau, in JBNHS. 47: 341.

Convolvulus nummularius Linn. Sp. Pl. 157, 1753.

Evolvulus alsinoides Jackson, in Ind. Kew 1: 940, 1893 (non Linn.).

A small, perennial, prostrate herb rooting at the nodes.

Leaves distichous, shortly petioled, broad ovate, oblong to orbicular, rounded or emarginate at the apex. Flowers white, solitary or 2 in the axil. Capsule glabular, 4 or less seeded. (Fl. Fr. September - October).

PPB. 770.

Rare; found in association with grasses. The plant resembles very much like Merremia but for the colour of flowers.

A native of Mexico and now widely distributed in many parts of West Indies, Trop. Africa and Madagascar.

In India, it has been reported from Bombay, Bihar, Upper Gangetic Plain, Bengal and Assam.

Evolvulus alsinoides Linn. Sp. Pl. 392, 1762; FBI. 4: 220; C. 2: 296; Santapau, loc. cit. 340; Sant. 168; Verdc. in Fl. Trop. E. Afr. 18, 1963; Chavan & Padate, in Ind. For. 86(4): 214, 1960; Rao and Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

Convolvulus alsinoides Linn. Sp. Pl. 157, 1753.

Evolvulus hirsutus Lamk. Gr. 133; D. & G. 162.

A spreading, much-branched, hairy, annual herb with slender branches. Leaves linear-ovate, distichous, clothed with white appressed hairs. Flowers bright blue, sometimes white, solitary or in pairs on axillary peduncles. Capsule

thin, 2-4-valved; 4-seeded, seeds irregular, glabrous, very dark brown. (Fl.Fr. July - November).

Local name : Bhuri Sankhavali.

PPB. 398.

Common throughout on moist or dry, sandy soils.

Throughout India and Ceylon.

Tropical and Sub-tropical areas of the globe.

Jacquemontia Choisy

Jacquemontia paniculata (Burm. f.) Hall, f. in Engler, Bot. Jahrb. 16: 541, 1893; C. 2: 303; G. 926; Sant. 343; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Ipomoea paniculata Burm. f. Fl. Ind. 50, t. 21, f.3,1768.

Convolvulus parviflorus Vahl, Symb. 3: 29, 1794; FBI. 4: 220 (non Dalz. nec Desr.).

A herbaceous twiner, with terete, slender, stems. Leaves ovate or cordate, acuminate, glabrous or shortly pilose. Flowers white, in a loose to very dense few- to many-flowered umbelliform cyme. Capsule globose. (Fl. Fr. September - January).

PPB. 1236.

Fairly common in the hedges throughout the area.

Gujarat, Maharashtra, Karnatak, Andhra, Madras.

Tropical East Africa, Madagascar, Ceylon, Malaysia, Tropical Australia and New Caledonia.

Convolvulus Linn.

Convolvulus microphyllus Sieb. ex Spreng, Syst. 1: 611, 1825; Wt. Icon. t. 1367; FBI. 4: 218; C. 2: 301; Heine, in Kew Bull. 16: 205, 1962; Padate, in JMSU. 17 & 18(3): 107, 1968 & 69; Rao & Aggarwal, loc. cit. 22.

C. oluricaulis Choisy, Mem. Soc. Phys. Geneve 6: 477, 1833 and in DC. Prodr. 9: 403; FBI. 4: 218, syn. nov.

A prostrate or sub-erect herb. Leaves linear-lanceolate, mucronate, hairy on both sides. Flowers pinkish-white, axillary, solitary or 2-3 in a group. Capsule oblong-globose, smooth, pale-brown. (Fl. Fr. August - October).

Local name : Sankhavali.

PPB. 732.

A prostrate herb spreading on sandy areas.

In the drier parts of W. & N. W. India.

Pakistan toEgypt and Nubia.

Merremia Dennst. ex Hallier f.

leaves simple :

Leaves reniform ..... gangetica

Leaves linear, oblong to ovate with
usually 3 toothed apex and dilated
at the base into toothed auricles.... tridentata

Leaves palmately compound :

Stems clothed with long, scattered
hairs; flowers white to pale-purple... aegyptia

Stems sparsely hairy; flowers
creamy yellow ..... quinquefolia

Merremia gangetica (Linn.) Cufodontis, in Bull. Jard. Bot. Etat. Brux. Suppl. 31: 743, 1961; Maheshwari, in BBSI. 5(2): 133, 1963; Raizada, in Ind. For. 92(5): 317,1966.

Convolvulus gangeticus Linn. Gent. Pl. II: 9, 1756; Amoen. Acad. IV: 306, 1759.

Merremia emarginata (Burm. f.) Hall. f. Bot. Jahrb. 16: 552, 1893; C. 2: 305; Oostr. loc. cit. 444; Fl. Pavagadh, 157.

Ipomoea reniformis Choisy, in Mem. Soc. Phys. Geneve 6: 446, 1833; FBI. 4: 206.

A much-branched, prostrate herb, often rooting at nodes. Leaves ovate-cordate, reniform, with crenate margin. Flowers yellow, in axillary, 2-3-flowered clusters. Capsule globose. (Fl. Fr. September - December).

Local name : Under kani.

PPB. 494.

Observed in wet and moist places along the coast.

Gujarat, Maharashtra, Karnatak, Andhra, Madras.

Trop. Africa, Trop. Asia, Ceylon, Malaysia.

Merremia tridentata (Linn.) Hall. f. in Engler, Bot. Jahrb. 16: 552, 1893; C. 2: 306; Oostr. loc. cit. 445; Verdc. loc. cit. 51, t. 14; Chavan and Padate, in Ind. For. 86(4): 214, 1960.

Convolvulus tridentatus Linn. Sp. Pl. 157, 1753.

Ipomoea tridentata Roth, in Roem. & Schult. Arch. Bot. 1(3): 38, 1798; FBI. 4: 205; D. & G. 165.

A slender, prostrate, perennial herb with a woody root stock. Leaves linear-oblong, often deeply emarginate, and 3-toothed at the apex and dilated at the base into pointed auricles. Flowers yellow, solitary, axillary, on slender peduncles. Capsule globose, glabrous. (Fl. Fr. August - October).

PPB. 607.

Frequent all along the coast.

Tropical Asia from Bengal to Madhya Pradesh, Southwards to S. India.

Tropical Africa, Mascarene Islands, Australia, Ceylon, Malay Peninsula and Malay Archipelago.

Merremia aegyptia (Linn.) Urb. Symb. Antill. 4: 505, 1910; Oostr. in Fl. Males. Ser. I, 4(4): 448, 1953; Santapau, in JBNHS. 47: 345, 1947.

Ipomoea aegyptia Linn. Sp. Pl. 162, 1753.

I. pentaphylla Jacq. Collect. 2: 297, 1788; FBI. 4: 202.

Merremia pentaphylla Hall. f. in Engler, Bot. Johrb. 16: 552, 1893; C. 2: 308.

A twining annual, clothed with long, spreading hairs. Leaves pentafoliolate; leaflets broadly lanceolate, acuminate, sub-sessile, clothed with thin, appressed hairs. Flowers white to pale-purple, in few-flowered, fulvous-hairy cymes; sepals large, clothed with brown hairs. Capsule papery, glabrous, ovoid, seeds shining. (Fl. Fr. August - October).

PPB. 780.

Common in hedges.

In the drier parts of the Western Peninsula.

Trop. America, Trop. Africa, Pacific Islands.

Merremia quinquefolia (Linn.) Hall. f. in Engler, Bot.

Jahrb. 16: 552, 1893; Ooststroom, in Fl. Males. I, 4(4): 446, f. 28, 1953; Shah, in Ind. For. 89(4): 289, 1963; Rao & Aggarwal, Bull. Bot. Surv. Ind. 6(2-4): 182, 1964.

Ipomoea quinquefolia Linn. Sp. Pl. 162, 1753.

Convolvulus quinquefolius Linn. Syst. (ed. 10) 923, 1759.

A twiner with sparsely hairy stem. Leaves alternate, petiolate, palmately compound; leaflets sessile or subsessile, oblong-lanceolate, acute, serrate or entire. Flowers creamy yellow. Capsule globose. (Fl. Fr. November).

PPB. 1321.

Noted on hedges.

Western India; Tropical America and Malay Archipelago; probably an escape from culture.

CUSCUTACEAE

Cuscuta Linn.

Style 1, short, stout; stigma thick and fleshy..... reflexa

Styles 2, distinct, slender; stigma capitate ..... chinensis

Cuscuta reflexa Roxb. Pl. Cor. 2: 3, t. 104, 1798; FBI. 4: 225; C. 2: 292; Santapau, in JBNHS. 47: 339, 1947; Santapau & Pate, in JBNHS. 54: 712, 1957.

A leafless, twining, yellow to yellowish-green, total stem-parasite. Flowers pale white, in short racemose clusters. Capsule globose. (Fl. Fr. December - April).

PPB. 1165.

Very common on hedges and small trees. Commonly observed on Streblus and Lantana.

Throughout India.

Afghanistan, Ceylon, Yunnan, China, Java.

Cuscuta chinensis Lamk. in Encycl. Method. 2: 229, 1786; FBI. 4: 226; Wt. Icon. t. 1373; C. 2: 293; Chavan & Sabnis, in Sci. & Cult. 25: 544, 1960; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

A leafless, twining, parasitic annual. Flowers white, in pedunculate cymes; styles 2, distinct. (Fl.Fr. September - November).

PPB. 1237.

Noted as a parasite on Triumfetta, Cassia and Xanthium.

Throughout the greater part of India.

Ceylon, Persia, Australia.

SOLANACEAE

1. Fruit a berry or atleast not capsular and not dehiscent :

2. Corolla plaited or the lobes valvate :

3. Stamens all fertile and not didymus, usually 5 :

4. Calyx inflated, greatly enlarged and enclosing the fruit :

5. Flowers solitary, yellowish, shortly pedicellate ..... Physalis

5. Flowers in clusters, greenish or yellow, almost sessile ..... Withania

4. Calyx not inflated and not completely enclosing the fruit :

6. Anthers connivent round the style :

7. Anthers opening mostly by pores or slit at or near the apex ..... Solanum

7. Anthers opening longitudinally, the apex extended into an empty extremity ..... Lycopersicon

6. Anthers not connivent round the style ..... Capsicum

3. Stamens paired, the fifth much smaller or rudimentary ..... Petunia

2. Corolla lobes more or less imbricate ..... Lycium

1. Fruit capsular, mostly dehiscent or
at length splitting :

8. Capsule rounded, tubercled or spiny ..... Datura

8. Capsule ovoid, smooth ..... Nicotiana

Physalis Linn.

Corolla uniformly yellow without spots,
5-8 mm. long, the open flowers 4-8 mm. across,
anthers yellow ..... minima

Corolla pale-yellow with a few purple or brown
spots, 7-12 mm. long, 8-15 mm. across,
anthers greenish or greyish blue ..... longifolia

Physalis minima Linn. Sp. Pl. 183, 1753; FBI. 4: 238;
C. 2: 340; Santapau, in JBNHS. 47: 657, 1948; Sant.
174; Chavan & Padate, in Ind. For. 86(4): 214, 1960.

P. pubescence Wight Ill. f. 166 B. f. 6 (non Linn.).

An erect or sub-erect, 15-35 cms. high herb. Stems striate, more or less pubescent. Leaves ovate, acute, thin, base cuneate, shallowly toothed or lobed, pubescent. Flowers yellowish, solitary, axillary on short, deflexed pedicels. Berry completely covered by a bladdery calyx. (Fl. Fr. August - January).

Local name : Popati.

PPB. 701.

Common in coastal areas at Dumas, Tithal.

Local uses : Fruits eaten by the natives.

More or less throughout India.

A native of Tropical America; Ceylon, Tropical Africa, Australia.

Physalis longifolia Nutt. in Trans. Amer. Phil. Soc. 5: 93, 1837; Dunal in DC. Prodr. 13(1): 447, 1852; Santapau et al. in JBNHS. 58: 550-551, 1961.

Perennial herbs, erect, 90-120 cm. tall. Stems stout, dichotomously branched, hollow, deeply striate, finely pubescent in younger parts, glaberescent in older. Leaves oblong-ovate, irregularly serrate, decurrent. Flowers solitary, axillary or in the forks of the branches, erect or drooping. Calyx accrescent, purple veined. Corolla pale to lemon-yellow, with 5 purple or brownish spots on the inside at the base, campanulate. Stamens 5, anthers greenish or greyish blue. Berries subglobose, yellow or orange, enclosed in the persistent, accrescent calyx. (Fl. Fr. Nearly all throughout the year).

PPB. 793.

On mud flats along sea shore; not common.

Native in America, introduced and at present naturalised in the coastal parts of Bombay and Andhra.

Withania Paug. (nom. cons.)

Withania somnifera (Linn.) Dunal, in DC. Prodr. 13(1): 453, 1852; FBI. 4: 239; C. 2: 341; Sant. loc. cit. 657; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Physalis somnifera Linn. Sp. Pl. 182, 1753; Wt. Icon. t. 8553.

An erect, stout, branched, stellately hairy, undershrub. Leaves ovate, entire, oblique at base. Flowers greenish-yellow, in sessile or sub-sessile, axillary clusters. Berries globose, enclosed in an inflated calyx. (Fl. Fr. January - May).

Local name : Ghoda Aasun, Ashwagandha.

PPB. 484.

A common weed of waste lands.

Local name : Ghoda Aasun.

Throughout the drier parts of India.

Pakistan, Mediterranean regions, Canaries, Cape of Good Hope.

Solanum Linn.

1. Plants armed with prickles :

2. Prostrate or ascending herbs with long, straight prickles ..... surattense

2. Erect shrubs or undershrubs or herbs :

3. Leaves exceeding 5 cm. long ..... melongena

3. Leaves not exceeding 5 cm. long .... trilobatum

1. Plants unarmed :

4. Anthers minute, 1.3 to 1.4 mm. long; style less than 2 mm. long .....roxburghii

4. Anthers larger, 1.6 to 2.4 mm. long; style more than 2 mm. long :

5. Corolla lobes white, with median, purple stripe or stripes; style pubescent upto ¾ its length ..... purpureilineatum

5. Corolla lobes white, without median purple stripe or stripes; style pubescent upto ½ its length ..... nigrum

Solanum surattense Burm. f. Fl. Ind. 57, 1768 (excl. Syn. Pluk. & Raj.); Sant. 173; Rao and Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

Solanum xanthocarpum Schrad. & Wendl. Sert. 1: 8, t. 2, 1795; FBI. 4: 236; C. 2: 335; Santapau, loc. cit. 653;

Chavan & Padate, in Ind. For. 86(4): 214, 1960.

A prostrate or ascending, prickly, perennial undershrub. Prickles large, straight, yellow, shining. Leaves dark-green, ovate, elliptic, pinnately lobed. Flowers deep purple, in extra-axillary, few-flowered cymes; anther yellow, sub-sessile, elongated. Berries globose, yellow. (Fl. Fr. June - September).

Local name : Bhonya Ringni.

PPB. 400.

Common near waste places along the coast.

Local uses : Decoction prepared from the root is used to cure cough and fever.

Gujarat, Maharashtra, Karnatak, Punjab to Assam; throughout India.

Ceylon, Malay, S. E. Asia, Trop. Australia and Polynesia.

Solanum melongena Linn. Sp. Pl. 186, 1753; FBI. 4: 235; Merr. Enum. 3: 427; C. 2: 336; Padate, in JMSU. 17 & 18 (3): 108, 1968 & 69.

S. esculentum Dunal, Hist. Solan. 208, 1813.

An erect, diffuse undershrub with or without prickles. Leaves ovate, lobed, grey-tomentose. Flowers violet-purple or blue-purple in cymes. Berries rounded, oval or elongated,

light purple to violet, rarely white. (Fl. Fr. August - April).

Local name : Ringna.

PPB. 1238.

Cultivated in various parts of the area for the fruits; which are used as vegetable.

Cultivated almost throughout India and in the warmer regions of the globe. Native country uncertain.

Solanum trilobatum Linn. Sp. Pl. 188, 1753; Wt. Icon. t. 854; Gr. 138; D. & G. 175; FBI. 4: 236; C. 2: 337; Santapau, loc. cit. 654; Chavan & Padate, in Ind. For. 86(4): 214, 1960; Rao, Bull. Bot. Surv. India 13(3-4): 200,1971.

A trailing or sub-scandent undershrub with numerous hooked prickles. Leaves small, 3-5-lobed. Flowers showy, purple in extra-axillary racemose cymes; pedicels often prickly. Berry globose or sub-globose. (Fl. Fr. September - March).

PPB. 1060.

In sandy moist situations in the coastal areas at Hajira and Dumas.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, Western Peninsula.

Ceylon, Malay Peninsula.

Solanum roxburghii Dunal, in DC. Prodr. 13(1): 57, 1852; Heiser , Jr. et al. in American Naturalist 99(909): 472, 1965.

A decumbent, annual or not branched from the base. Leaves deltoid-ovate, truncate at the base, distantly toothed. Flowers in sub-umbellate racemose inflorescence consisting of 3-4 flowers. Berries globose, shining, becoming red or orange on maturity. (Fl. Fr. June - December).

PPB. 1239.

Common weed of waste lands and cultivated fields.

India : Savli, Chhotaudepur, Baroda District; Khedbrahma, Laxmipur, Khedbrahma District.

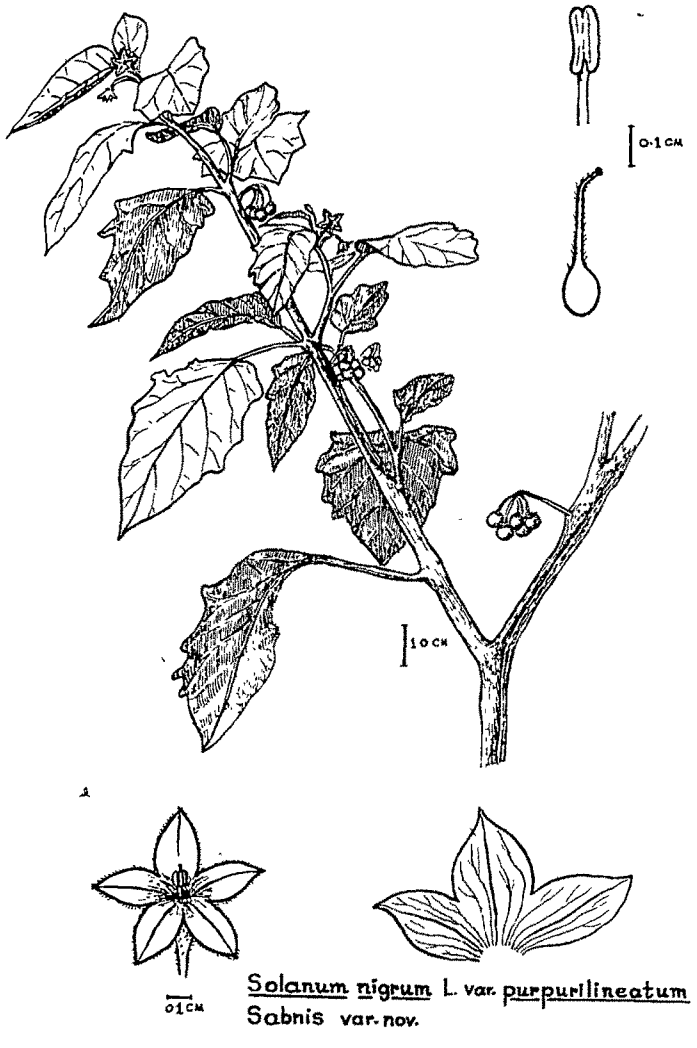
Solanum purpureilineatum Sabnis & Bhatt, Bull. Bot. Surv. India 12(1-4): 258, f. 1, 1970.

An erect or decumbent herb, sparingly branched from the base, without basal rosettes. Leaves ovate, truncate, merging into the petioles, irregularly dentate with 2-4 teeth on each side. Flowers white with a yellowish-green star, extra-axillary, few-flowered, pedunculate, corymbose cymes. Berries globose, shining, with persistent, reflexed calyx. (Fl. Fr. October - March).

PPB. 1240.

Noted as a weed; rare.

PLATE No. 27



Solanum nigrum L. var. purpurilineatum
Sabnis var. nov.

PLATE No. 27.

INDIA : Baroda, Savli, Hampheshwar, Kadipani, Baroda District; Danmahudi, Harad, Sabarkantha District; Padhara, Khedbrahma District.

Solanum nigrum Linn. Sp. Pl. 186, 1753; FBI. 4: 229; C. 2: 332; Santapau, in JBNHS. 47 : 652; Sant. 172; Fl. Dang,66.

S. rubrum Mill. Gard. Dict. n. 4, 1768; Wt. Icon. t. 344.

An erect, annual herb. Leaves glabrous, ovate, sinuate or lobed, dark green. Flowers white, with yellow or yellow-green central star; in sub-umbellate racemes; anthers more than 2 mm. long; style 3 to 3.5 mm. long, equalling the anthers, pubescent ½ its length. Berries globose, shining or dull green when young, becoming black at maturity; seeds 30-40 per berry. (Fl. Fr. August - January).

Local name : Piludi.

PPR. 376.

Noted as a weed in cultivated fields.

Local uses : Fruits are eaten by the natives.

Common throughout India.

Ceylon, all temperate and tropical regions of the world.

Lycopersicon Mill.

Lycopersicon esculentum Miller, Edward. E. Terrell. in Taxon 26(1): 129-148, 1977.

L. lycopersicum (Linn.) Airy Shaw, Willis Dict. (ed. 7): 398, 1966; Santapau & Janardhanan, 35; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Solanum lycopersicum Linn. Sp. Pl. 185, 1753.

Lycopersicon esculentum Mill. Gard. Dict. n. 2, 1768; FBI. 4: 237; C. 2: 345; Sant. 175; Fl. Dang, 65.

An erect, hairy, much variable herb with more or less glandular hairs on stems. Leaves interruptedly pinnate; leaflets irregularly toothed. Flowers yellow, decurved. Berries red when ripe, pulpy. (Fl. Fr. August - March).

Local name : Tameta.

PPB. 413.

Cultivated.

Local uses : Fruits used as vegetable.

Extensively cultivated throughout India.

A native of Trop. America, now cultivated and often runs wild in temperate and tropical parts of the world.

Capsicum Linn.

Capsicum annuum Linn. Sp. Pl. 188, 1753; Maheshwari, 248; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

A small, glabrous shrub. Leavee ovate, dark green, acute,

tapering at the base. Flowers white, drooping, solitary or in fascicles of 2-4. Berries longer than broad, red or yellow, pungent. (Fl. Fr. August - April).

Local name : Marcha.

PPB. 1241.

Commonly cultivated in a many parts of the area for its pungent fruits.

Widely cultivated in India.

Native of Tropical America.

Petunia Juss.

Petunia hybrida Hort. ex Vilm. Fl. Pl. Terre. 1: 615; Bailey, Cycl. Hort. 3: 2565, tt. 2880, 2881 and Man. Cult. Pl. 879.

An erect or decumbent annual. Leaves soft, simple, alternate or the upper opposite. Flowers large, white or in shades of pink to purple, on solitary, terminal or axillary peduncles. Capsule 2-celled; seeds small, many. (Fl. Fr. January - May).

PPB. 1242.

Cultivated in gardens for its beautiful flowers at Valsad, Nargol and Tithal. Usually infected by a root parasite Orobanche cernua var. nepalensis.

Cultivated for its flowers throughout India.

Lycium Linn.

Lycium barbarum Linn. Sp. Pl. 192, 1753; FBI. 4: 241; Boiss. Fl. Orient. 4: 289; Talb. Trees, Bomb. ed. 2: 254; Woodr. in JBNHS. 12: 173, 1898; Wt. Icon. t. 1403; C. 2: 342; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

An erect or bent, thorny, bushy shrub. Stems white. Branchlets ending in spines. Leaves variable in shape, linear-oblong or oblanceolate. Flowers white, solitary, funnel-shaped. Berries sub-globose, yellow or red. (Fl. Fr. October - March).

Local name : Chirchitta; Khatai.

PPB. 378.

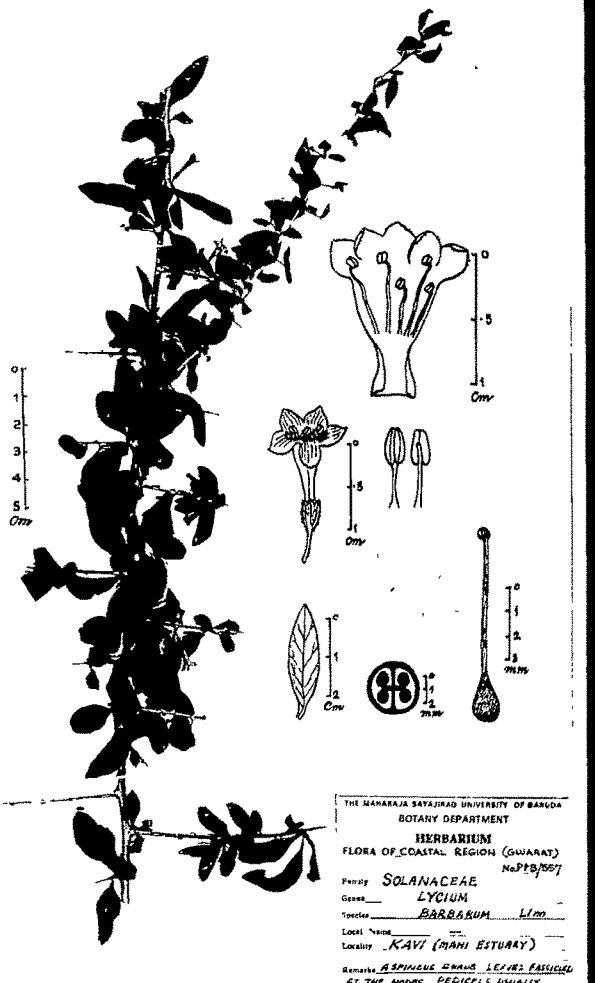
Lecside of sandy mounds at Cambay.

PLATE No. 2g

India (Punjab); Beluchistan, Afghanistan, Persia.

Datura Linn.

Datura metel Linn. Sp. Pl. 179, 1753; Santapau, loc. cit. 657; Sant. 174; Fl. Dang, 65; Rao and Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PTB/1567

Family SOLANACEAE
Genus LYCIUM
Species BARBARUM Linn
Local Name ---
Locality KAVI (MAHI ESTUARY)

Remarks A SPINOUS SHRUB LEAVES FASCICLED AT THE NODES, PEDICELS USUALLY SOLITARY. STAMENS 5, UNEQUAL, EPIPETALOUS, FILAMENTS GLABROUS AT BASE OVARY 2 CELLED OVULES FEW

Date 31-12-76

Collected by

PLATE No. 28.

D. fastuosa Linn. Syst. 2: 932, 1759; FBI. 4: 242; C. 2: 343; Wt. Icon. t. 1396.

D. alba Nees, in TLS. 17: 73, 1837; Wt. Ic. t. 852; D. & G. 174.

D. fastuosa var. alba Clarke, in FBI. 4: 243, 1883.

A tall, shrubby plant with purple stem. Leaves alternate, ovate, acute, oblique at the base, sinuate. Flowers large, solitary, axillary, white or dirty white. Capsule sub-globose, tuberculate or spiny with persistent reflexed calyx. (Fl. Fr. August - October).

Local name : Dhanturo.

PPB. 131.

A common weed of all coastal areas.

Very common throughout India.

Tropical Africa and Asia.

Nicotiana Linn.

Nicotiana tabacum Linn. Sp. Pl. 180, 1753; FBI. 4: 245; C. 2: 346; Santapau, loc. cit. 660; Sant. 176; Fl. Dang, 65; Padate, in JMSU. 17 & 18(3): 10 B, 1968 & 69.

An erect, viscid annual. Leaves large, oblong-lanceolate, sessile, acuminate, coarse. Flowers rose or reddish, pedicillate, in terminal panicles. Capsule ovate. (Fl.Fr.October-February).

Local name : Tamaku.

PPB. 571.

Cultivated at Chokari-Mahi estuary.

Extensively cultivated in many parts of India.

Believed to be a native of S. America.

SCROPHULARIACEAE

1. Leaves all alternate; corolla subrotate,yellow..Verbascum

1. Leaves all opposite or the lower only :

2. Plants aquatic or marshy :

3. Perfect stamens 4 :

4. Lower leaves pinnatifid or multifid...Limnophila

4. Lower leaves entire .....Bacopa

3. Perfect stamens 2 :

5. Flowers solitary, axillary .....Dopatrium

5. Flowers in axillary, lax racemes.....Veronia

2. Plants not aquatic or marshy :

6. Plants parasitic :

7. Leaves pinnatisect ..... Sopubia

7. Leaves entire :

8. Calyx tubular, entire ..... Striga

8. Calyx tubular but split on one side ..... Centranthera

6. Plants not parasitic :

9. Corolla spurred or saccate at the base in front ..... Kickxia

9. Corolla not spurred or saccate in front; capsule opening by valves :

10. Flowers yellow ..... Lindenbergia

10. Flowers never yellow :

11. Stamens 4, perfect, included ..... Stemodia

11. Stamens 2, perfect, the 2 lower staminodes ..... Lindernia

Verbascum Linn.

Verbascum chinense (Linn.) Santapau, Fl. Puran. 90, 1958; Sant. 177; Maheshwari, 249; Fl. Pavagadh, 163.

Scrophularia chinensis Linn. Mant. 2: 250, 1771.

Celsia coromandeliana Vahl, Symb. Bot. 3: 79, 1794; FBI. 4: 251; C. 2: 352; Wt. Icon. t. 1406.

An erect, pubescent, annual herb. Leaves radical and cauline; radical leaves lyrate; cauline ones smaller. Flowers yellow, almost regular, in simple or branched terminal racemes. Capsule sub-globose, pale brown, glabrous. (Fl. Fr. December - April).

Local name : Kalhar.

PPB. 142, 1097.

Commonly observed in moist situations on muddy banks of rivers and ponds, also noted as a weed in cultivated fields.

Throughout India.

Burma, Ceylon, Afghanistan, China, Java.

Limnophila R. Br.

Limnophila indica (Linn.) Druce, in Rep. Bot. Exch. Cl. Brit. Isles. 3: 420, 1914; Pennell, Scroph. West. Himal. 26, 1943; Chavan & Padate, in JMSU. 11(3): 108, 1962; Subramanyam, Aquat. Angios. 30, 1962.

Hottonia indica Linn. Syst. Nat. 919, 1759.

Limnophila gratioloides R. Br. Prodr. 442, 1810; FBI. 4: 271; C. 2: 362.

L. racemosa Benth. Scroph. Ind. 26, 1835; FBI. 4: 271; C. 2: 362.

A slender, emergent, aquatic herb. Upper leaves whorled or opposite, entire with serrate margins; lower leaves pinnately divided with narrow, filiform segments. Flowers. white to pinkish-purple, pedicellate, solitary, axillary or few-flowered terminal cymes. Capsule ovoid or sub-globose. (Fl. Fr. August - February).

- PPB. 1243.

Noted as an emergent or sub-merged hydrophyte in ponds and puddles. Common and locally abundant.

Throughout India in wet places.

Ceylon, Malayan Archipelago, Java, China, Australia, Trop. Africa.

Bacopa Aubl. (nom. cons.)

Bacopa monnieri (Linn.) Pennell, in Proc. Acad. Nat. Sc. Philad. 98: 94, 1946; Santapau, in JBNHS. 49: 30, 1950; Sant. 177; Fl. Dang, 66; Rao and Aggarwal, loc. cit. 38.

Lysimachia monnieri Linn. Cent. Pl. 2: 9, 1756.

Moniera cuneifolia Michaux, Fl. Bor. Amer. 2: 22, 1803 (Monnieria); C. 2: 356.

Herpestis monniera Benth. Scroph. Ind. 30, 1835; FBI. 4: 272; Gr. 144.

A prostrate, spreading, succulent herb rooting at nodes. Leaves obovate-oblong, obtuse, succulent, glabrous. Flowers axillary, solitary, pale blue-purple. Capsule ovoid or globose, glabrous; seeds striate. (Fl. Fr. August - March).

Local name : Bam, Janevari.

PPB. 200.

Very common in small patches in damp muddy soil.

Throughout India.

Ceylon, Burma and all warm countries.

Dopatrium Buch.-Ham.

Dopatrium junceum (Roxb.) Buch.-Ham. ex Benth. Scroph. Ind. 31, 1835; FBI. 4: 274; C. 2: 363; Merr. Enum. 3: 435; G. 954; Santapau, loc. cit. 35; Sant. 178; Subramanyam, Aquat. Angios. 31, 1962; Chavan & Padate, in JMSU. 11(3): 63-78, 1962 & Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Gratiola juncea Roxb. Pl. Cor. 2: 16, t. 129, 1798.

An annual, slender, glabrous marsh herb. Lower leaves elliptic, sessile; upper leaves small, scale like. Flowers pink-purple or pale-violet, on slender, axillary peduncles. Capsule globose, glabrous. (Fl. Fr. August - October).

PPB. 969.

A typical plant of extremely muddy or water-logged soil of rice fields and marshes. Very common.

Throughout India.

Ceylon, Malay Islands, China, Japan, Philippines, Australia.

Veronica Linn.

Veronica anagallis-aquatica Linn. Sp. Pl. 12, 1753; FBI. 4: 293; C. 2: 373; Fl. Raj. 99; Maheshwari, 255.

An erect, succulent, glabrous herb. Leaves sessile or the lowest petiolate, oblong-lanceolate or linear-oblong. Flowers pale-purple or white, in lax racemes; pedicels filiform; bracts linear-lanceolate. Capsule orbicular to oblong-orbicular, emarginate. (Fl. Fr. January - March).

PPB. 1244.

Noted growing on the moist sandy beds at Dahej and also along canals.

Gujarat, Rajasthan, Punjab, Kashmir, W. Bengal, Assam, W. Peninsula.

Europe, N. Asia, S. Africa, N. America.

Sopubia Buch.-Ham.

Sopubia delphinifolia (Roxb.) G. Don, Gen. Syst. 4: 560, 1837;

FBI. 4: 302; C. 2: 378; Gr. 145; G. 970; Santapau, loc. cit. 45; Sant. 184; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Gerardia delphinifolia (Roxb. Pl. Cor. 1: t. 90, 1795.

A much-branched, erect, annual, root parasite. Leaves pinnatisect, segments filiform. Flowers rose or purple, axillary, solitary or in few-flowered terminal racemes. Capsule oblong-ellipsoid. (Fl. Fr. July - October).

PPB. 858.

One of the commonest weeds, parasitizing the roots of a number of grasses.

Gujarat, Maharashtra, Karnatak, W. Peninsula, Bihar, Tamil Nadu.

Ceylon.

Striga Lour.

Flowers white; leaves linear, stems not purple :

Calyx 4-5-ribbed, 1-rib running to the apex of each calyx toothe ..... densiflora

Calyx 15-ribbed ..... angustifolia

Flowers purplish-pink; leaves scale-like; stems purple ..... gesneroides

Striga densiflora Benth. in Hook. Comp. Bot. Mag. 1: 363, 1835; FBI. 4: 299; D. & G. 181; C. 2: 375; G. 967.

Buchnera densiflora Benth. Scroph. Ind. 41, 1835.

An erect, scabrid, slender herb with sub-quadrangular harshly strigose stems. Leaves sessile, linear, acute. Flowers white, in slender spikes; bracts longer than the calyx. Capsule oblong-obovoid, rounded at the apex, included in the calyx. (Fl. Fr. August - October).

PPB. 987.

Noted as a weed in grasslands at Tithal.

More or less throughout India.

Striga angustifolia (Don) Saldanha, in BBSI. 5: 70, 1963; Sant. 184; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

Buchnera angustifolia Don, Prodr. Fl. Nep. 91, 1825.

B. euphrasioides Benth. Scroph. Ind. 41, 1835 (non Vahl 1794).

Striga euphrasioides Benth. in Hook. Comp. Bot. Mag. 1: 364, 1836 & in DC. Prodr. 10: 503, 1846; FBI. 4: 299; C. 2: 376; Santapau, loc. cit. 44.

An erect, sparisngly branched herb, much variable in height. Leaves linear, sessile, scabrid. Flowers white, conspicuous, in lax or interrupted, erect spikes; calyx 15-ribbed, scabrous, companulate. Capsule oblong-ellipsoid.

(Fl. Fr. July - December).

Local name : Dholo Aagiyo.

PPB. 785.

Frequent in grassy open situations along the coast.

Throughout India in the Plains.

Ceylon, Java.

Striga gesneroides (Willd.) Vatke, in Oest. Bot. Zeitschr. 25: 11, 1875; Sant. 182; Saldanha, in Bull. Bot. Surv. India 5: 68, 1963; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

Buchnera gesneroides Willd. Sp. Pl. 3: 338, 1800.

Striga orobanchioides Benth. in Hook. Comp. Bot. Mag. 1: 361, t. 19, 1836; FBI. 4: 299; C. 2: 374; G. 967.

A small, erect, total root-parasite with purple-coloured stems. Leaves scaly, ovate-oblong, acute, dark reddish-purple like the stems. Flowers pinkish-purple, sessile, in erect, terminal spikes. Capsule oblong-ellipsoid. (Fl. Fr. August - October).

Local name : Rato Aagiyo.

PPB. 1245.

Not common but locally abundant; observed growing on the

roots of Euphorbia sp. during monsoon.

Gujarat, Maharashtra, Karnatak, W. Peninsula.

Tropical Africa, Arabia, Ceylon.

Centranthera R. Br.

Centranthera indica (Linn.) Gamble, 971; Sant. 184.

Rhinanthus indica Linn. Sp. Pl. 603, 1753.

Centranthera hispida R. Br. Prodr. 438, 1810; FBI. 4: 301; C. 2: 381; Gr. 145; D. & G. 182.

C. nepalensis D. Don, Prodr. 88, 1825; Santapau, in RBSI. 16(1): 164, 1960; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

An erect, hispid annual. Leaves variable, linear-oblong or at times elliptic-oblong, obtuse or sub-acute, slightly curved on margins, hispid on both surfaces. Flowers large, deep-purple, in bracteate spikes. Capsule ovoid-oblong, grooved, slightly rugose, apiculate. (Fl. Fr. September - October).

PPB. 862.

Common in grasslands at Tithal.

Gujarat, Maharashtra, Karnatak; Madras, throughout India.

Ceylon, Java, China, Philippine Islands, Australia.

Kickxia Dumort.

Kickxia ramosissima (Wall.) Janchen, in Oest. Bot. Zeitschr. 82: 152, 1933; Santapau, loc. cit. 27; Rao and Shanware, Bull. Bot. Surv. India 9(1-4): 247, 1967.

Linaria ramosissima Wall. Pl. As. Rar. 2: 43, t. 153, 1831; FBI. 4: 251; C. 2: 353.

Elatinoides ramosissima (Wall. Wettst. in Pfam. 4 (36): 58, 1891.

A much-branched, slender, drooping herb. Leaves variable, ovate to triangular, hastate; petiole slender, at times coiled. Flowers yellow, axillary, solitary, spurred; pedicels filiform, taking an inverted U-shaped turn in fruit; corolla glabrous. Capsule ovoid or sub-globose. (Fl. Fr. August - May).

PPB. 457.

Commonly observed in moist localities.

Throughout India, on rocky and stony places.

Ceylon, Burma, Afghenistan.

Lindenbergia Lehm.

Lindenbergia muraria (Roxb.) P. Bruehl, in J. Dept. Sci. Calc. Univ. 2(Bot.): 27, 1920; Sant. 330.

Stemodia muraria Roxb. ex Don, Prodr. Fl. Nep. 89, 1825.

Lindenbergia urticaefolia Lehm. in Link. & Otto, Icon. Pl. Rar. Berol. 95, t. 48, 1831, pp. ; FBI. 4: 262; C. 2: 379; Rao and Shanware, loc. cit. 247.

L. indica (Linn.) Kuntze, Rev. Gen. 462, 1891; Santapau, loc. cit. 45; Chavan & Padate, in Ind. For. 86(4): 214, 1960.

An erect, glandular, hairy, annual herb. Leaves broadly ovate, cuneate, serrate. Flowers yellow, blotched with red, solitary axillary or at times 2 together; calyx densely villous. Capsule hairy, slightly longer than the calyx. (Fl. Fr. August - February).

PPB. 623.

A herb found in abundance along Mahi estuary.

Gujarat, Maharashtra, Karnatak, W. Peninsula, Himalayas, Punjab, Bihar, Bengal.

Pakistan (Sind), Afghanistan, Burma.

Stemodia Linn. (nom. cons.)

Stemodia viscosa Roxb. Pl. Cor. 2: 33, t. 163, 1798; FBI. 4: 265; C. 2: 359; G. 949; Wt. Icon. t. 1408; Santapau, loc. cit. 32; Sant. 178; Fl. Dang, 68; Fl. Pavagadh, 165.

A much-branched, viscidly hairy, erect or sub-erect herb.

Leaves sessile, oblong, serrulate. Flowers violet-purple, solitary, axillary or in terminal, few-flowered racemes. Capsule ovoid-oblong, acuminate, glabrous. (Fl. Fr. October - March).

PPB. 616.

Commonly observed as a weed in cultivated fields at Chokari, Kavi, Dumas.

Central, Western and Southern India.

Afghanistan, Burma.

Lindernia All.

1. Perfect stamens 4; capsule equalling or shorter than the calyx ..... crustacea

1. Perfect stamens 2; capsule longer than the calyx :

2. Leaves parallel nerved; staminodes bilobed..parviflora

2. Leaves penni-nerved; staminodes entire :

3. Leaves sharply, deeply and closely serrate; flowers in lax, terminal racemes, white or pinkish blue .....ciliata

3. Leaves shortly and distantly serrate; flowers in axillary racemes, purple violet .....oppositifolia

Lindernia crustacea (Linn.) F. Muell. Cens. Austr. Pl. 97, 1882; Mukerjee, in JIBS. 24: 130, 1945; Merr. Enum. 3: 437; Santapau, loc. cit. 37; Sant. 179.

Capraria crustacea Linn. Mant. 87, 1767.

Vandellia crustacea Benth. Scroph. Ind. 35, 1835; Wt. Icon. t. 863; FBI. 4: 279; C. 2: 366.

Annual, diffusely branched, glabrous or sparsely hairy herb. Leaves ovate, sub-acute, sub-sessile, serrate, opposite. Flowers purplish, axillary, solitary or in terminal racemes; perfect stamens 4; anthers divaricate. Capsule equalling or shorter than calyx. (Fl. Fr. August - October).

PPB. 968.

Commonly observed in moist soil.

Throughout India; Ceylon, Tropics of the Old World.

Lindernia parviflora (Roxb.) Haines, Bot. Bih. & Or. 635, 1922; Mukerjee, loc. cit. 132; Santapau, loc. cit. 38; Sant. 180; Fl. Dang, 67.

Gratiola parviflora Roxb. Pl. Cor. 3: 3, t. 203, 1811.

Illysanthes parviflora (Roxb.) Benth. in DC. Prodr. 10: 419, 1846; FBI. 4: 283; C. 2: 368.

A small, erect, glabrous, diffusely branched herb. Leaves ovate-lanceolate to elliptic, opposite, sessile, thin, obtuse.

Flowers white, in axillary and terminal racemes; staminodes bilobed. Capsules ovoid-oblong, exceeding the calyx. (Fl. Fr. August - January).

PPB. 57.

Observed in moist places.

More or less throughout India; Siam; Tropical Africa.

Lindernia ciliata (Colsm.) Pennell, in J. Arn. Arb. 24: 253, 1943; Mukerjee, loc. cit. 133; Santapau, loc. cit. 39; Sant. 180.

Gratiola ciliata Colsm. Prodr. Descr. Grat. 14, 1793.

Bonnaya brachiata Link. & Otto, Ic. Pl. Ser. 2: 25, t. 11, 1820; Gr. 143; D. & G. 178; FBI. 4: 418; Cr. 2: 369.

A small, erect, diffusely branched, annual herb. Leaves glabrous, sessile, elliptic-oblong, deeply and closely serrate, obtuse. Flowers white-pinkish blue, in lax racemes. Capsule narrowly oblong, acute longer than the calyx. (Fl. Fr. August - October).

PPB. 966.

Commonly noted in moist situations.

Throughout India.

Malacca, Ceylon, Java, China, Philippines.

Lindernia oppositifolia (Retz.) Mukerjee, loc. cit. 134; Santapau, loc. cit. 40.

Gratiola oppositifolia Retz. Obs. 4: 8, 1786.

Bonnaya oppositifolia Spr. Syst. 1: 41, 1825; FBI. 4: 286; C. 2: 370.

Small, erect, much-branched, glabrous, annual herb with square branches. Leaves linear-oblong, sessile, obtuse, shallowly and distantly serrate. Flowers pinkish-violet, in terminal and axillary racemes. Capsule glabrous, narrowly oblong, longer than the calyx. (Fl. Fr. August - October).

PPB. 967.

Commonly observed in moist soil, along canals and ditches during monsoon.

Endemic to the W. Peninsular India.

OROBANCHACEAE

Orobanche Linn.

Orobanche cernua Loefl. var. nepalensis DC. Prodr. 11: 33, 1847; Graham, in Fl. Trop. E. Afr. (Orobanchaceae) 6; Santapau & Wagh, in Bull. Bot. Surv. India 5: 107, 1963; Fl. Pavagadh, 169.

O. nicotianae Wight, Ill. 2: 179, t. 158, 1850; FBI.4:326.

O. cernua Loefl. var. desertorum G. Beck. Biblioth. Bot. 19: 142, t. 33(1), 1890; C. 2: 387.

An erect, pale-brown, root parasite. Leaves scaly, ovate-lanceolate. Flowers dirty white with bent tube, in an elongated spike. Bracts ovate, acuminate. Capsule ellipsoid, scarcely exceeding the calyx. (Fl. Fr. December - February).

Local name : Vakumbo.

PPB. 646, 1110.

A total parasitic weed; more commonly observed on the roots of Nicotiana tabacum. at Chokari.

W. Himalaya, Kashmir, Punjab.

N. Africa, Spain, Extra-tropical Australia, Nepal, W. Tibet.

BIGNONIACEAE

Erect trees or shrubs :

Flowers bright yellow ..... Tecoma

Flowers not as above ..... Millingtonia

Tendril climbers; stamens slightly exserted; corolla cylindrical ..... Pyrostegia

Tecoma Juss. emend. H. B. & K.

Tecoma stans (Linn.) H.B. & K. Nov. Gen. & Sp. 3: 144, 1818; Sant. 192; Bor & Raizada, 37, f. 28, Pl. 9, 10; Maheshwari, 258; Fl. Raj. 101.

Bignonia stans Linn. Sp. Pl. 871, 1753.

Stenolobium stans Seem. in Journ. Bot. 1: 88, 1863; C.2:410.

A large shrub. Leaves imparipinnate; leaflets 5-11, ovate or oblong-lanceolate, acuminate, serrate. Flowers bright yellow, showy, in terminal panicles. Capsule linear, brown; seeds thin, winged. (Fl. Fr. Almost throughout the year; flowers profusely during monsoon).

PPS. 1246.

Commonly cultivated in gardens at Tithal, Valsad and Nargol.

Common in gardens in the Plains throughout India.

Native of Trop. America.

Millingtonia Linn. f.

Millingtonia hortensis Linn. f. Suppl. 291, 1781; FBI. 4: 377; C. 2: 409; Steenis, Malay. Bignon. 826; Blatt. & Mill. Beaut. Ind. Trees, 106, t. 22; Maheshwari, 259; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

An erect, handsome, tall tree with corky bark. Leaves 2 to 3-pinnate, dark green; leaflets ovate or ovate-lanceolate, acuminate. Flowers white, fragrant, long, in terminal panicles. (Fl. Fr. September - January).

Local name : Buchnu zad, Akash Neem.

PPB. 1247.

Cultivated at Tithal, Umrat and Nargol.

Cultivated throughout India and naturalized in Orissa, Madras, etc.

Indigenous to parts of Burma and Malay Archipelago.

Pyrostegia Presl.

Pyrostegia ignea Presl., Bot. Bemerk. 93, 1844; C. 2: 410; Bailey, loc. cit. 903.

P. venusta (Ker-Gawl.) Miers. in Proc. Roy. Hort. Soc. 3: 188, 1863; Maheshwari, 260.

Bignonia venusta Ker-Gaml. in Bot. Reg. 3: t. 249, 1818.

An evergreen, climbing shrub. Leaflets ovate-oblong, abruptly acuminate. Tendril 3-partite. Flowers orange-red. coloured in pendulous cerymbs; stamens slightly exserted. (Fl. Fr. November - April).

PPB. 1323, 1326.

An ornamental climber, commonly grown in gardens at Tithal, Dumas and Hajira along the coast.

Indigenous to Brazil, but now a very common garden plant in all tropical countries.

PEDALIACEAE

Fruit a drupe, 4-spinous ..... Pedalium

Fruit a capsule, spineless ..... Sesamum

Pedalium Linn.

Pedalium murex Linn. Syst. 1123, 1759; FBI. 4: 386; Wt. Icon. t. 1615; C. 2: 412; Haines, 2: 661; Fl. Raj. 101; Chavan & Pedate, in Ind. For. 86(4): 214, 1960; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

An erect, hairy, branched, annual herb or an undershrub. Leaves ovate-oblong, lower ones often lobed. Flowers yellowish, axillary, solitary. Fruit drupaceous, 2-celled, bluntly 4-angled, 4-spinous, narrowed at the base and pyramidal, ovoid above the spines. (Fl. Fr. August - October).

Local name : Mota Gokhru.

PPB. 722, 899.

Common on sandy shores.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, throughout India.

Tropical Africa, Ceylon.

Sesamum Linn.

Sesamum indicum Linn. Sp. Pl. 634, 1753; FBI. 4: 387; C. 2: 413; Sant. 193; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69; Rao and Aggarwal, loc. cit. 22.

S. orientale Linn. Sp. Pl. 634, 1753; Gr. 126; Merr. Enum. 3: 448.

An erect, hairy, annual herb. Leaves lanceolate, entire, lower leaves deeply divided. Flowers pale-pink, axillary, solitary with conspicuous, vesicular glands at base. Capsule erect, bluntly quadrangular, valvular; seeds obovoid-oblong, slightly compressed, black or white. (Fl. Fr. August - November).

Local name : Tal.

PPB. 410.

cultivated in fields in Mahi estuary at Chokari.

Local uses : Oil from the seeds is used very commonly for cooking.

Largely cultivated throughout India.

Probably a native of Tropical Africa.

MARTYNIACEAE

Martynia Linn.

Martynia annua Linn. Sp. Pl. 618, 1753; Maheshwari, 263; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

M. diandra Glox. Obs. Bot. 14, t. 1, 1785; Gr. 127; D. & G. Suppl. 58; C. 2: 414; Haines, 2: 662.

A tall, sturdy, glandular-hairy undershrub with fistular stem. Leaves large, opposite, sticky. Flowers rose-coloured with a purple throat, in lax, terminal, glandular, sticky racemes. Fruit a woody capsule with 2 prominent, curved hooks. (Fl. Fr. September - November).

Local name : Vinchhudo - Akdo.

PPB. 1324, 1325.

Very commonly observed on rubbish heaps near habitations along the coast.

Common throughout India.

Native of Mexico and has become a part of the natural flora.

ACANTHACEAE

(Key to the genera of the Acanthaceae adapted from Cooke and Santapau).

1. Leaves radical; flowers scapigerous ..... Elytraria

1. Leaves cauline; flowers not scapigerous :

   2. Corolla without an upper-lip; lower lip large, expanded, 3-lobed :

      3. Lower filaments with an excurrent process...Blepharis

      3. Lower filaments without an excurrent process ..... Acanthus

   2. Corolla 2-lipped or with 5 subequal lobes :

      4. Corolla lobes twisted in bud :

         5. Corolla distinctly 2-lipped ..... Hygrophila

         5. Corolla subequally 5-lobed :

            6. Inflorescence a more or less elongated simple spike provided with but one kind of bracts .....Hemigraphis

            6. Inflorescence not as above :

               7. Inflorescence in lax, ai axillary cymes; cymes at times forming panicles ..... Ruellia

               7. Inflorescence, a single, axillary flower or in axillary triads, or 2-3 flowers superposed .....Dipteracanthus

4. Corolla lobes imbricate in bud :

8. Ovules 2 or rarely 1 in each cell :

9. Corolla not distinctly 2-lipped...Barleria

9. Corolla distinctly 2-lipped :

10. Stamens 4, didynamous .....Lepidagathis

10. Stamens 2 :

11. Flowers in spikes :

12. Bracts with scarious margins, 2 or 4 rowed; if 4 rowed dimorphic...Rungia

12. Bracts in cylindric or 4-farious spikes homomorphic :

13. Herbs; anther cells, at least the lower with a basal, spur-like appendage ..... Justicia

13. Shrubs; anther cells apiculate, not spurred at the base .....Adhatoda

11. Flowers in 1-few-flowered cymes :

14. Flowers in axillary clusters; bracts oblong-ovate,

cuspidate ..... Dicliptera

14. Flowers in trichotomous cymes or lax, panicles; bracts linear, acute or mucronate ..... Peristrophe

8. Ovules 3 or more in each cell ..... Indonessiella

Elytraria Michaux (nom. cons.)

Elytraria acaulis (Linn. f.) Lindau, in Pfam. 1: 304, 1897; Santapau, in Bot. Mem. Univ. Bomb. 2: 11, 1951; Rao and Shanware, Bull. Bot. Surv. India 9(1-4): 86, 1967.

Justicia acaulis Linn. f. Suppl. 84, 1781; Roxb. Pl. Cor. 2: t. 127, 1897.

Tubiflora acaulis O. Kuntze, Rev. Pl. 500, 1891; C.2: 420.

A scapigerous herb with radical leaves. Leaves obovate, spathulate, erenate. Flowers white, in long, bracteate spikes. Fruit an ovoid capsule. (Fl. Fr. June - November).

PPB. 1002.

Common throughout the area.

From W. Peninsula extending north to Delhi and E. Himalaya.

Ceylon, Trop. & S. Africa, Trop. & N. Australia.

Blepharis Juss.

Leaves petiolate, thin, acute ..... maderaspatensis

Leaves sub-sessile, thick, obtuse ..... repens

Blepharis maderaspatensis (Linn.) Heyne ex Roth, Nov. Pl. Sp. 320, 1821; Santapau, loc. cit. 15; Fl. Dang, 71; Padate, in JMSJ. 17 & 18(3): 109, 1968 & 69.

Acanthus maderaspatensis Linn. Sp. Pl. 892, 1753.

Blepharis boerhaviaefolia Pers. Syn. Pl. 2: 180, 1806; Wt. Icon. t. 458; FBI. 4: 487; C. 2: 424.

A prostrate, hairy herb with creeping root-stock and diffuse, slender branches. Leaves membranous, 4 at each node, whorled, unequal in size, ovate, elliptic, petiolate. Flowers pale blue or white, 2-3 together; bracts retrosely hairy. Capsule 2-seeded. (Fl. Fr. August - December).

Local name : Utingan.

PPB. 492.

Commonly observed on the slopes of ravines and in shaded localities.

Gujarat, Maharashtra, Karnatak, Bihar, Orissa, Central and N. India.

Burma, Ceylon, Java, Trop. & S. Africa.

Blepharis repens (Vahl) Roth, Nov. Pl. Sp. 321, 1821; Rao, in Bull. Bot. Surv. India 10 (Suppl. 2): 59, 1969; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1-2): 102, 1973.

Acanthus repens Vahl, Symb. Bot. 2: 76, 1791.

Blepharis molluginifolia Pers. Syn. Pl. 2: 180, 1806; FBI. 4: 479; C. 2: 425; Santapau, Acanth. 16; Maheshwari, 267.

A prostrate, hispid herb with spreading branches. Leaves 4 at each node, sub-sessile, whorled, unequal in size, oblong, obtuse, thickened fleshy. Flowers blue, solitary, sessile, axillery, bracteoles spiny, bristly. Capsule ellipsoid, included, 2-seeded. (Fl. Fr. October - January).

PPB. 466.

Rare; observed in moist, shaded localities along slopes.

From Western Peninsular India to Central India and some parts of N. India.

Ceylon, Trop. & S. Africa.

Acanthus Linn.

Acanthus ilicifolius Linn. Sp. Pl. (1753) p. 639; FBI. 4: 481; Grah. Cat.: 159; Trim. Fl. Ceyl. 3: 317; Woodr. in JBNHS. 12(1899): 356; Watt, Dict. Econ. Prod. 1: 66;

PLATE No. 29.

C. 2: 427; Sastry & Rao, Bull. Bot. Surv. India 15(1-2): 101, 1973.

Dilivaria ilicifolia Juss. Gen. (1789): 103; Wt. Icon. t. 459; D. & G. 192.

Erect shrubs. Leaves pinnatifid, toothed, rigid with sharp spinous teeth on the margin terminating the lateral nerves and the midrib. Flowers sessile, in opposite pairs, in terminal crowded or interrupted spikes. Anthers densely bearded. Capsules apiculate, brown, smooth and shining. (Fl. Fr. April - June).

PPB. 941.

Common along the coast.

PLATE No. 29

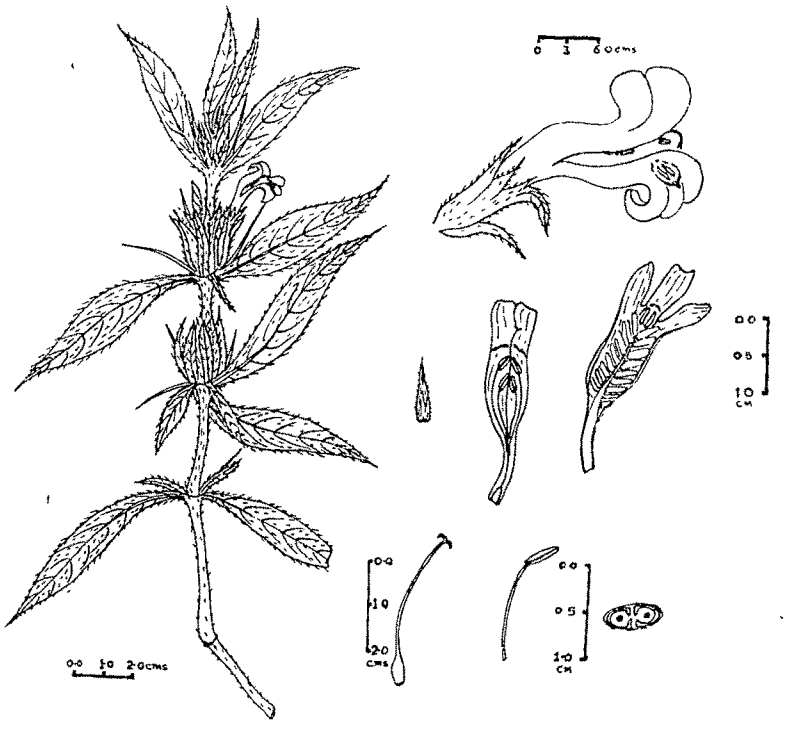
Sea-coast of India; Ceylon, Malaya, Philippines, Australia, Tropical and S. Africa.

Hygrophila R. Br.

Plants erect; inflorescence spiny; flowers purple-blue ..... auriculata

Plants procumbent; inflorescence without spines; flowers white ..... serpyllum

Hygrophila auriculata (Schum.) Heine, in Kew Bull. 16(2): 172, 1962; Sant. 194; Fl. Pavagadh, 175; Raizada, in Ind. For. 92(5): 312, 1966.



Hygrophila auriculata (Schumach.) Heine

PLATE No. 30.

Barleria auriculata Schum. in Schumach. & Thonn. Beskr. Guin. Pl. 285, 1827.

Astercantha longifolia (Linn.) Nees, in Wall. Pl. As. Rar. 3: 90, 1832; Wt. Icon. t. 449; C. 2: 428; Santapau, loc. cit. 17.

Hygrophila spinosa T. Anders. in Thw. Enum. 225, 1860; FBI. 4: 408; Chavan & Padate, in Ind. For. 86(4): 214, 1960.

An erect, stout, marsh-loving annual. Leaves sparsely hispid, sessile, lanceolate or oblanceolate, whorled; with sharp, straight, yellow spines. Flowers purplish-blue, in sessile, axillary whorls. Capsule linear, oblong. (Fl. Fr. October - December).

Local name : Ekharo.

PPB. 977.

A gregarious weed found in ditches and in marsh places.

PLATE No. 30

Throughout India.

Ceylon, Trop. & S. Africa.

Hygrophila serpyllum (Nees) Anders. in JLS. 9: 456, 1867; FBI. 4: 406; C. 2: 429; G. 1016; Sant. 195.

Physichilus serpyllum Nees, in Hook. Camp. Bot. Mag. 2: 311, 1837; Wt. Icon. t. 1493.

A procumbent, profusely branched, hairy herb. Leaves elliptic or sub-orbicular, entire, hairy. Flowers small, white, in dense, terminal spikes. Capsule, linear, oblong, pointed, glabrous. (Fl. Fr. September - January).

PPB. 228, 495.

Not common; forming mats near the margin of drying ponds and puddles.

Throughout India.

Hemigraphis Nees

Hemigraphis latebrosa (Heyne ex Roth) Nees var. heyneana Bremek. in Mat. Mon. Strob. 139, 1944; Santapau, loc. cit. 26; Sant. 196; Fl. Dang, 73; Fl. Pavagadh, 176.

H. latebrosa (Heyne ex Roth) Nees, in DC. Prodr. 11, 723, 1847; Wt. Icon. t. 1504; FBI. 4: 423; C. 2: 434.

Ruellia latebrosa Heyne ex Roth, Nov. Pl. Sp. 307, 1821.

An erect or sub-erect, much-branched, hairy herb. Leaves ovate, acute-acuminate, crenate-serrate. Flowers purplish-white or blue, in axillary or terminal, short, reduced spikes. Capsule minutely pubescent, 6-seeded; seeds broadly ellipsoid or sub-orbicular, yellowish-brown, covered with white hairs. (Fl. Fr. September - February).

PPB. 976.

Commonly observed in hedges and open waste places.

W. Peninsular India.

Ruellia Linn. emend. Bremek.

Ruellia tuberosa Linn. Sp. Pl. 635, 1753; Bremek. in Verh. Nederl. Akad. Wet. II, 45 (1): 11, 1948; Santapau, loc. cit. 23; Maheshwari, 272.

An erect or sub-erect herb, with a number of slender, elongated tuberous roots. Leaves oblong, narrowed at the base, entire. Flowers blue-purple, solitary in few-flowered axillary cymes. Capsule elongate, with persistent, deflexed calyx, bursting spontaneously on moistening. (Fl. Fr. July - November).

PPB. 964.

Noted in moist, cool shady places.

A native of Central America, now spreading in India and other S. E. Asian countries.

Dipteracanthus Nees emend. Bremek.

Prostrate or climbing; leaves sparsely hairy, acute; ovary and capsule pubescent .....prostratus

Sub-erect; leaves closely pubescent on both sides, obtuse, ovary and capsule glabrous .....patulus

Dipteracanthus prostratus (Poir.) Nees, in Wall. Pl. As. Rar. 3: 81, 1832; Santapau, loc. cit. 24 & in Ind. For. 79: 321, 1953; Sant. 196; Fl. Dang, 72.

Ruellia prostrata Poir. in Lamk. Encycl. 6: 349, 1804; FBI. 4: 411; G. 1017.

R. prostrata var. dejecta Clarke, in FBI. 4: 412, 1884; C. 2: 431.

A much-branched, straggling or prostrate herb. Internodes long, terete or angular. Leaves ovate, elliptic, entire, dark green above and paler beneath, sparsely hairy. Flowers pale-violet or pale-blue, solitary, axillary or 2-3 together; corolla fugacious. Capsule pubescent, clavate, pointed. (Fl. Fr. June - November).

PPB. 268.

Observed in shaded localities during monsoon.

Throughout India.

Ceylon, E. Africa.

Dipteracanthus patulus (Jacq.) Nees, loc. cit.

Wt. Icon. t. 1505; Santapau, Acanth. 24; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 22, 1966.

Ruellia patula Jacq. Misc. Bot. 2: 358, 1781; FBI. 4: 412; FUGP. 2: 188; C. 2: 431.

A hoary-pubescent, erect or straggling, much-branched

undershrub. Leaves ovate to elliptic, obtuse, hairy. Flowers pale purple, solitary or 2-3 together, cylindric-funnel form. Capsules clavate, glabrous. (Fl. Fr. June - December).

PPB. 437.

Noted along the Mahi estuary at Kavi, Chokari and Dhuvaran.

India (W. Peninsula, Rajputana, Bandelkhand).

Ceylon, Arabia, Tropical Africa, Ava.

Barleria Linn.

Plants spinous; flowers orange-yellow ..... prionitis

Plants not spinous; flowers not orange-yellow ..... cristata

Barleria prionitis Linn. Sp. Pl. 636, 1753; FBI. 4: 482; Wt. Icon. t. 452; C. 2: 457; G. 1058; Sant. 201; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69; Rao and Agoarwal, loc. cit. 22.

An erect, armed shrub or undershrub. Leaves ovate, elliptic, mucronate with divaricate, apicular spines in the axil. Flowers orange-yellow; sessile, solitary; bracts and bracteoles bristle-tipped. Capsule black, pointed, 2-seeded. (Fl. Fr. August - April).

Local name : Kanta Shelio, Koranti.

PPB. 1004.

Observed in hedges and open waste places.

Throughout India.

Ceylon, Trop. Asia, Trop. & S. Africa.

Barleria cristata Linn. Sp. Pl. 636, 1753; FBI. 4: 488; C. 2: 460; Sant. 201; Maheshwari, 274; Shah, in Ind. For. 89(4): 289, 1963.

A diffuse undershrub. Branches more or less appressedly hairy, densely hairy at the nodes. Leaves elliptic-oblong, abruptly tapering at the base, hairy. Flowers bluish-purple, in terminal and axillary spikes. Capsule ellipsoid, 4-seeded. (Fl. Fr. September - February).

PPB. 107.

Cultivated as well as wild; not common.

Gujarat, Maharashtra, Karnatak, Andhra, Madras; throughout India, often grown in gardens.

Lepidagathis Willd.

Lepidagathis trinervis Wall. ex Nees, in Wall. Pl. As. Rar. 3: 96, 1832; FBI. 4: 517; C. 2: 471; Sant. 205; Rao and Aggarwal, loc. cit. 22.

A perennial plant with woody root-stock and slender,

quadrangular branches. Leaves sessile, linear, scabrid, prominently 3-nerved. Flowers dirty white with purple tinge, in sessile, ovoid spikes, usually 2 or more in a group; bracts with recurved, cuspidate spines. Capsule ovoid-lanceolate, compressed, 2-seeded. (Fl. Fr. November - December).

PPB. 1170.

Fairly common on open grounds at Chokari, Dhuvaran, Kavi.

Gujarat, Maharashtra, Karnatak, Central India, N.W. Himalaya, W. Peninsula.

Rungia Nees

Bracts conspicuously winged, homomorphic .... repens

Bracts not conspicuously winged, dimorphic... pectinata

Rungia repens (Linn.) Nees, in Wall. Pl. As. Rar. 3: 110, 1832; FBI. 4: 549; C. 2: 480; Wt. Icon. t. 465; Santapau, loc. cit. 78; Sant. 206.

Justicia repens Linn. Sp. Pl. 15, 1753; Gr. 165.

An erect or sub-erect herb at times rooting at first few nodes. Leaves elliptic-lanceolate. Flowers light-blue, in sessile terminal, one-sided spikes; bracts homomorphic, conspicuously winged. Capsule compressed, ovoid-oblong, pubescent on the sides and scarious on the face. (Fl. Fr. August - December).

PPB. 954.

Very common on open grounds and in hedges.

Throughout India.

Ceylon.

Rungia pectinata (Linn.) Nees, in DC. Prodr. 11: 469, 1847; Wt. Icon. t. 1547; Sant. 206; Padate, in JMSU. 17 & 18 (3): 109, 1968 & 69.

Justicia pectinata Linn. Amoen. Acad. 4: 299, 1759; Gr. 165.

Rungia parviflora Nees var. pectinata Clarke, in FBI. 4: 550; C. 2: 476; G. 750.

R. parviflora Nees var. muralis Clarke, loc. cit. C. 2: 479; G. 750.

An erect or scandent, glabrous herb. Leaves very variable, lanceolate to oblong, thin. Flowers faint blue, in small, sub-sessile, axillary or terminal spikes; bracts dimorphic. Capsule compressed, hairy at the tip. (Fl. Fr. September - April).

PPB. 1248.

Noted among grasses on banks of ponds and in all wet localities.

Gujarat, Maharashtra, Western Ghats, Himalayas, throughout India.

Ceylon.

Justicia Linn.

1. Sepals scarious, the midrib produced into a long arista ..... micrantha

1. Sepals not scarious, not aristate :

2. Bracts and bracteoles shorter than the calyx :

3. Prostrate herbs; bracts and bracteoles about 2.5 mm long, capsule slightly hairy ..... prostrata

3. Erect herbs; bracts and bracteoles scarsely 1.2 mm long; capsule glabrous ..... diffusa

2. Bracts and bracteoles as long as or longer than the calyx ..... procumbens var. simplex

Justicia micrantha Heyne ex Wall. Cat. (1828) 2449; FBI. 4: 536; Woodr. in JBNHS. 12 (1899) P. 358; C. 2: 489.

Rostellaria crinita Nees, in Wall. Pl. As. Rar. 3 (1832) P. 101; Dalz. & Gibs. p. 193 (by error Rostellularia).

A low, much-branched herb. Leaves ovate or elliptic, sparsely hairy above, sub-obtuse. Flowers pale-purple, in

terminal and axillary dense spikes; bracts and bracteoles with scarious margins near the base. Capsules 4-seeded. (Fl. Fr. August - November).

PPB. 558.

Common in moist places at Kavi, Dhuvaran.

India (W. Peninsula).

Justicia prostrata (Clarke) Gamble, in Fl. Madras 1081, 1924; Santapau, loc. cit. 88; Shah, in Ind. For. 89 (4): 289, 1963; Sastry & Rao, loc. cit. 102.

J. diffusa var. prostrata Clarke, in FBI. 4: 538; C.2: 490.

Prostrate herbs. Leaves small, sub-orbicular or ovate to lanceolate. Flowers pinkish, in long and slender spikes; bracts and bracteoles about 2.5 mm. long. Capsule slightly hairy. (Fl. Fr. November - May).

PPB. 1061.

Rare; noted on the rocky banks of river Mahi.

W. Peninsular India, S. India.

Ceylon.

Justicia diffusa Willd. Sp. Pl. 1: 87, 1789; FBI. 4: 538; C. 2: 489; Santapau, loc. cit. 87; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

Rostellaria diffusa Nees, in Wall. Pl. As. Rar. 3: 100, 1832; D. & G. 193.

An erect, much-branched, small herb with sub-quadrangular stems. Leaves ovate to elliptic-lanceolate. Flowers pale-purple, in axillary or terminal narrow spikes; bracts and bracteoles scarsely 1.2 mm. long; calyx not hairy; lower anther-cells spurred. Capsule oblong, glabrous, pointed. (Fl. Fr. July - October).

PPB. 259.

Common as a weed in cultivated fields.

From Punjab to W. Peninsula.

Ceylon, Pakistan (Sind), Siam.

Justicia procumbens var. simplex (D. Don) Yamazaki, in Hara, Fl. East. Himalaya 302, 1966.

J. simplex D. Don, Prodr. Fl. Nep. 11, 1825; FBI. 4: 539; C. 2: 490; Santapau, loc. cit. 89; Fl. Dang, 73; Sastry and Rao, loc. cit. 102.

An erect, slender, much-branched herb with quadrangular and grooved stems. Leaves ovate to elliptic-oblong. Flowers pinkish, in axillary and terminal spikes; bracts hairy, as long as sepals. Capsule oblong, hairy at the top. (Fl. Fr. August - December).

PPB. 1062.

Commonly observed as a weed in cultivated fields.

India (Kashmir, Central India, Bengal, W. Peninsula).

Abyssinia, Malay Islands.

Adhatoda Nees

Adhatoda zeylanica Medic. Hist. & Commentat. Acad. Elect. Sci. Theod.-Palat. 6: 393, 1790; Saldanha & Nicolson, 540.

Justicia adhatoda L., Sp. Pl. 15, 1753; Adams, Fl. Pl. Jamaica 690, 1972.

Adhatoda vasica Nees, in Wall. Pl. As. Rar. 3: 103, 1832 & in DC. Prodr. 11: 387, 1847; FBI. 4: 540; C. 2: 492; G. 1082; Talb. 2: 340, t. 448; Padate, in JMSU. 17 & 18(3): 108, 1968 & 69.

A much-branched, tall shrub with yellowish, glabrous bark. Leaves large, lanceolate, acuminate. Flowers white, in short axillary spikes. Capsules clavate, shortly and bluntly pointed. (Fl. Fr. October - April).

Local name : Ardusi, Adoolsa.

PPB. 1249.

Noted at Valsad, Nargol.

Throughout India; often cultivated.

Ceylon, Singapore, Malaya, S. E. Asia.

Diclíptera Juss. (nom. cons.)

Dicliptera verticillata (Forsk.) Christens. in Dansk. Bot. Arkiv. 4(3): 11, 1922; Sant. 207; Fl. Pavagadh, 182.

Dianthera verticillata Forsk. Fl. Aeg.-Arab. 9, 1775.

Dicliptera micrantheg Nees, in Wall. Pl. As. Rar. 3: 112, 1832; FBI. 4: 553; C. 2: 481; Santapau, loc. cit. 79.

A much-branched, erect or sub-erect herb with glabrous stem. Leaves ovate or elliptic, acute. Flowers white, in small axillary clusters; bracts oblong-ovate, cuspidately acuminate with scarious, densely ciliate margins. Capsule ellipsoid, sub-acute, pubescent at the apex; seeds tuberculated. (Fl. Fr. October - February).

PPB. 199.

Noted in clumps near hedges.

Gujarat, Maharashtra, W. Peninsula, Central India, Bihar.

Pakistan (Sind), Trop. Africa.

Peristrophe Nees

Peristrophe bicalyculata (Retz.) Nees, in Wall. Pl. As. Rar. 3: 113, 1832; FBI. 4: 554; C. 2: 495; Santapau, loc. cit. 93; Sant. 211; Fl. Dang, 74; Rao and Aggarwal, loc.cit.22.

Dianthera bicalyculata Retz. in Act. Holm. 297, t. 9, 1775.

An erect, much-branched herb or undershrub with angular stems. Leaves ovate, acuminate, glabrous above. Flowers pink, in trichotomously branched lax, spreading panicles. Capsule pointed, narrowed into the stalk. (Fl. Fr. September - December).

Local name : Kali Anghedi.

PPB. 591, 1007.

Common in waste places during winter.

Throughout India.

Tropical Africa.

Indonessiella Sreemadhavan

Indonessiella echioides (Linn.) Sreemadhavan, in Phytologia 16 : 466, 1968.

Justicia echioides Linn. Sp. Pl. 16, 1753; Roxb. Fl. Ind. 1: 118, 1832; Cr. 164.

Adrographis echioides (Linn.) Nees, in Wall. Pl. As. Rar. 3 : 117, 1832; FBI. 4: 505; C. 2: 451; Santapau, loc. cit. 51.

An erect, hairy, annual herb. Stems quadrangular, clothed with spreading hairs. Leaves linear-oblong or sub-elliptic, ciliate on the margins. Flowers white, in axillary, one-sided, horizontally spreading racemes. Capsule hairy, elliptic-

lanceolate; seeds rugosely pitted, glabrous. (Fl. Fr. July - December).

PPB. 1063.

Not common; noted along the hedges.

In the drier districts of tropical India.

Ceylon.

AVICENNIACEAE

Avicennia Linn.

Avicennia alba Blume, Bijdr. (1826) P. 821. Wt. Icon. t. 1482; Prain, Beng. Pl. 838; C. 2: 517; Sastry and Rao, loc. cit. 102.

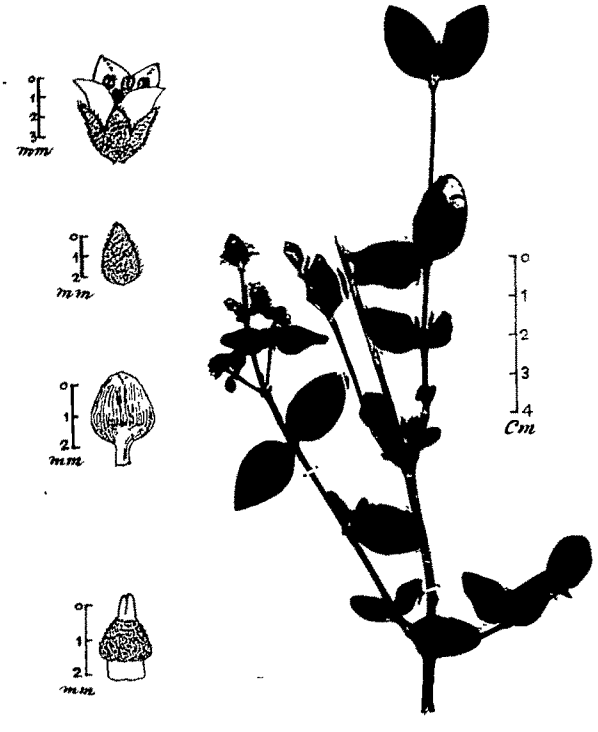
A. officinalis Watt, Dict. Econ. Prod. 1: 360 (not of Linn.).

A. officinalis var. alba, Hook. f. FBI. 5: 604.

A shrub; branches pale. Leaves opposite, lanceolate, very acute, glabrous above, whitish-tomentose beneath, entire, coriaceous. Flowers sessile, in heads o at the apex of stout angular peduncles usually 3-4 from the last pair of leaves. Stamens included. Capsules ovoid, compressed, apiculate, bright-yellow and smooth when ripe. (Gemmie). Seed often germinating on the tree. (Fl. Fr. March - June).

Local name : Tivar.

PPB. 721.



Avicennia alba Blume, Bijdr.

PLATE No. 31.

Common in salt-marshes along the coast.

PLATE No. 31

India, in tidal creeks.

Malaya, S. E. Asia, N. Australia.

VERBENACEAE

1. Inflorescence racemose :

2. Flowers in short, capitate, ovoid or cylindric spikes :

3. Creeping herbs; fruits dry ..... Phyla

3. Shrub or undershrubs; fruits fleshy .... Lantana

2. Flowers in elongate, lax or dense spikes or racemes :

4. Woody climbers; calyx much longer than the corolla ..... Petrea

4. Erect herbs, undershrubs or shrubs; calyx shorter than the corolla :

5. Flowers sessile :

6. Inflorescence a very long, slender spike ..... Stachytarpheta

6. Inflorescence not as above ..... Verbena

5. Flowers pedicellate, in loose, panicled racemes ..... Duranta

1. Inflorescence cymose, centrifugal :

7. Corolla regular; stamens equal ..... Tectona

7. Corolla 2-lipped; stamens didynamous :

8. Leaves compound ..... Vitex

8. Leaves simple ..... Clerodendrum

Phyla Lour.

Phyla nodiflora (Linn.) Greene, in Pittonia 4 : 46, 1889; Sant. 211; Chavan & Padate, in Ind. For. 86(4): 214, 1960; Rao and Aggarwal, loc. cit. 23.

Verbena nodiflora Linn. Sp. Pl. 20, 1753.

Lippia nodiflora A. Rich. in Michaux, Fl. Bor. Amer. 2: 15, 1803; Wt. Icon. t. 1463; FBI. 4: 563; C. 2: 499.

A prostrate, creeping herb, rooting at nodes. Leaves opposite, cuneate and entire below, serrate above, subsessile, spathulate to obovate. Flowers pink-purple to white, in cylindric or ovoid, long-peduncled spikes. Fruit globose-oblong, splitting into two, 1-seeded pyrenes. (Fl. Fr. April - October).

Local name : Rat veliyo.

PPB. 695.

Very common in moist situations, along canal edges, often forming a carpet of its own at some places.

Throughout India.

Africa, Ceylon and most tropical and sub-tropical regions.

Lantana Linn.

Lantana camara Linn. var. aculeata (Linn.) Moldenke, in Torreya 34: 9, 1934; Sant. 211; Padate, in JMSU. 17 & 18 (3): 109, 1968 & 69; Sastry & Rao, loc. cit. 102.

L. aculeata Linn. Sp. Pl. 627, 1753; Gr. 156; D. & G. Suppl. 68.

L. camara auct. (non Linn.); FBI. 4: 562; C. 2: 498.

A much-branched shrub with soft, recurved prickles on the branches. Leaves opposite, ovate, acute, crenate-serrate, scabrid. Flowers variously coloured, usually orange-yellow, in short, pedunculate, capitate spikes. Fruit drupaceous, globose, black, shining, containing 2 pyrenes. (Fl. Fr. August - January).

PPB. 887.

Noted wild in hedges and waste places.

A native of Trop. America, running wild in many parts of India and Ceylon.

Petrea Linn.

Petrea volubilis Linn. Sp. Pl. 626, 1753; Merr. Enum. 3: 381; C. 2: 518; Bor & Raizada, 141, Pl. 54.

A woody climber, with scabrous leaves. Flowers with persistent purplish blue calyx and deciduous, violet corolla, in terminal, long racemes. (Fl. January - April).

Local name : Nilambha.

PPB. 1333.

Cultivated in gardens at Valsad, Tithal and Nargol along the coast.

Native of Trop. America, occasionally cultivated in gardens for beauty of the flowers.

Stachytarpheta Vahl

Stachytarpheta urticaefolia (Salisb.) Sims. in Bot. Mag. t. 1848, 1816; Raizada, in Ind. For. 92(5): 324, 1966; Sastry & Rao, loc. cit. 102.

Cymburus urticaefolius Salisb. Parad. Lond. 53, 1805-1807.

Stachytarpheta indica auct. (non Vahl, 1804); FBI. 4: 564; C. 2: 501.

An erect shrub. Leaves ovate to elliptic, coarsely serrate-dentate. Flowers blue, in long, slender, terminal, bracteate spike. Drupe oblong, ribbed, splitting into 2 pyrenes. (Fl. Fr. August - January).

PPB. 891.

Planted in gardens at Dumas, Tithal and Valsad.

Cultivated and often runs wild in many parts of India.

Ceylon, Tropical Asia, Africa, a native of Trop. America.

Verbena Linn.

Verbena bipinnatifida Schau. in DC. Prodr. 11: 553, 1847; Bailey, Man. Cult. Pl. 840; Maheshwari, 278.

A prostrate, hairy herb with ascending stems. Leaves divided into linear divisions. Flowers bluish-purple in dense, capitate heads or spikes; bracts equalling the sepals. (Fl. Fr. October - April).

PPB. 13, 140.

Cultivated in gardens of holiday homes along the coast.

Cultivated throughout India.

A native of S. America.

Duranta Linn.

Duranta repens Linn. Sp. Pl. 637, 1753; Merr. Enum. 3: 38;

Bailey, Man. Cult. Pl. 843.

D. plumieri Jacq. Select. Am. 186, t. 176, 1763; FBI. 4: 560; C. 2: 518.

An evergreen, bushy shrub. Leaves obovate, entire or serrulate. Flowers light blue, in axillary and terminal racemes, followed by small, fleshy orange berries. (Fl. Fr. Major part of the year).

PPB. 1334.

Grown as a hedge plant in gardens at Kavi, Dumas, Nargol, Umargam.

A native of S. America and W. Indies.

Tectona Linn. f. (nom. cons.)

Tectona grandis Linn. f. Suppl. 151, 1781; FBI. 4: 570; C. 2: 503; Sant. 212; Rao, in Proc. Ind. Sci. Congr. 51 & 52: 402-403, 1965; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

A large, deciduous tree. Branches 4-angled, channelled, stellately hairy. Leaves large, entire, rough above, tomentose beneath. Flowers white or muddy-white, in large, terminal, cymose panicles. Drupe 4-lobed, enclosed in inflated, bladdery calyx. (Fl. Fr. August - November).

Local name : Sag.

PPB. 1327, 1330.

Mostly common around Daman, Nargol while at other places it is not common.

Throughout India in the deciduous forests especially in Central and W. Peninsular India.

Burma, Malay Peninsula, Java, Sumatra.

Vitex Linn.

Vitex negundo Linn. Sp. Pl. 638, 1753; FBI. 4: 583; Wt. Icon. t. 519; C. 2: 508; Sant. 213; Fl. Dang, 75; Fl. Mel. 265; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69; Sastry & Rao, loc. cit. 102.

A large shrub with greyish bark. Branches quadrangular, whitish, tomentose. Leaves palmately compound, 3-5-foliolate; leaflets lanceolate, acute, white-tomentose beneath. Flowers whitish-blue, in large, terminal panicles. Drupe black when ripe. (Fl. Fr. September - April).

Local name : Nagod.

PPB. 1005.

Very common in the ravines of river Mahi and Tapi.

Local uses : People use the leaf poultice to cure swelling of joints, healing of wounds and against headache.

Gujarat, Maharashtra, Karnatak, W. Ghats, throughout India.

Ceylon, Afghanistan, S. E. Asia to Japan, Philippine Islands and N. Australia.

Clerodendrum Linn.

Climbers, flowers crimson ..... splendens

Shrubs; flowers never crimson :

Calyx truncate or very shortly toothed...inerme

Calyx distinctly lobed or dentate .....multiflorum

Clerodendrum splendens G. Don, in Edinb. N. Phil. Journ. 11: 349, 1824; Bailey, Stand. Cycl. Hort. 1: 800; Maheshwari, 284.

A large, climbing shrub. Leaves entire, oblong-orbicular to sub-orbicular, coriaceous, acuminate, dark green above. Flowers crimson, in dense, many-flowered, terminal cymes. Drupes black. (Fl. Fr. January - May).

PPB. 212, 175.

Cultivated in gardens at Umrat, Nargol and Umergam.

Native of Trop. Africa, now grown in gardens in India.

Clerodendrum inerme (Linn.) Gaertn. Fruct. 1: 271, 1788; FBI. 4: 589; Gr. 157; D. & G. 200; C. 2: 511; Merr. Enum. 3: 401; Bor & Raizada, 146, f. 92; Sastry & Rao, loc. cit. 102.

Volkameria inermis Linn. Sp. Pl. 889, 1753.

A much-branched, straggling, scandent shrub with pale-brown bark. Leaves opposite, glabrous, somewhat fleshy, elliptic-obovate, entire, obtuse. Flowers white, in axillary, 3-flowered, pedunculate cymes; corolla tube slender; filaments purple-red, exserted. Drupe pyriform, seated in the veined persistent enlarged calyx, separating into 4 woody pyrenes. (Fl. Fr. July - April).

Local name : Vilayati Mendi, Kadvi Mendi.

PPB. 959.

Common along the sea-coast.

Indigenous to the sea coast of India extending to Polynesia.

Clerodendrum multiflorum (Burm. f.) O. Kuntze, Rev. Gen. Pl. 3: 1891; Santapau & Janardhanan, 40.

Volkameria multiflora Burm. f. Fl. Ind. 137, t. 45, f. 1,1768.

Clerodendrum phlomidis Linn. f. Suppl. 292; 1781; Gr. 157; Wt. Icon. t. 1473; FBI. 4: 590; C. 2: 511; Rao & Aggarwal, Bull. Bot. Surv. India 6(2-4): 182, 1964.

A large, erect shrub or a small tree. Leaves ovate, acute, crenate, hairy on the under surface. Flowers whitish, in axillary and terminal, dichotomous, paniculate cymes.

Drupe black, broadly obovoid, wrinkled. (Fl. Fr. August - February).

Local name : Arni.

PPB. 1040.

Commonly noted in hedges.

Throughout the drier parts of India from the Punjab and Bengal to S. India.

Ceylon.

LAMIACEAE

1. Stamens declinate :

   2. Corolla distinctly 2 lipped :

      3. Fruiting calyx deflexed, the upper lobe widest, large, ovate, recurved, the margins decurrent on the tube ..... Ocimum

      3. Fruiting calyx suberect or declinate, the upper lobe broader than the others, the margins not decurrent on the tube ... Basilicum

   2. Corolla obscurely 2-lipped ..... Hyptis

1. Stamens erect, spreading or ascending :

   4. Upper lip of corolla short, nearly flat .... Anisomeles

4. Upper lip of corolla hooded and densely woolly :

5. Lower lip of corolla longer than the upper ..... Leucas

5. Lower lip of corolla shorter than the upper ..... Leonotis

Ocimum Linn.

Calyx glabrous within :

Pedicels shorter than the calyx; lower calyx teeth shorter than the upper lip ..... gratissimum

Pedicels as long as or longer than calyx; 2 lower calyx teeth longer than the upper lip..sanctum

Calyx hairy within :

fruiting calyx 6 mm. long; corolla 10-12 mm....basilicum var. thyrsiflora

Fruiting calyx 3 mm. long;corolla 6 mm.long....americanum

Ocimum gratissimum Linn. Sp. Pl. 1197, 1753; FBI. 4: 608; C. 2: 522; Mukerjee, in RSBI. 14(1): 20, 1940; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

An erect, much-branched shrub with quadrangular branches.

Leaves large, elliptic-lanceolate, coarsely crenate-serrate, cuneate at the base. Flowers creamy white or greenish-yellow, in closed whorls on short, simple or branched racemes. Nutlets sub-globose, brown. (Fl. Fr. August - March).

Local name : Avachi Bavachi.

PPB. 974.

Common; noted on the borders of cultivated fields or in hedges.

Doubtfully indigenous, but cultivated throughout India.

Trop. Africa, Ceylon, Burma, Java and America.

Ocimum sanctum Linn. Mant. 1: 85, 1767; FBI. 4: 609; C. 2: 521; Mukerjee, loc. cit. 19; Sant. 216; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

An erect, much-branched, pubescent herb with purple stems. Leaves pubescent, scented. Flowers white, in whorls, on short raceme. Nutlets smooth, surrounded by persistent calyx. (Fl. Fr. All throughout the year).

Local name : Tulsi.

PPB. 454, 573.

Cultivated as a sacred plant in the back shore area at Chokari, Dhuvaran, Kavi, Tithal, Dumas and Umargam.

Cultivated throughout India.

Arabia, W. Asia, Ceylon, Malay Archipelago, Australia.

Ocimum basilicum Linn. var. thrysiflora Benth. Lab. Gen. & Sp. 5, 1833; FBI. 4: 608; C. 2: 523; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

A small, much-branched herb with purple, 4-angled stem. Leaves opposite, ovate, acute. Flowers pink or purple, in whorls, closely arranged on the axis. (Fl. Fr. August - December).

Local name : Damro, Sabjo.

PPB. 222, 293.

Cultivated in gardens at Valsad, Dumas, and Tithal.

Cultivated throughout Tropical and hotter parts of India.

Africa, W. Asia, Ceylon, Malacca, Pacific Islands.

Ocimum americanum Linn. in Juslenius, Cent. I. Pl. 15, 1755; Keng, Gard. Bull. Straits Settlem. 24-126, 1969; Saldanha & Nicolson, 505.

Ocimum canum Sims. in Bot. Mag. t. 2452, 1824; FBI. 4: 607; C. 2: 521; Mukerjee, loc. cit. 17; Sant. 216; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

O. americanum Linn. Sp. Pl. 833, 1753 (non Jacq.); Fl. Dang, 77;

An erect, much-branched, aromatic herbaceous annual with sub-quadrangular, striate stems. Leaves elliptic-lanceolate, entire or sub-crenate, acute. Flowers white, in whorls, on

erect, lax racemes; bracts stalked with ciliate margins. Nutlets ellipsoid, black. (Fl. Fr. July - January).

Local name : Ran Tulsi.

PPB. 778.

Fairly common; observed as a weed in cultivated fields.

Plains and lower hills of India - from Bengal, Bihar, C. India to Deccan and W. Peninsula.

Trop. Africa, Madagascar, W. Asia, Ceylon, Java, cultivated in America.

Basilicum Moench.

Basilicum polystachyon (Linn.) Moench. Meth. Suppl. 143, 1802; Bennett, in Ind. For. 95(9): 629, 1969; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

Ocimum polystachyon Linn. Mant. 2: 567, 1771.

Moschosma polystachyum (Linn.) Benth. in Wall. Pl. As. Rar. 2: 13, 1831; FBI. 4: 612; C. 2: 527.

An erect, much-branched annual with sharply quadrangular stem. Leaves thin, irregularly crenate-serrate. Flowers pinkish, in large, axillary or terminal racemes or panicles. Nutlets brown, compressed. (Fl. Fr. August - December).

PPB. 1332.

Common weed during monsoon.

Gujarat, W. Peninsula, Bengal, Bihar, S. India in the Plains.

New Guinea, Java, Borneo, Philippines, Malaya, China, Burma, Ceylon, Trop. Africa, Australia.

Hyptis Jacq.

Hyptis suaveolens (Linn.) Poit. in Ann. Mus. Par. 7: 472, t. 29, f. 2, 1806; Sant. 220; Padate, in JMSU. 17 & 18 (3): 109, 1968 & 69.

Ballota suaveolens Linn. Syst. (ed. 10) : 1100, 1759.

A rigid, erect, hairy herb or undershrub. Leaves broadly ovate, sinuate and serrulate, hairy on both the surfaces. Flowers blue-purple, closely packed in axillary clusters. Nutlets generally 2- deep-brown. (Fl. Fr. September - February).

PPB. 1328.

Not common, but locally abundant at Ganguva, Bilimora, Valsad, Nargol etc.

A native of tropical America and West Indies, introduced into many parts of India.

Anisomeles R. Br.

Anisomeles indica (Linn.) Kuntze, Rev. Gen. 512, 1891;

Mukerjee, Lab. Ind. Empire, 152, 1959; Fl. Dang, 76; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

Nepeta indica Linn. Sp. Pl. 571, 1753.

Anisomeles ovata R. Br. in Ait. f. Hort. Kew, 3: 364, 1811; Wt. Icon. t. 865; FBI. 4: 672; C. 2: 543.

A tall, erect, tomentose herb with quadrangular stem. Leaves ovate, crenate-dentate, cordate, acute. Flowers purple or bluish-purple, crowded in whorls forming interrupted, spicate inflorescence. Nutlets 4, smooth, black, polished; seeds smooth, shining. (Fl. Fr. August - February).

Local name : Chodharo.

PPB. 851.

Common in hedges, also noted as a weed in cultivated fields.

Gujarat, Maharashtra, Karnatak, Himalaya; throughout India.

Ceylon, Malay Archipelago, China, Philippines.

Leucas R. Br.

1. Whorls lax, 2-4-flowered ..... biflora

1. Whorls dense, many-flowered :

2. Calyx-tube bent, mouth oblique :

3. Calyx mouth not villous within ..... aspera

3. Calyx mouth villous within ..... capitata

2. Calyx-tube straight, mouth never oblique.. stricta

Leucas biflora R. Br. Prodr. 504, 1810; FBI. 4: 683; C. 2: 583; G. 1150; Wt. Icon. t. 866; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Fl. Pavagadh, 192.

A straggling or prostrate herb with slender, pubescent branches arising from woody root-stocks. Leaves ovate-elliptic, pubescent on both sides. Flowers white, usually 2 in the axils. (Fl. Fr. August - February).

PPB. 1331.

Observed at Chokari, Dhuvaran, Dahej, Valsad, Tithal along the coast.

Throughout W. Peninsular India.

Ceylon.

Leucas aspera (Willd.) Spreng. Syst. 2: 743, 1825; FBI. 4: 690; C. 2: 548; Mukerjee, loc. cit. 166; Fl. Dang, 76; Rao and Aggarwal, Bull. Bot. Surv. India 6(2-4): 182, 1964.

Phlomis aspera Willd. in Link, Enum. Pl. Hort. Berol. 2: 621, 1822.

A small, erect or diffuse, much-branched, annual with deeply grooved, hispid or hairy stems. Leaves variable,

linear-oblong, sessile, sub-entire to crenate. Flowers white, sessile, in dense, many-flowered, terminal and axillary whorls; bracts linear, hispid; calyx-tube bent, mouth oblique, not villous within. Nutlets brown, oblong. (Fl. Fr. July-December).

PPB. 1046.

A common weed of cultivated and fallow fields; also noted on open areas among grasses and on the sandy soils.

Throughout India in the Plains.

Mauritius, Java, Philippines.

Leucas capitata Desf. in Mem. Mus. Par. 11: 8, t. 4, 1824; Shrinivasan and Agarwal, in Bull. Bot. Surv. India 5: 86, 1961.

L. cephalotes Spreng. Syst. 2: 743, 1825; FBI. 4: 689; C. 2: 549; Wt. Icon. t. 337; Mukerjee, loc. cit. 166.

An erect, stout, hairy herb. Leaves ovate-lanceolate, pubescent above, glandular punctate beneath. Flowers white, in dense, terminal, globose whorls. Nutlets brown, smooth. (Fl. Fr. September - January).

PPB. 403.

Commonly seen on sandy soils and in cultivated fields.

Gujarat, W. Peninsula, Punjab, Assam, Bengal, Himalayas.

Afghanistan.

Leucas stricta Benth. in Wall. Pl. As. Rar. 1: 61, 1829; FBI. 4: 688; C. 2: 551; Mukerjee, loc. cit. 170; N. Guj. 292; Fl. Raj. 110; Sastry & Rao, loc. cit. 103.

An erect, slender, much-branched, hispidly hairy herb. Leaves sessile, linear-oblong, entire, narrowed to the base. Flowers white, shortly pedicellate, in a terminal, many-flowered whorl; calyx teeth long, unequal. Nutlets smooth, oblong, brown. (Fl. Fr. August - October).

PPB. 1064.

Fairly common, observed as a weed in cultivated fields.

Western Peninsular India.

Leonotis Pers.

Leonotis nepetaefolia (Linn.) R. Br. in Ait. Hort. Kew (ed. 2) 3: 409, 1811; FBI. 4: 691; Wt. Icon. t. 867; C. 2: 555 ('nepetifolia'); G. 1155; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

Phlomis nepetaefolia Linn. Sp. Pl. 586, 1753.

A tall, erect herb or undershrub. Leaves ovate, coarsely-serrate, cuneate at the base. Flowers orange in dense, globose whorls, round the stem; nutlets oblong, obovoid. (Fl. Fr. September - March).

Local name : Deepmal.

PPB. 1329.

Throughout the hotter parts of India, cultivated and naturalized.

Ceylon, Trop. Asia, Africa and America.

NYCTAGINACEAE

Plants woody, generally armed; leaves alternate;
flowers subtended by coloured bracts .....Bougainvillea

Plants herbaceous, unarmed; leaves opposite;
flowers without coloured bracts .....Boerhavia

Bougainvillea Camm. ex Juss. (nom. cons.)

Bougainvillea spectabilis Willd. Sp. Pl. 2: 348, 1799; C. 2: 483; Bor & Raizada, 269, Pl. 98; Bailey, Man. Cult. Pl. 358 & Cycl. Hort. 533; Sant. 221; Maheshwari, 292.

A woody, armed and climbing shrub with long sarmentose branches. Leaves ovate-orbicular, hairy. Flowers creamy white, subtended by large, variously coloured bracts. Achene 5-ribbed. (Fl. Fr. Profuse flowering from November to June).

PPB. 1250.

Under cultivation in private and public gardens throughout the area.

Indigenous to East and Central Brazil, now cultivated in all tropical countries.

Boerhavia Linn.

Prostrate or scandent herbs; inflorescence terminal or axillary ..... diffusa

Scandent or climbing herbs; inflorescence umbels or whorled racemes :

Flowers 3-8 in an umbel at the end of the peduncle ..... chinensis

Flowers arranged in whorls on a peduncle ... verticillata

Boerhavia diffusa Linn. Sp. Pl. 3, 1753; C. 2: 563; Sant. 220; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Maheshwari, 194; Almeida, in JBNHS. 65(1): 267-268, 1968; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

B. repens Linn. Sp. Pl. 3, 1753; FBI. 4: 709; D. & G. 213.

B. procumbens Roxb. Fl. Ind. 1: 146, 1820; Wt. Icon. t.874.

Prostrate to ascending herb with swollen nodes and purplish stems. Leaves opposite, unequal in pairs, broad ovate or suborbicular. Flowers small, dark pink, bracteate, in umbellate heads; stamens not or slightly exserted. Fruit clavate, 5-ribbed. (Fl. Fr. July - February).

PPB. 357.

A common weed of cultivated fields and waste places.

Throughout India, mostly in drier regions.

Ceylon, Tropical and sub-tropical Asia, Africa and America.

Boerhavia chinensis (Burm. f.) Druce, in Rep. Bot. Exch. Cl. Brit. Isles, 1913(3): 415, 1914; Reizada, in Ind. For. 92 (5): 303, 1966; Almeida, loc. cit. 267-268, 1968.

Valeriana chinensis Burm. f. Fl. Ind. 15, t. 6, f. 3, 1768.

Boerhavia rependa Willd. Sp. Pl. 1: 22, 1797; FBI. 4: 709; C. 2: 564; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

A diffuse, glabrous or pubescent herb. Leaves opposite, nearly equal with truncate or cordate base. Flowers pink, in long-stalked umbels. Stamens well exserted. (Fl. Fr. September - January).

Local name : Punarnava, Satodi.

PPB. 1251.

Very common, found along hedges.

Throughout India.

Ceylon, Pakistan.

Boerhavia verticillata Poir, in Lamk. Encycl. Method 5: 56, 1804; FBI. 4: 710; C. 2: 564; Almeida, in JBNHS. 65(1): 267-268, 1968; Rao and Aggarwal, Bull. Bot. Surv. India 6(2-4): 182, 1964.

B. stellata Wt. Icon. t. 875; D. & G. 213.

A climbing herb with long, pale, glabrous branches. Leaves ovate or sub-orbicular, sinuate with cordate base. Flowers pink-rose, in distant, racemose whorls on slender peduncle. Stamens not much exserted. Fruit with a large terminal gland. (Fl. Fr. September - January).

PPB. 552.

Commonly noted among hedges.

Punjab, W. Peninsula, Gujarat.

Afghanistan, Pakistan and Westward to Syria and Tropical Africa.

AMARANTHACEAE

1. Leaves opposite or clustered :

   2. Anthers 1-celled :

      3. Flowers in terminal heads;stigma bifid...Gomphrena

      3. Flowers in axillary heads; stigma usually capitate .....Alternanthera

   2. Anthers 2-celled :

      4. Stamens with interposed fimbriate staminodes .....Achyranthes

      4. Stamens without staminodes :

5. Flowers perfect, in spikes :

6. Stamens 5 ..... Psilostachys

6. Stamens 2 ..... Nothosaerva

5. Flowers clustered, 1-3 perfect, surrounded by several imperfect ones with hooked bristles, on long spikes ... Pupalia

1. Leaves alternate :

7. Staminodes interposed with stamens or forming a hypogynous cup .....Aerva

7. Staminodes absent :

8. Ovary 2-many-ovuled .....Celosia

8. Ovary 1-ovuled :

9. Flowers bisexual, pink; fruit a crustaceous nut .....Digera

9. Flowers unisexual or polygamous; fruit indehiscent or circumscises.....Amaranthus

Gomphrena Linn.

Flowers red, crimson or deep purple, in globose heads; plants cultivated .....globosa

Flowers white or dirty white in ovoid or cylindrical spikes; plants wild .....celosioides

Gomphrena globosa Linn. Sp. Pl. 224, 1753; FBI. 4: 732; C. 2: 584; Gr. 169; Bailey, Man. Cult. Pl. 356, f. 58 B; Sant.226.

An erect annual. Leaves elliptic or oblong to ovate. Flowers crimson, red or deep-purple, in globose terminal heads; heads subtended by 2 leafy bracts. (Fl. Fr. October - March).

PPB. 1252.

Commonly grown for its beautiful flowers.

Probably a native of American tropics.

Gomphrena celosioides Mart. in Nov. Act. Nat. Cur. 13: 301, 1826; Raizada, in Ind. For. 48: 675, 1949; Sant. 226; Fl. Dang, 80; Nair & Nair, in BSI. 5 (3 & 4): 220,1963.

A prostrate herb with smooth, silvery hairs. Leaves spathulate or oblong-elliptic. Flowers white or dirty white in cylindrical or oblong, terminal heads; heads subtended by two leafy bracts. Fruit enclosed in the perianth. (Fl. Fr. June - October).

PPB. 195, 667.

Commonly observed in cultivated fields and other habitats; throughout the area.

An introduced weed, native of S. Brazil, Paraguay, Uruguay and Argentina, spreading throughout India and has become a paste in some parts of the country.

Alternanthera Forsk.

Leaves nearly circular, inflorescence spinous; stamens 5 ..... pungens

Leaves linear or oblanceolate; inflorescence not spinous; stamens 3 ..... sessilis

Alternanthera pungens H.B. & K. Nov. Gen. Sp. 2: 206, 1818; Melville, in KB. 174, 1958; Sant. 200; Raizada, in Ind. For. 92(5): 301, 1966; Santapau & Shah, in JBNHS. 58(2): 550-553, 1961.

Alternanthera echinata Sm. in Rees, Cyclop. 39: Suppl. No. 10, 1819.

A. repens Link, Enum. Pl. Hort. Berol. 1: 154, 1821 (non J. F. Gmel. 1791); Backer, in Fl. Males. I, 4(2): 91, 1949; Van Steenis, in Fl. Males. I, 5: 554-555, 1958.

A prostrate, much-branched herb, rooting at the nodes. Leaves suborbicular or nearly circular, with soft spiny apex. Flowers white, in axillary heads; with spiny perianth segments. Stamens 5. (Fl. Fr. August - December).

PPB. 464.

Noted in dense patches near bank of ponds.

It is a native of Tropical America; introduced into this country towards the beginning of the century and has spread all over Peninsular India and also recently reported from

the Upper Gangetic Plain and Punjab Plains.

Alternanthera sessilis (Linn.) DC. Cat. Hort. Mon. Sp. 77, 1813; Gr. 168; D.& G. 220; Wt. Icon. t. 727; Backer, in Fl. Males I, 4(2): 94, 1948; Sant. 225; Fl. Dang, 78.

Gomphrena sessilis Linn. Sp. Pl. 225, 1753.

Alternanthera triandra Lamk. Encycl. 1: 95, 1783; C. 2: 584; G. 825.

A prostrate, much-branched annual herb, usually rooting at nodes. Leaves linear-oblong, opposite, glabrous. Flowers small, white, in axillary, sessile clusters. Seeds sub-orbicular. (Fl. Fr. June - November).

Local name : Jal Jambuo, Panini Bhaji.

PPB. 638.

A very common herb of moist - wet places throughout the area, noted on sandy beds of Mahi.

Throughout the warmer parts of India in damp places.

Ceylon and all warm countries.

Achyranthes Linn.

Achyranthes aspera Linn. var. porphyristachya Hook. f. in FBI. 4: 730, 1885; Sant. 224; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

A. porphyristachya Wall. Cat. 6925, 1832.

A. aspera Cooke, 2: 580, pro parte; Fl. Dang, 78.

An erect, annual herb or undershrub. Leaves thick, elliptic or ovate, few, acute. Flowers greenish white, in long terminal spikes; bracts and bracteoles, persistent, ending in a spine and fall off with fruit. Utricle oblong. (Fl. Fr. June - February).

Local name : Aghedo.

PPB. 360, 1094.

Common weed in hedges.

Throughout India.

Ceylon, Tropical Asia, Africa, Australia and America.

Psilostachys Hochst.

Psilostachys sericea Hook. f. in Benth. & Hook. Gen. Plant 3: 32, 1880; FBI. 4: 726; Woodr. JBNHS. 12: 364, 1899; C. 2: 579; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

Achyranthes sericea Koen. in Roxb. Fl. Ind. 1: 675, 1832; Wt. Icon. t. 726.

Psilotrichum sericeum D. & G. Bo. Fl. : 216, 1861.

Herbaceous, erect, silky plant. Leaves broadly ovate,

acute, sparsely silky-hairy above, densely so beneath. Flowers in 3-branched pedunculate cymes. Utricle closely enclosed by the perianth. (Fl. Fr. January - March).

PPB. 1253.

Noted at Dahej; a very interesting small plant on sandy mounds at Hajira.

Apparently endemic.

Nothosaerva Wight

Nothosaerva brachiata (Linn.) Wight, Ic. 611, 1853; FBI. 4: 726; C. 2: 580; Becker, loc. cit. 86, 1949; Fl. Dang. 80.

Achyranthes brachiata Linn. Mant. 1: 50, 1767.

Pseudanthus brachiatus Wt. Icon. t. 5 : 1776 (excl. analyses) & 6: t. 1776 bis. f. B.

A small, erect, much-branched, straggling herb. Leaves opposite, thin, membranous, ovate-lanceolate, softly tomentose. Flowers greenish-white, crowded, in small, dense axillary spikes; stamens 2. (Fl. Fr. September - December).

PPB. 460.

Commonly observed in moist situations and in cultivated fields.

North and W. Peninsular India.

Trop. Africa, Mauritius, Ceylon, Burma.

Pupalia Juss. (nom. cons.)

Herbaceous; leaves glabrous or nearly so;
bracts and bracteoles pungent; awns purple ..... atropurpurea

Shrubby; leaves tomentose; outer bract of the
flower-clusters very broad, membranous;
awns yellow ..... lappacea

Pupalia atropurpurea Moq. in DC. Prodr. 13(2): 331, 1849;
FBI. 4: 723; D. & G. 219; Trim. Fl. Ceyl. 3: 399; Prain,
Beng. Pl. : 872; C. 2: 582.

Desmochaeta atropurpurea DC. Cat. Hort. Monsp. 102, 1813;
Wt. Icon. t. 731; Gr. 168.

Annual or biennial herb with long, cylindric, slightly striate branches. Leaves ovate or elliptic-lanceolate, acuminate, mucronate. Flowers in sessile clusters, in lax pedunculate, terminal spikes. Utricle thinly membranous. (Fl. Fr. August - December).

PPB. 1065.

Noted along the Mahi estuary at Chokari.

India (Nipal, Bengal, W. Peninsula); Malaya, Ceylon, Java, Madagascar, S. Africa, Philippines.

Pupalia lappacea (Linn.) Juss. in Ann. Mus. Hist. Nat. Paris,
2 : 132, 1803; FBI. 4: 724; C. 2: 583.

Achyranthes lappacea Linn. Sp. Pl. 204, 1753.

A straggling, tomentose undershrub. Leaves opposite, elliptic-ovate, tomentose on both sides. Flowers white or greenish white, in distinct clusters forming long, terminal spikes. Fruits with glabrous, hooked awns; seeds ellipsoid, compressed, smooth and black. (Fl. Fr. July - February).

Local name : Dholo jipto.

PPB. 497.

Commonly found in hedges in almost all localities.

Gujarat, Maharashtra, Karnatak, W. Tropical Himalaya, Punjab, Bihar, W. Peninsula.

Tropical Asia and Africa.

Aerva Forsk. (nom. cons.)

Sepals 5 :

Spikes axillary and terminal ..... persica

Spikes all axillary ..... lanata

Sepals 4 ..... monsoniae

Aerva persica (Burm.) Merr. in Phil. Journ. Sci. 10: 348, 1921; Schinz. in Pfam. (ed. 2) 16C : 51; Sant. 198.

Iresine persica Burm. Fl. Ind. 212 (err. typ. 312), 1768.

A. javanica Juss. in Ann. Mus. Par. 2: 131, 1803;FBI.4: 727; C. 2: 577; Wt. Icon. t. 876.

An erect, bushy shrub. Stems covered with stellate tomentum. Leaves linear, linear oblong or lanceolate, greenish-white. Flowers unisexual, in dull white, woolly spikes forming leafless, terminal panicles. (Fl. Fr. December - March).

PPB. 601.

Common along the Mahi estuary at Kavi, Ganguva and Dhuvaran.

Punjab, Sind, Gujarat, Deccan, Central India, W.Peninsula; Ceylon, Arabia, Trop. Africa, Cape de Varde Islands.

Aerva lanata (Linn.) Juss. in Ann. Mus. Par. 2: 131, 1808; FBI. 4: 728; C. 2: 578; Backer, loc. cit. 84; Sant. 223; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4):86, 1967.

Achyranthes lanata Linn. Sp. Pl. 204, 1753 (non Celosia lanata Linn. ibid, 205).

An erect or sub-erect, much-branched, woolly tomentose herb with long tap root. Leaves alternate, elliptic, obovate or sub-orbicular, obtuse, white-woolly beneath. Flowers greenish white or white, in dense, axillary spikes. Seeds black, smooth. (Fl. Fr. August - March).

Local name : Kapuri-madhuri.

PPB. 1085.

A weed quite abundant throughout the area in cultivated fields and in hedges.

Throughout India.

Trop. Africa, Arabia, Ceylon, Java, Philippines.

Aerva monsoniae Mart. in Nov. Act. Acad. Caes. Leop. Carol. 13: 291, 1826; FBI. 4: 728; D. & G. 217; Wt. Icon. t. 725; Trim. Fl. Ceyl. 403; C. 2: 578.

A perennial undershrub branched from the base; branches numerous, grooved, woolly. Leaves sessile, opposite and in fascicles at the nodes, narrowly linear, spinous-pointed. Flowers pale pink, bisexual, crowded in numerous dense cylindric silky-villous spikes. Utricle thinly membranous, enclosed in the staminal cup. (Fl. Fr. October - February).

PPB. 371.

Common along the coast at Cambay.

India (Bengal, Central India, Birma, W. Peninsula).

Celosia Linn.

Flowers in white or pink, dense, unbranched spikes ..... argentea

Flowers in red or yellow, branched spikes, forming a cockscomb ..... cristata

Celosia argentea Linn. Sp. Pl. 205, 1753; Wt. Icon. t. 1767; FBI. 4: 714; C. 2: 570; Sant. 221; Fl. Dang, 79; Fl. Mel. 276; Rao and Aggarwal, Bull. Bot. Surv. India

6(2-4): 182, 1964.

An erect, glabrous, annual herb. Leaves linear, ovate-lanceolate, acute, entire. Flowers pinkish-white, in dense, conical or oblong, terminal spikes. Capsule ellipsoid. (Fl. Fr. August - January).

Local name : Lanpadi, Lemadi.

PPB. 1009.

Fairly common; a much variable plant observed in moist places and in cultivated fields.

Common throughout India.

Africa, Trop. Asia, Ceylon and America.

Celosia cristata Linn. Sp. Pl. 205, 1753; FBI. 4: 715; C. 2: 571; Maheshwari, 295.

An erect, annual herb, cultivated in beds for the red or yellow branched spikes, fasciating to form a cockscomb. (Fl. December - March).

PPB. 1254.

Grown as an ornamental herb; noted at Tithal, Dumas along the sea coast.

Cultivated throughout the tropics.

Digera Forsk.

Digera muricata (Linn.) Mart. in Beitr. Amar. No. 2: 77, 1825;

Backer, loc. cit. 80, 1949; Fl. Pavagadh, 198; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

Achyranthes muricata Linn. Sp. (ed. 2) : 295, 1762.

Digera arvensis Forsk. Aeg.-Arab. 65, 1775; D. & G. 218; FBI. 4: 717; C. 2: 572.

An erect, annual, glabrous herb with spreading branches. Leaves alternate, glabrous, entire, ovate, elliptic or lanceolate with long petioles, margin sometimes reddish. Flowers pink or rose, in lax, axillary pedunculate spikes. Fruit globose, muricate. Seeds yellowish brown. (Fl. Fr. June - November).

Local name : Kanajero.

PPB. 327.

A very common weed of cultivated fields.

N.W. Provinces, Gujarat, Maharashtra, Karnatak, Bengal.

Ceylon, Afghanistan, Pakistan, Arabia, N. Africa.

Amaranthus Linn.

Stamens 5; sepals 5 :

Leaf axils with spines	spinosus
Leaf axils without spines	hybridus ssp. cruentus var. paniculatus

Stamens 3; sepals 3 ;

Fruit circumscissile :

Stem branching near the middle;
yielding only one crop annually ..... tricolor

Stem branching near the base;
yielding several crops annually ..... gangeticus var. tristis

Fruit indehiscent ..... viridis

Amaranthus spinosus Linn. Sp. Pl. 991, 1753; FBI. 4: 718; C. 2: 573; Wt. Icon. t. 513; Sant. 221; Chavan and Padate, in Ind. For. 86(4): 215, 1960.

An erect, annual, spinous herb. Stems grooved. Leaves lanceolate, ovate, entire. Flowers green, in axillary or terminal, sessile, dense panicles. (Fl. Fr. July - October).

Local name : Kantalo Debho.

PPB. 658.

A very common weed found throughout the area.

Throughout India.

Ceylon, Malaysia and many tropical countries.

Amaranthus hybridus Linn. ssp. cruentus (Linn.) Thell. var. paniculatus Thell. in Aschers. & Graebn. Syn.

5(1): 247, 1914; Backer, in Fl. Males. I, 4(2): 79, 1949; Sant. 224.

A. paniculatus Linn. Sp. Pl. 1406, 1763; FBI. 4: 718; C. 2: 573.

An erect, handsome, much-branched herb. Stems stout, grooved, purple coloured. Leaves ovate-lanceolate, acute. Flowers yellowish, in dense spikes. Capsule ovoid. (Fl. Fr. July - December).

Local name : Rajgaro.

PPB. 635.

Observed either under cultivation or as an escape.

Cultivated for its grains, which form the staple food of poorer classes in many parts of India.

Cultivated or as an escape in E. and W. Asia and Africa.

Amaranthus tricolor Linn. Sp. Pl. 989, 1753; Becker, in Fl. Males, I, 4(2): 77, 1949; Sant. 222; Maheshwari, 297; Rao and Aggarwal, loc. cit. 23.

A. gangeticus Linn. Syst. 1268, 1759; FBI. 4: 719; C.2: 574.

A. polygamous Linn. Amoen. Acad. 4: 294, 1759; C. 2: 575.

An erect, much-branched, stout herb. Leaves variable in size, ovate-oblong or lanceolate with a cuneate base. Flowers in axillary clusters, forming long, terminal, interrupted

spikes. Tepals 3, provided with long, apical awns. Utricle flask-shaped, circumsciss; seeds lenticular, black, smooth and shining. (Fl. Fr. October - February).

PPB. 411.

Observed in moist places in ditches.

Throughout India.

Ceylon, Trop. Africa, Asia, America.

Amaranthus gangeticus Linn. var. tristis Prain, Beng. Pl. 869; Roxb. Fl. Ind. 3: 604; D. & G. 215; Wt. Icon. t. 713; C. 2: 574.

An annual herb with many prostrate branches from near the base of the stem.

Roxburgh (Fl. Ind. V. 3: 604) points out that it differs from A. gangeticus (A. oleraceus, Roxb.) in its branching from the base and not from the middle of the stem as the type A. gangeticus does.

PPB. 352, 461, 656.

Cultivated as a pot-herb at Chokari and Dhuvaran along the Mahi estuary.

Amaranthus viridis Linn. Sp. Pl. (ed. 2): 1405, 1763, quoad. descr. et Herb. Linn. Excl. ref. Bauhin et Tournefort;

FBI. 4: 720; C. 2: 575; Van Steenis, in Fl. Males. I, 4(2): 594, 1954; Sant. 222.

Amaranthus gracilis Desf. Tabl. Hort. Par. 43, 1804.

An erect, much-branched, glabrous herb. Leaves ovate or deltoid-ovate; glabrous. Flowers small, pale-green, shortly stalked, in axillary or terminal paniculate spikes. Fruit indehiscent, compressed, sub-orbicular. (Fl. Fr. October -May).

Local name : Dhimdo.

PPB. 453.

Observed as a weed in cultivated fields and in moist places.

Throughout India.

Ceylon, all tropical countries.

CHENOPODIACEAE

1. Embryo annular or horse shoe-shaped :

   2. Stems leafy, not jointed :

      3. Flowers all similar, hermaphrodite...Chenopodium

      3. Flowers dimorphic, the males ebracteolate with 3-5 sepals, the females 2-bracteolate without sepals..Atriplex

2. Stems jointed, fleshy, leaves 0 :

4. Flowers in the scales of cone-like spikes ..... Arthrocnemum

4. Flowers sunk in cavities in successive joints ..... Salicornia

1. Embryo spiral; albumen 0 ..... Suaeda

Chenopodium Linn.

Chenopodium album Linn. Sp. Pl. 219, 1753; FBI. 5: 3; Backer, in Fl. Males. I, 4(2): 102, 1949; Sant. 226; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

C. viridis Linn. Sp. Pl. 219, 1753; Gr. 171.

An erect, green annual. Stems often striped. Leaves entire, rhomboid-oblong, thick, acute. Flowers greenish, in axillary or terminal clusters, forming condensed spikes. Seeds black, orbicular, compressed. (Fl. Fr. November - March).

Local name : Chilni Bhaji.

PPB. 60.

Commonly noted in moist, waste places and as a weed in the cultivated and fallow fields along the coast.

Throughout India and almost everywhere.

Atriplex Linn.

Atriplex stocksii Boiss. Diagn. Ser. 2, No. 4: 73, 1859; FBI. 4: 7; Woodr. in JBNHS. 12: 364, 1899; C. 3: 587; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

A. repens Aitch. Pb. & Sind Pl. : 125 (not of Roth).

Obione stocksii Wt. Icon. t. 1789; D. & G. 212.

A shrubby perennial, much-branched, prostrate or sub-erect. Leaves fleshy, elliptic, obtuse, smooth, glaucous, base acute. Flowers small, monoecious or polygamo-dioecious, clustered, in axillary sessile fascicles. Fruit a membranous utricle enclosed in the enlarged bracteoles. (Fl. Fr. December - February).

PPB. 692.

Common on sandy soil at cambay, Daman, Dumas.

India (W. Peninsula).

Arthrocnemum Moq.

Arthrocnemum indicum Moq. Chenopod. Enum.: 113, 1840; FBI. 5: 12; D. & G. 212; Trim. Fl. Ceyl. 3: 407; Woodr. in JBNHS. 12: 365, 1899; Prain, Beng. Pl. 881; Watt, Dict. Econ. Prod. 1: 328; C. 2: 589.

Salicornia indica Willd. in Ges. Naturf. Fr. Neue Schr. 2: 111, 1799, t. 4, f. 2; Wt. Icon. t. 737; Gr. 171.

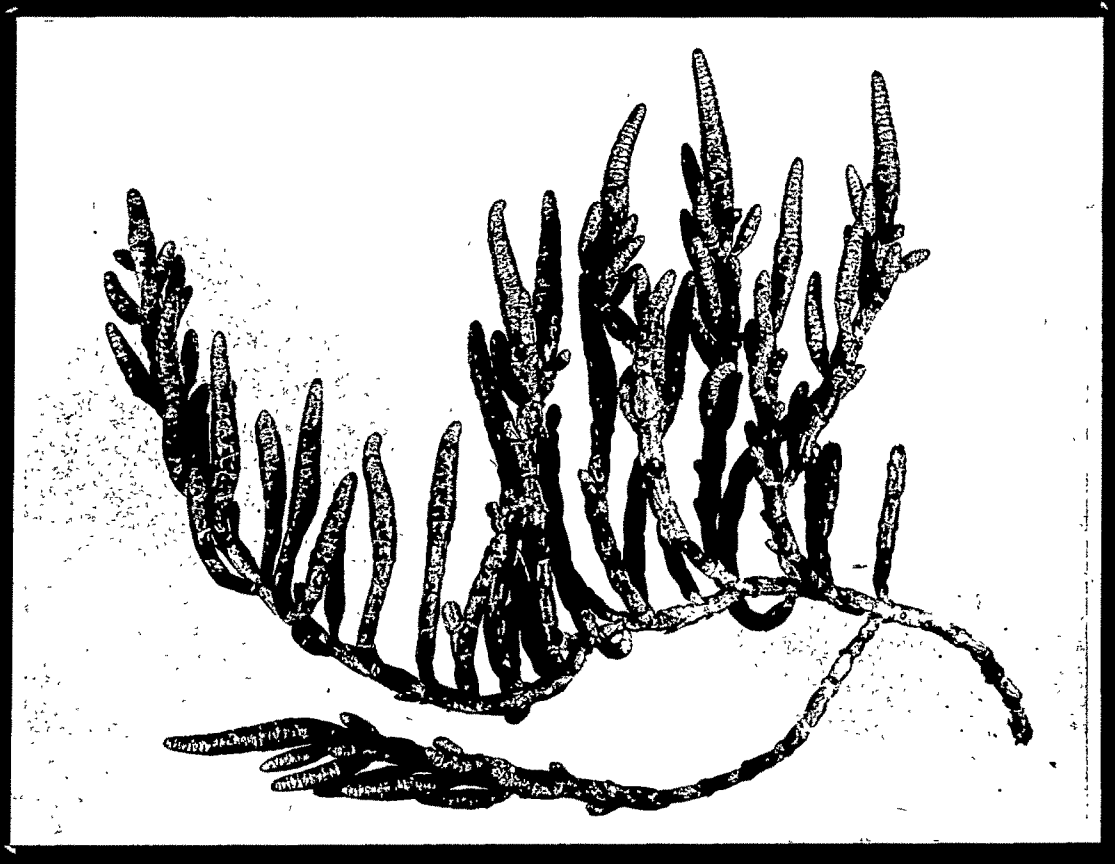


PLATE No. 32.

A perennial, fleshy, leafless jointed branching shrub. Flowers minute, hermaphrodite, 2-3 together in the axils of scaly bracts, forming sessile cone-like spikes; bracteoles spongy. Seed trigonous, compressed (Fl. Fr. December - January).

PPB. 1128.

Common on saline soil near the coast at Hajira.

PLATE No. 32

India (Bengal, W. Peninsula); Ceylon, Tropical Africa.

Salicornia Linn.

Salicornia brachiata Roxb. Fl. Ind. ed. Carey & Wall. 1: 82, 1820; FBI. 5: 12; Wt. Icon. t. 738; Trim. Fl. Ceyl. 3: 408; Woodr. in JBNHS. 12: 365, 1899; Prain, Beng. Pl. 881; Watt, Dict. Econ. Prod. 6, Part 2 : 387; Rao and Shanware, Bull. Bot. Surv. India 9(1-4): 247, 1967.

Fleshy, jointed, leafless, branched shrub. Flowers minute, hermaphrodite, 3-nate, in the axils of scaly bracts sunk in superposed and decussately opposite cavities of the internodes, forming sessile cone like spikes. Fruit an ovoid compressed utricle with membranous pericarp, enclosed in the spongy perianth. (Fl. Fr. November - January).

PPB. 773.

Very common in saline soil all along the coast at Hajira and Dumas.

Bengal, W. Peninsula.

Ceylon.

Suaeda Forsk.

1. Perennial; seed usually erect :

2. Flowers hermaphrodite; stigmas 3 :

3. Flowers axillary, 1-3 nate; bracteoles with entire or slightly toothed margins... fruticosa

3. Flowers in dense many-flowered clusters; bracteoles with pectinate margins..... nudiflora

2. Flowers polygamous; stigmas 2-5 ..... monoica

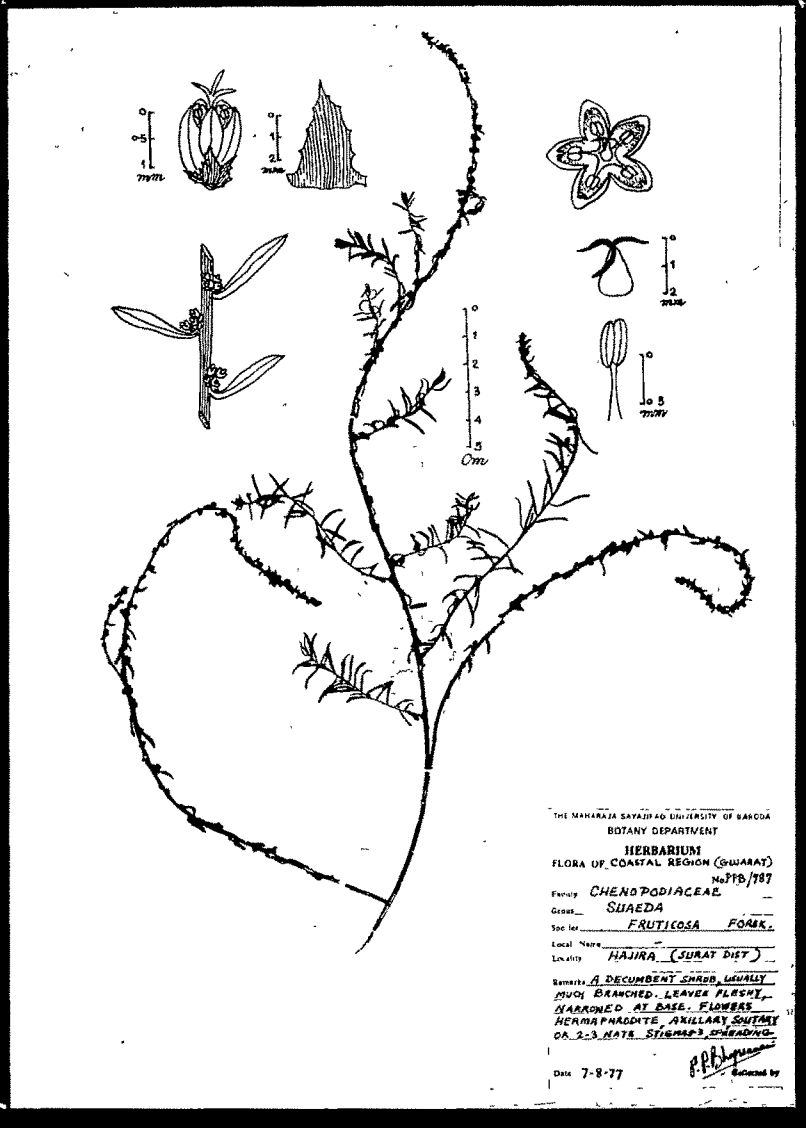
1. Annual erect herb; seed usually horizontal ..... maritima

Suaeda fruticosa Forsk. Fl. Aegypt.-Arab. 70, 1775; Fl. B.I. 5: 13; Watt, Dict. Econ. Prod. 6, Part-3: 386; C. 2: 590; Rao & Shanware, Bull. Bot. Surv. India 9(1-4): 243, 1967.

Salsola fruticosa Linn. Sp. Pl. 324, 1762; Gr. 170.

S. lana Edgew. in Hook. Journ. Bot. 2: 286, 1840.

An erect, much-branched, glabrous, perennial shrub. Leaves fleshy, subsessile, obtuse, narrowed at the base. Flowers hermaphrodite, axillary, 1-3-nate. Utricle obovoid,



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PTB/787

Family CHENOPODIACEAE
Genus SUAEDA
Species FRUTICOSA FORSK.
Local Name
Locality HAJIRA (SURAT DIST.)

Remarks A DECUMBENT SHRUB, USUALLY MUCH BRANCHED. LEAVES FLESHY, NARROWED AT BASE. FLOWERS HERMAPHRODITE, AXILLARY SOLITARY OR 2-3 NATE. STIGMAS 2, THREADING.

Date 7-8-77 Collected by P.P. Pandya

PLATE No. 33.

thickened at the top. (Fl. Fr. November - January).

Local name : Moras, Ushuk-lani.

PPB. 787.

Common on saline soils in the coastal areas generally in association with Aeluropus.

PLATE No.33

India (North-West, Punjab, W. Peninsula); Africa, America.

Suaeda nudiflora Moq. Ann. Sc. Nat. V. 23: 316, 1831; Fl. B.I. 5: 14; Watt, Dict. Econ. Prod. 6, Part-3: 386; C. 2: 591; Rao & Shanware, Bull. Bot.Surv. India 9(1-4): 247, 1967.

Suaeda indica Moq. in Ann. Sc. Nat. 23: 316, 1831; Wt. Icon. t. 1796.

Salsola nudiflora Willd. Sp. Pl. 1: 1313, 1797; Gr. 170.

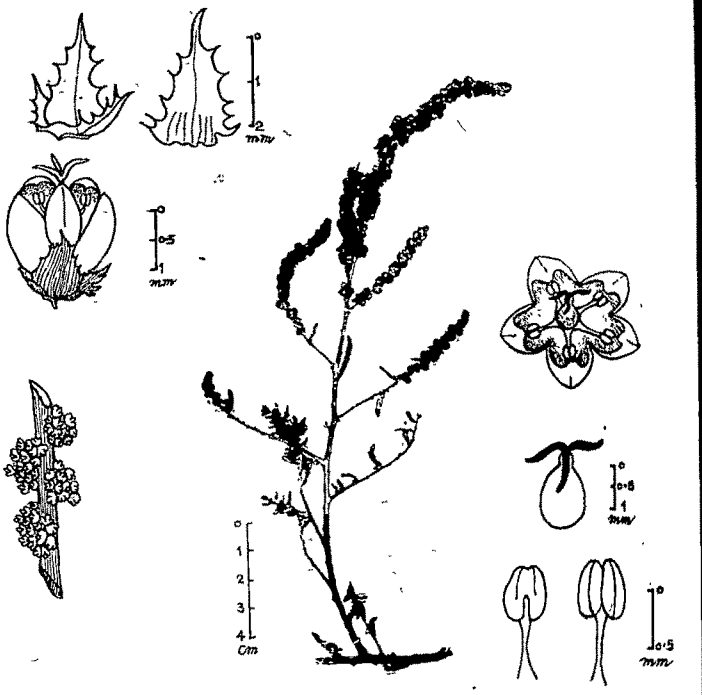
A diffusely branched, woody, perennial undershrub. Leaves numerous, soon falling, glaucous green, base narrowed. Flowers hermaphrodite, axillary, in dense globose many-flowered clusters, forming dense spikes leafless in the upper part. Utricle ovoid. (Fl. Fr. November - January).

The green leaves are eaten by the natives wherever the plant occurs.

Local name : Mores.

PPB. 332, 875.

Abundant on saline soils all along the coast.



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PPB/81

Family CHENOPODIACEAE
Genus SUAEDA
Species NUDIFLORA MOQ
Local Name —
Locality CAMBAY

Remarks: A DIFFUSELY BRANCHED WOODY PERENNIAL UNDERSHRUB, USUALLY GROWING IN SALINE PLACES. [FG 11.75 M. SIND. S/CX.]. LEAVES NUMEROUS, FLESHY, FALLING. FLOWERS IN AXILLARY, DENSE GLOBOSE MANY FLOWERED CLUSTERS. PERIANTH 5 LOBED, LEAFLESS. STAMENS 5. STYLES 3. FRUIT ENCLOSED BY BRACTEOLES WITH FLATTENED MARGIN E. 12-76

PLATE No. 34.

PLATE No. 34.

India (Orissa; on the sea-coast; W. Peninsula); Ceylon.

Suaeda monoica Forsk. Fl. Aegypt.-Arab. P : 70, 1775; Fl. B.I. 5 : 13; Wt. Icon. t. 1792; Trim. Fl. Ceyl. 3: 408; C. 2: 591; Padate, & Bhagwanani, Proc. Ind. Sc. Cong. 3(4): 96, 1979.

A small, erect, perennial bush with numerous ascending branches marked with prominent leaf-scars. Leaves sessile, bright-green. Flowers polygamous, in slender lax spikes, the clusters distant, each in the axil of a short leaf. (Fl. Fr. November - January).

PPB. 1049.

Common in the foreshore of the sandy coast associated with Ipomoea and Launaea at Dahej. This species is new to Gujarat.

PLATE No. 35

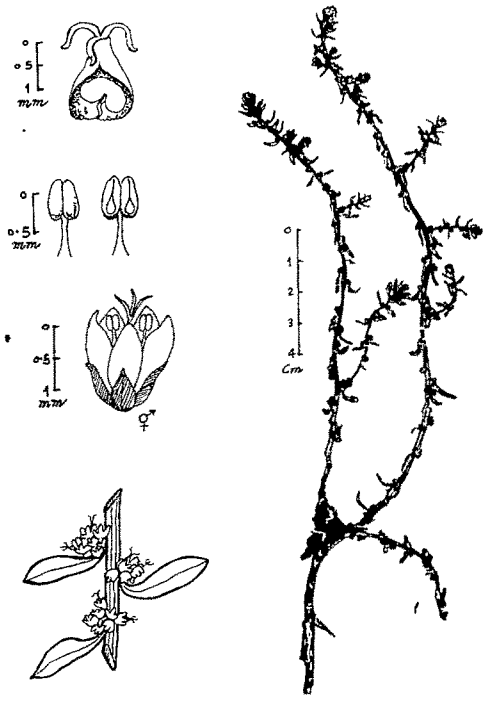
India (W. Peninsula): Ceylon, Arabia, Tropical Africa.

Suaeda maritima Dumort. Fl. Belg.: 22, 1827; Fl. B.I. 5: 14; Watt, Dict. Econ. Prod. 6, Part-3: 386; C. 2: 591; Padate & Bhagwanani, loc. cit. 96, 1979.

Salsola indica Willd. Sp. Pl. 1: 1317, 1797; Gr. 170.

Chenopodina indica Wt. Icon. t. 1793.

An annual erect herb, stems woody at the base, erect, with



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT

HERBARIUM

FLORA OF COASTAL REGION (GUJARAT)

No PFB/206

Family CHENOPODIACEAE

Genus SUAEDA

Species MONOICA FORSK.

Local Name

Locality DHUVARAN (MAHI ESTUARY)

Remarks A SMALL, PERENNIAL ERECT BUSH, USUALLY GROWING IN SALINE PLACES. [EC-5.640 MILLI MHOS/Cm] BRANCHES NUMEROUS, ASCENDING, MARKED WITH PROMINENT LEAF-SCARS. LEAVES- SESSILE, LINEAR, FLATTISH FLOWERS- POLYGAMOUS IN LAX SPIKES; STIGMAS- 2 to 3 (2-5)

Collected by P.P.Patel

5-3-76

PLATE No. 35.

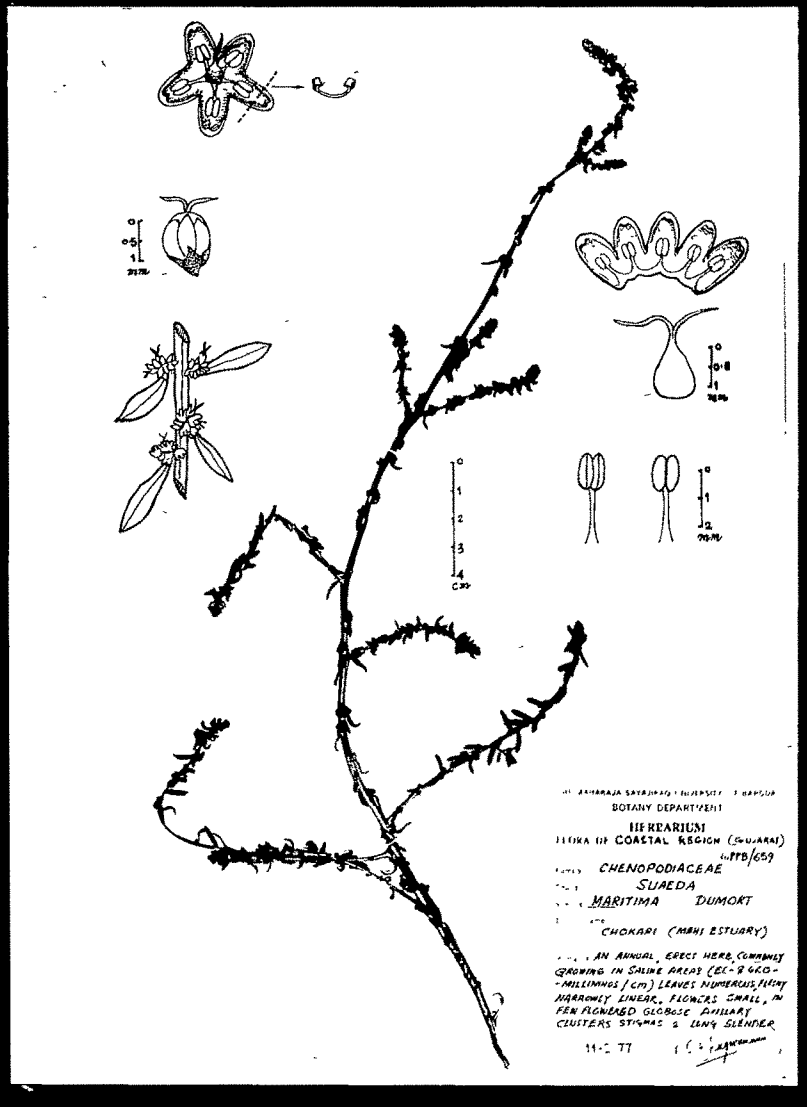

BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
CHENOPODIACEAE
SUAEDA
MARITIMA DUMORT
CHOKARI (MAHI ESTUARY)
AN ANNUAL, ERECT HERB, COMMONLY GROWING IN SALINE AREAS (EC-2 6KO-MILLIMHOS/CM) LEAVES NUMEROUS, FLESHY NARROWLY LINEAR, FLOWERS SMALL, IN FEW FLOWERED GLOBOSE AXILLARY CLUSTERS STIGMAS 2 LONG SLENDER

PLATE No. 36.

numerous very slender erect branches. Leaves numerous, narrowly linear, fleshy. Flowers in small, few-flowered globose clusters forming very slender elongate, lax spikes. (Fl. Fr. May-June).

Local name : Lana, Lani.

PPB. 659.

Common throughout the coast, a good indicator of saline flats. This species is new to Gujarat. Rao, et al. who worked on the Saurashtra coast could not collect this species.

PLATE No. 36

The green leaves are eaten and considered a wholesome vegetable. The plant is also incinerated to produce an impure sodium carbonate.

India (Punjab, Bengal, W. Peninsula), Ceylon, N.W. Asia, N. Africa, Europe, N. America.

BASELLACEAE

Basella Linn.

Basella rubra Linn. Sp. Pl. 272, 1753; FBI. 5: 20; C. 2: 594; Bailey, Man. Cult. Pl. 354; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

Basella alba Linn. Sp. Pl. 272, 1753.

A glabrous, twining, succulent herb. Leaves broad, ovate,

entire, cordate. Flowers pale-purple, in lax, axillary, elongated spikes. Fruit ovoid, fleshy utricle, black. (Fl. Fr. September - January).

Local name : Poi.

PPB. 203, 445.

Cultivated along the coast.

Throughout India, wild or cultivated.

Ceylon, Tropical Asia and Africa.

POLYGONACEAE

Erect or prostrate herbs with ochreate stipules ...Polygonum

Climbing shrubs without ochreate stipules .....Antigonon

Polygonum Linn.

Polygonum plebeium R. Br. Prodr. 420, 1810; FBI. 5: 27; C. 3: 4; Sant. 226; Fl. Dang, 80; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

A diffusely branched, prostrate, glabrous herb, with reddish brown stems. Leaves small, linear, oblong, acute; stipules short, hyaline, fimbriate. Flowers pink- or red, in axillary clusters. Nutlets trigonous. (Fl. Fr. October - February).

Local name : Nano okhrad.

PPB. 637.

Commonly noted in moist places in association with Coldenia, Grangea and Heliotropium supinum.

Throughout tropical and sub-tropical India.

Afghanistan, Tropical Asia, Java, Philippines, Australia, Madagascar, Egypt, Trop. and South Africa.

Antigonon Endl.

Antigonon leptopus Hook. & Arn. Bot. Beech. Voy. 308, t. 69, 1814; C. 3: 10; Bor & Raizada, 265; Bailey, Man. Cult. Pl. 351; Sant. 228.

A large climber. Leaves large, ovate, cordate, acute to acuminate; stipules 0. Flowers pink or rose, in long racemes with peduncles terminating into tendrils. (Fl. Fr. September - April).

English name : Ice-Cream Creeper.

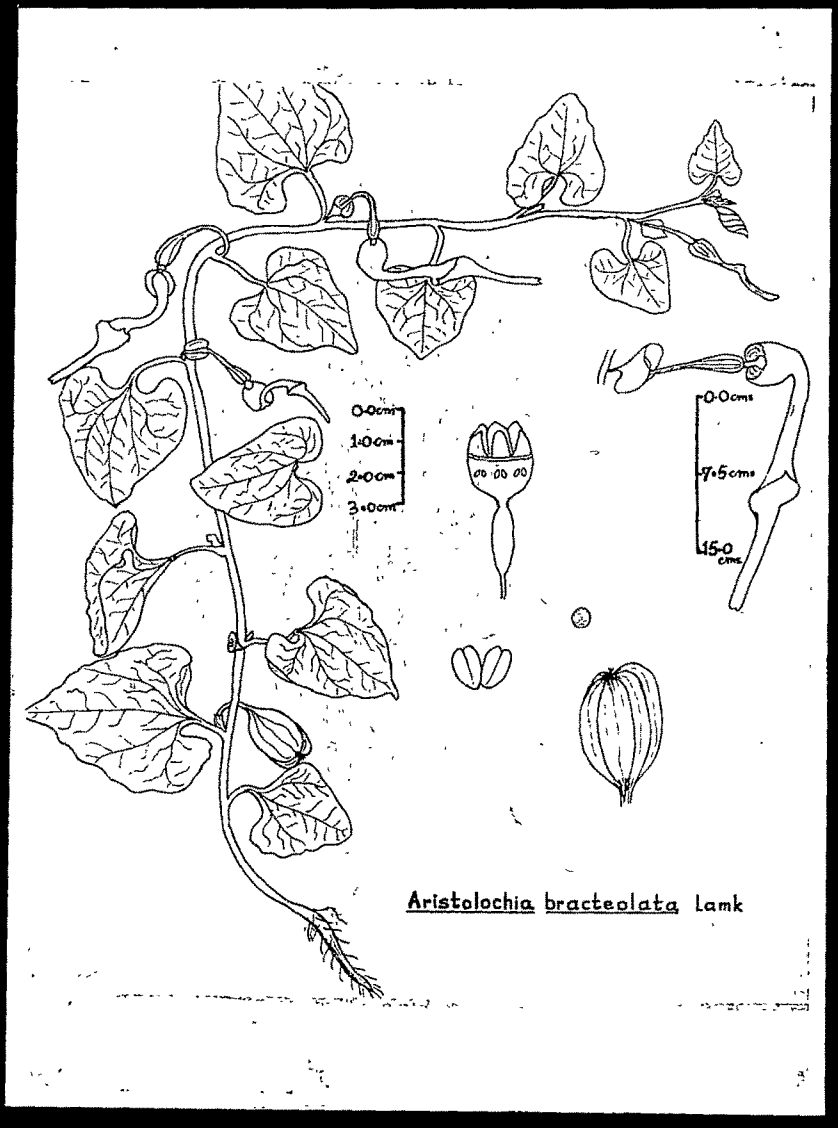
PPB. 1255.

Usually grown for its flowers; also found at some places as escape.

A native of South America, now commonly grown throughout the country.

ARISTOLOCHIACEAE

Aristolochia Linn.



Aristolochia bracteolata Lamk

PLATE No. 37.

Aristolochia bracteolata Lamk. Encycl. 1: 258, 1783; Andrews, Fl. Pl. Anglo-Egypt. Sudan 1: 121, f. 17, 1950; Santapau & Wagh, in Bull. Bot. Surv. Ind. 5: 105, 1963; Fl. Pavagadh, 202; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

A. bracteata Retz. Obs. Bot. 5: 29, 1789; FBI. 5: 75; C. 3: 16.

A glabrous, prostrate herb. Leaves simple, glaucous, reniform or broad ovate, deep cordate; basal lobes rounded. Flowers dark purple, solitary, tubular, axillary with trumpet-shaped mouth. Capsules oblong-ellipsoid, ribbed. (Fl. Fr. August - January).

Local name : Kiramar.

PPB. 727.

Frequent, along sandy backshore at Dumas, Cambay etc.

PLATE No. 37

Rare. It is an extremely bitter plant and is used as an anthelmintic.

Gujarat, W. Peninsula, South India, Bengal.

Tropical Africa, Arabia, Ceylon.

PROTEACEAE

Grevillea R. Br. (nom. cons.)

Grevillea robusta A. Cunn. in R. Br. Prot. Nov. 24, 1830;

Bailey, loc. cit. 345; Maheshwari, 308.

A tall, robust tree. Leaves bi- or tripinnate; leaflets pinnatifid. Flowers orange-yellow,in one-sided, showy racemes. (Fl. January - May).

PPB. 1256.

Grown in gardens at Tithal.

A native of Australia in Queensland and New South Wales; planted in gardens in India.

LORANTHACEAE

Dendrophthoe Mart.

Dendrophthoe falcata (Linn.) Etting, in Denkschr. Akad. Wissen. Math.-Naturw. Cl. 32, 58, t. 13, f. 14, 1872; Sant. 234; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

Loranthus falcatus Linn. f. Suppl. 211, 1781.

L. longiflorus Desr. in Lamk. Encycl. 3: 598, 1789; FBI. 5: 214; C. 3: 42; Gr. 86; G. 1250; Wt. Icon. t. 302.

A branched, incomplete parasite. Leaves thick, leathery, linear, oblong or elliptic. Flowers white with a greenish tinge or white. (Fl. Fr. November - May).

Local name : Vando.

PPB. 1257.

A common pest on Mangifera indica. Also noted on Azadirachta indica.

More or less throughout India.

Ceylon.

PIPERACEAE

Peperomia Ruiz & Pav.

Peperomia pellucida (Linn.) H.B. & K. Nov. Gen. 1: 64, 1815; C. 3: 21; Sant. 203.

Piper pellucidum Linn. Sp. Pl. 30, 1753.

A weak, procumbent, succulent herb. Leaves membranous, 5-7-nerved, ovate, cordate, acute. Flowers in slender, terminal or leaf-opposed spikes. (Fl. Fr. February - June).

PPB. 853.

Noted wild in cool, wet shaded localities at Tithal and Meh Dungri coastal areas near Bulsar.

It is a native of S. America, now quite naturalized in some parts of India.

LAURACEAE

Cassytha Linn.

Cassytha filiformis Linn. Sp. Pl. 35, 1753; FBI. 5: 188; D. & G. 223; Wt. Icon. t. 1847; Trim. Fl. Ceyl. 3: 455;

Prain, Beng. Pl. 904; Watt, Dict. Econ. Prod. 2: 226; C. 3: 35.

Filiform, twining leafless parasites adhering to their host by suckers. Flowers small, sessile, in lax lateral divaricate spikes. Fruit a small drupe enclosed in the succulent perianth tube and crowned by the perianth-limb. (Fl. Fr. September - November).

PPB. 1140.

Common along the coast at Dumes and Dandi often parasite on Ipomoea pes-caprae (Linn.) R. Br.

Throughout India near the coast; Ceylon, Arabia, Mascarene, Islands, Tropicel East Asia and Islands, Australia, Polynesia, Tropical Africa and America.

EUPHORBIACEAE

1. Plants twining ..... Dalechampia

1. Plants not twining :

   2. Glabrous trees or shrubs with acrid milky juice ..... Excoecaria

   2. Plants not as above :

      3. Flowers in cyathia :

4. Involucre regular ..... Euphorbia

4. Involucre obliquely zygomorphic ..... Pedilanthus

3. Flowers not in cyathia :

5. Cells of the ovary 1-ovuled :

6. Petals present in one or both sexes, or if absent, calyx petaloid :

7. Flowers in androgynous spikes or racemes ..... Chrozophora

7. Flowers in androgynous cymes ..... Jatropha

6. Petals absent in both the sexes :

8. Stamens many; capsules prickly ... Ricinus

8. Stamens few; capsules not prickly.. Acalypha

5. Cells of the ovary 2-ovuled :

9. Petals present, small; calyx valvate :

10. Ovary 2-celled; fruit a drupe.... Bridelia

10. Ovary 3-celled; fruit a capsule.. Cleistanthus

9. Petals absent; calyx imbricate :

11. Pistilodes in male flowers large, disc present in both sexes ..... Securinega

11. Pistillodes absent in males :

12. Herbs; fruits dry, capsular... Phyllanthus

12. Shrubs or trees; fruits fleshy :

13. Shrubs; fruits small, dark purple ..... Kirganelia

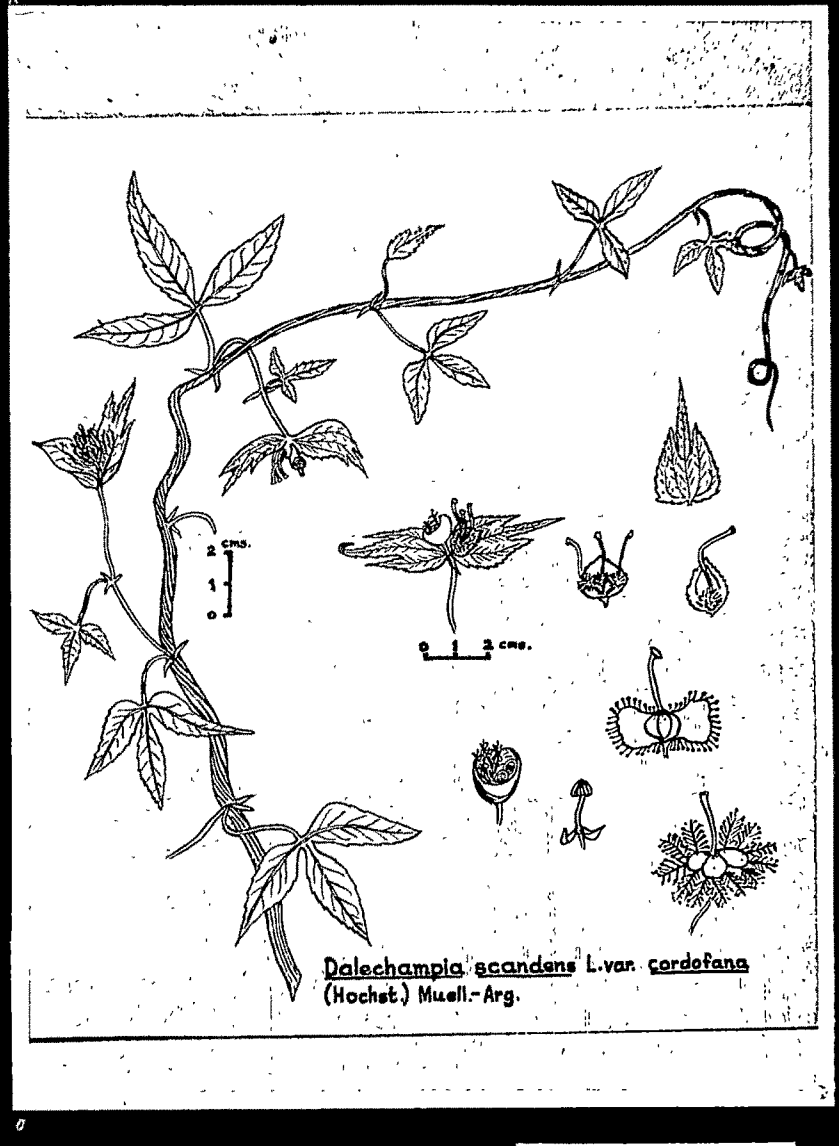
13. Trees; fruits large, pale yellow ..... Emblica

Dalechampia Linn.

Dalechampia scandens Linn. var. cordofana (Hochst.) Muell.-Arg. in DC. Prodr. 15(2): 1245, 1866; Chavan, Sabnis & Bedi, in Curr. Sci. 31: 115, 1962 and JBNHS. 59(1):323, 1962.

D. cordofana Hochst. in Rich. Tent. Fl. Abyss. 2: 244, 1851.

A slender twiner, with striate, sparsely hairy stems. Leaves alternate, stipulate, deeply 3-lobed; lobes serrulate. Flowers in androgynous heads, raised on long peduncles, subtended by two, conspicuous involucral bracts; bracts yellowish-green, trilobed, serrulate, prominently veined. Involucre head consists of 3 female flowers and a number of male flowers; male flowers stalked, anthers raised on a central column; female flowers sessile with glandular calyx, which enlarges and persists in fruit. Fruit 3-celled with 1-seed in



Dalechampia scandens L. var. cordofana (Hochst.) Muell.-Arg.

PLATE No. 38.

each cell; seeds rounded oval, creamy yellow. (Fl. Fr. July - October).

PPB. 595.

Common twiner in the coastal area at Cambay, Dhuvaran and Chokari.

PLATE No. 38.

Critical notes : Widespread in Tropical Africa, from where possibly it has been introduced in India. Dalzell, in 1866 and other subsequent workers collected it from Kathiawar (Saurashtra) and wrongly identified it as Dalechampia indica Wt. Both D. indica and D. scandens var. cordofana can be separated by the characters of their leaves (Chavan, Sabnis & Bedi). It is concluded that D. indica Wt. does not at all occur in this part of the country and that all the plants so far been published as D. indica are referable to D. scandens Linn. var. cordofana Muell.-Arg.

Excoecaria Linn.

Excoecaria agallocha Linn. Syst. Nat. ed. 10: 1288, 1759; FBI. 5: 472; Gr. 185; D. & G. 227; Wt. Icon. t. 1865; Trim. Fl. Ceyl. 4: 77; Talb. Trees. Bomb. ed. 2: 320; C. 3: 123.

E. camettia Willd. Sp. Pl. 4: 864; Gr. 185.

A small poisonous evergreen tree with white highly acrid

juice. Leaves alternate, thickly coriaceous. Flowers minute, fragrant, yellowish-green; bracts rounded, fleshy. Male flowers sessile, in numerous catkin-like spikes. Female flowers pedicellate. Capsules very variable in size. (Fl. Fr. July - September).

Local name : Geva, Serund.

PPB. 1258.

In tidal marshes along the coast at Umbergaon and Golwad.

India (Sundribans, Birma, W. Peninsula); Ceylon, Indian Archipelago, N. Australia, New Caledonia.

Euphorbia Linn.

1. Shrubs or trees :

   2. Plants armed with stipular spines.....neriifolia

   2. Plants unarmed :

      3. Stems green, cylindrical; leaves small, deciduous.....tirucalli

      3. Stems and leaves not as above .....pulcherrima

1. Annual or perennial herbs :

   4. Involucre with a single, large gland .....heterophylla

   4. Involucral glands not large :

5. Leaves exstipulate, alternate below, opposite above or all alternate, except the uppermost floral leaves :

   6. Involucre with 2-glands; bracts linear-lanceolate .....dracunculoides

   6. Involucre with 4-glands; bracts short, suborbicular .....perbracteata

5. Leaves all opposite, stipulate or if stipules absent, the opposite pairs of leaves joined by interpetiolar line :

   7. Floral leaves distichously imbricating.....zornioides

   7. Floral leaves not distichously imbricating :

      8. Involucres in many-flowered cymes .....hypericifolia

      8. Involucres solitary, axillary .....erythroclada

         9. Erect or ascending herbs; leaves upto 35 mm. long .....hirta

         9. Prostrate herbs; leaves less than 12 mm. long :

            10. Stems glabrous, capsule glabrous all over .....microphylla

            10. Stems hairy, capsules pubescent all over .....thymifolia

Euphorbia neriifolia Linn. Sp. Pl. 451, 1753; FBI. 5: 255; C. 3: 59; D. & G. 226; G. 1773 and 1277; Sant. 240; Santapau, in Bull. Bot. Soc. Bengal 8: 7, 1955; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Rao and Aggarwal, Bull. Sot. Surv. India 6(2-4): 182, 1964.

A large, fleshy, armed shrub. Leaves fleshy, obovate-oblong, alternate, deciduous. Leaf-less during flowering and fruiting. Cyathia yellowish or greenish yellow. (Fl. Fr. January - May).

Local name : Thor.

PPB. 299.

Commonly grown as a hedge plant around cultivated fields.

Throughout India.

Burma, Pegu, Malay Islands, Ceylon.

Euphorbia tirucalli Linn. Sp. Pl. 452, 1753; FBI. 5: 254; C. 3: 66; G. 1272 & 1276; Gr. 179; D. & G. Suppl. 76; Fl. Pavagadh, 206; Sastry & Rao, Bull. Bot. Surv. India 15(1-2): 104, 1973.

A leafless, unarmed, deciduous shrub or a small tree. Branches green and cylindrical. Leaves absent, when present very small. (Fl. Fr. August - September; rarely noted).

Local name : Kharsani.

PPB. 1338, 1343.

Often cultivated as hedge plant at Valsad, Tithal etc.

A native of South Asia.

Euphorbia pulcherrima Willd. ex Klotz, in Otto. & Dietr. Allgem. Gartenz. 2: 1834; FBI. 5: 239; C. 3: 66; Bailey, Man. Cult. Pl. 618; Maheshwari, 311.

Poinsettia pulcherrima R. Grah. in Edinb. N. Phil. Journ. 20: 412, 1836; Bor & Raizada, 171, Pl. 60, 61.

An erect, attractive, garden shrub. Leaves ovate-elliptic to lanceolate, long-petioled; bracteal leaves bright vermillon-red or crimson-scarlet. Cyathia arranged in cymes. Involucres with a large, yellow gland on the sides. (Fl. November-April).

PPB. 1259.

Grown in public gardens at Tithal, Valsad and Nargol.

A native of Mexico and Central America; commonly grown throughout India.

Euphorbia heterophylla Linn. Sp. Pl. 453, 1753; Airy Shaw, in Kew Bull. 26(2): 264, 1972; Rao and Aggarwal, loc. cit. 182.

E. geniculata Orteg. Nov. Pl. Hort. Matrit. Dec. 18, 1797; FBI. 5: 239; C. 3: 66; Maheshwari, 312.

An erect, annual herb. Leaves elliptic, lanceolate to ovate, very variable. Flowers in cyathia. Involucres 5-lobed with one, conspicuous, lateral gland. Capsule usually 3-celled. (Fl. Fr. August - February).

PPB. 1260.

Noted on moist soil along irrigation canals; not common, though locally abundant.

A native of tropical and subtropical America, now naturalized in various parts of the country.

Euphorbia dracunculoides Lamk. Encycl. Method. 2: 428, 1788; FBI. 5: 262; C. 3: 66; Santapau, loc. cit. 11; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

An erect, dichotomously branched, annual herb. Leaves alternate or opposite, linear-lanceolate. Cyathia on short stalk in the fork of the branches. Capsule glabrous. (Fl. Fr. March - May).

PPB. 1089.

Observed as a weed in cultivated fields at Chokari.

Throughout India in the plains and low hills.

Arabia, Tropical Africa.

Euphorbia perbracteata Gage , in Kew Bull. 1914; 238, 1914; Haines, 1: 150; Santapau & Shah, in JBNHS. 62(2): 207, 1965; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

A coarse annual with pale stems, 2-3-chotomously paniculately branched above. Lower leaves alternate, upper opposite. Involucral glands 4, truncate, broadly oblong with

a reflexed horn each side. (Fl. Fr. December - April).

PPB. 1261.

Collected as a weed from cultivated fields at Chokari, Dhuvaran and Kavi.

Gujarat, Bihar, Orissa. This plant is not mentioned by Cooke and Hooker.

Euphorbia zornioides Boiss. in DC. Prodr. 15(2): 19, 1862; FBI. 5: 246; Woodr. in JBNHS. 12: 369, 1899; Prain, Beng. Pl. 922; C. 3: 60.

Glabrous, annual herbs. Stem erect, alternately and dichotomously much-branched and woody at the base. Leaves shortly petiolate, apiculate, finely serrulate, oblique; stipules triangular, fimbriate. Involucres subsolitary, glabrous outside, lobes fimbriate; limb of gland white or rosy. Seeds 4-angled. (Fl. Fr. August - October).

PPB. 749.

Noted in the coastal areas at Dumas, Bhimpura and Magdalla.

India (W. Peninsula).

Euphorbia hypericifolia Linn. Sp. Pl. 454, 1753; FBI. 5: 249 (pro parte); Airy Shaw, in Kew. Bull. 26(2): 265, 1972.

Chamaesyce hypericifolia (Linn.) Millsp. in Publ. Field Columb. Mus. Bot. 2: 303, 1909.

Euphorbia parviflora Linn. Syst. (ed. 10) 1047, 1759; Roxb. Fl. Ind. 2: 472; Gr. 179; Sant. 243; Santapau, loc. cit. 13.

E. hypericifolia var. parviflora Prain, Beng. Pl. 2: 924, 1903; C. 3: 63.

An erect or ascending herb. Leaves opposite, oblique, elliptic-oblong, obtuse, serrulate. Inflorescence in axillary or terminal, usually many-flowered, pedunculate cymes. Capsules subglobose, hairy. (Fl. Fr. May - November).

Local name : Dudheli.

PPB. 913, 1122.

Common in all localities.

Common throughout the hotter parts of India.

Ceylon, Tropics generally except Australia and the Pacific Island.

Euphorbia erythroclada Boiss. in DC. Prodr. 15(2): 25, 1862; FBI. 5: 247; C. 3: 63.

An erect glabrous herb, alternately and dichotomously branched. Leaves membranous, very obtuse, serrulate. Involucres solitary, axillary, red; glands transversely ovate with a narrow rosy limb. Capsule depressed. Seeds

4-angled with 2-3 obsolete transverse ridges. (Fl. Fr. August - December).

PPB. 1262.

Noted at Dhuvaran, Kavi, Ganguva along the Mahi estuary.

Malabar, Konkan.

Euphorbia hirta Linn. Sp. Pl. 454, 1753; Gr. 179; D. & G. 227; G. 1271 and 1275; Sant. 241; Santapau, in Bull. Bot. Soc. Bengal 8: 15; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Airy Shaw, in Kew Bull. 26(2): 264; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

E. pilulifera auct. (non Linn.); FBI. 5: 250; C. 3: 64.

Chamaesyce hirta (Linn.) Millsp. in Publ. Field Columb. Mus. Bot. 2: 303, 1909.

Euphorbia pilulifera var. hirta Thellung, in Aschers. & Graebon. Syn. 7: 425, 1916.

An erect or ascending annual, hispid with long, yellowish crisped hairs. Leaves opposite, obliquely oblong-lanceolate, dark green above, pale beneath, stipules pectinate, soon falling. Flowers in small, axillary, shortly pedunculate globose cymes. Capsules appressedly hairy. (Fl. Fr. Throughout the year).

Local name : Nagala Dudheli.

PPB. 878.

Found in abundance throughout the area.

Throughout the hotter parts of India.

Ceylon, most tropical and sub-tropical countries.

Euphorbia microphylla Heyne ex Roth, Nov. Pl. Sp. 229, 1821 (non Lamk. 1786); FBI. 5: 252; C. 3: 65; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Airy Shaw, loc. cit. 266.

E. bombaiensis Santapau, in Bull. Bot. Soc. Bengal 8: 17, 1954.

A prostrate, glabrous, much-branched herb. Leaves opposite, rounded, nearly as broad as long, elliptic or obovate, margins occasionally pink. Involucres numerous, subsolitary, axillary. Capsules glabrous. (Fl. Fr. June - September).

PPB. 655.

Common in open salty areas.

Bengal, Bihar, Tirhut, W. Peninsula.

Java.

Euphorbia thymifolia Linn. Sp. Pl. 453, 1753; FBI. 5: 252; C. 3: 64; Sant. 241; Fl. Dang, 84; Maheshwari, 313; Fl. Pavagadh, 208; Airy Shaw, loc. cit. 265; Rao & Aggarwal, loc. cit. 182.

Chamaesyce thymifolia (Linn.) Millsp. in Publ. Field Mus. Nat. Hist. Chicago, Bot. 2: 412, 1916.

A small, prostrate, annual herb. Stems and branches hispidly pubescent. Leaves opposite, obliquely oblong, rounded, crenulate. Involucres small, axillary or 2-3 in the axils. Capsules pubescent, erect. (Fl. Fr. August - November).

PPB. 428.

A prostrate herb on sandy wastes at Cambay.

Throughout India.

Ceylon and all hot countries except Australia.

Pedilanthus Neck.

Pedilanthus tithymaloides (Linn.) Poit. in Ann. Mus. Hist. Nat. Paris 19: 390, t. 19, 1812; FBI. 5: 252; C. 3: 124.

Euphorbia tithymaloides Linn. Sp. Pl. 453, 1753; D. & G. Suppl. 76.

A succulent shrub. Leaves fleshy. Involucres scarlet-red, slipper-shaped. (Fl. February - April).

Local name : Velati-Kharsani.

PPB. 1337, 1340.

Commonly grown as a hedge plant in the area.

A native of South Africa; grown in many parts of India.

Chrozophora Juss. Corr. Benth. & Hook. f. (nom. cons.)

Plants erect; leaves glandular at the base; hairs sessile ..... rottleri

Plants prostrate; leaves not glandular at the base; hairs stipitate ..... prostrata

Chrozophora rottleri (Geiss.) Juss. ex Spreng, Syst. 3: 850, 1826; Pax & Hoffm. in Pfreich. 57: 19; G. 1316; Sant.248.

Croton rottleri Geiss. Crot. Monogr. 57, 1807.

Chrozophora plicata Voigt, Hort. Sub. Calc. 156, 1846; D. & G. 233; C. 3: 104 (non A. Juss.).

Chrozophora plicata (Forma 1) Hook. f. in FBI. 5: 409, 1887.

An erect, woody, annual herb, with a long straight slender tap-root. Leaves thick, pale, wrinkled, ovate-orbicular or obscurely 3-lobed, with crisped margins. Flowers yellowish, in pedunculate, densely stellately hairy racemes. Capsule densely hairy when young, red-purple on maturity. (Fl. Fr. October-June).

PPB. 644.

Noted in cultivated fields and open waste places.

Throughout India in the drier parts.

Westward to Spain and N. Africa.

Chrozophora prostrata Dalz. in D. & G. 223, 1861; C. 3: 105 (excl. sp. afric.); G. 1316; Sant. 249; Chavan & Padate,

in Ind. For. 86(4): 215, 1960.

C. plicata (forma 3) Hook. f. in FBI. 5: 410.

A procumbent, humifuse, stellately woolly herb; branches numerous, spreading from the root, woolly-tomentose. Leaves broadly ovate or rounded, wrinkled, dark purplish brown, eglandular at the base. Flowers unisexual, in short, few-flowered axillary racemes. Capsules stellately woolly without silvery scales. (Fl. Fr. October - June).

Local name : Betho okhrad.

PPB. 114.

Commonly observed along ditches.

Throughout India in the drier parts.

North Africa.

Jatropha Linn.

Leaves lobed, eglandular; flowers yellowish-green..curcas

Leaves lobed, margin with a row of short, viscid glands; flowers red .....gossypifolia

Jatropha curcas Linn. Sp. Pl. 1006, 1753; FBI. 5: 383; C. 3: 95; Sant. 248; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

A soft-wooded small tree. Leaves large, glabrous, angular or 3-5-lobed. Flowers yellowish green, in terminal, cymose

panicle. Stamens 10, the 5 inner connate into a central column. Capsule subglobose, ellipsoid. (Fl. Fr. September-May).

PPB. 807.

In the sandy coasts, introduced and planted near habitations at Hajira.

Indigenous to Panama, now in gardens throughout India.

Jatropha gossypifolia Linn. Sp. Pl. 1006, 1753; FBI. 5: 383; C. 3: 94; Bor & Raizada, 175, f. 108, Pl. 64; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

A much-branched, glandular shrub. Stems grey-white to ash-coloured. Leaves 3 to 5 deeply lobed, at first brown, afterwards becoming green; Flowers deep-red in terminal cymes. Capsules oblong, 3-lobed, brownish. (Fl. Fr. September - April).

PPB. 876.

In the coastal areas, planted near habitations.

Cultivated or naturalized in many parts of India.

Native of Brazil; Burma and Trop. Africa.

Ricinus Linn.

Ricinus communis Linn. Sp. Pl. 1007, 1753; FBI. 5: 457; C. 3:

125; Sant. 252; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

An evergreen shrub. Leaves large, palmately lobed, peltate, long-petioled. Flowers in branching racemes. Male flowers occupying the upper portion; stamens numerous; female flowers below. Capsules 3-lobed, echinate; seeds 3, oblong, mottled. (Fl. Fr. October - March).

Local name : Divelo, Erando.

PPB. 72, 540, 621.

English name : Castor oil plant.

Cultivated.

Probably a native of Africa, cultivated or naturalized throughout India, near human habitations.

Acalypha Linn.

Herbs :

Bracts of female flowers dentate, truncate.....indica

Bracts of female flowers fimbriate with long, hispid teeth .....ciliata

Shrubs .....wilkesiana

Acalypha indica Linn. Sp. Pl. 1003, 1753; FBI. 5: 416; C. 3: 108; Wt. Icon. t. 877; Chavan & Padate, in Ind.

For. 86(4): 215, 1960; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

An erect, annual herb 1-2½ ft. high; with spreading branches. Leaves membranous, ovate, rhomboid, acute, cuneate at the base, thin, glabrous, crenate-serrate, long-petioled. Flowers minute, in lax, elongate axillary spikes; male clusters towards the top; females solitary or paired, enclosed by a shortly dentate, truncate bract. Capsule hispid, concealed by persistent bract. (Fl. Fr. September - January).

Local name : Vichhi Kanta.

PPB. 763.

Common in coastal areas at Dumas, Tithal.

Throughout India.

Tropical Africa, Ceylon, Philippines.

Acalypha ciliata Forsk. Fl. Aeg.-Arab. 162, 1775; FBI. 5: 417; C. 3: 109; Trimen, Fl. Ceyl. 4: 59; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Fl. Pavagadh, 214; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

An erect, stout, annual herb. Leaves alternate, acuminate, thin, glabrous, finely serrate, long-petioled. Flowers in axillary, androgynous spikes; the males few, sessile, very minute, at the top of the spike, the females

several, crowded at its base, subtended by large, veined, fimbriate bracts. Capsules glabrous, concealed in the bracts. (Fl. Fr. July - November).

PPB. 762.

Common herb in shade at Dumas, Tithal.

More or less throughout India.

Ceylon, Arabia, Trop. Africa.

Acalypha wilkesiana Muell.-Arg. in DC. Prodr. 15: 817, 1866; C. 3: 110; Bailey, Man. Cult. Pl. 622.

A tall shrub. Leaves broadly ovate, cordate, variously mottled with shades of red and purple or the leaves are perfectly red or brown. Flowers bright red, in slender, pendulous catkins. (Fl. September - May).

PPB. 1346.

Grown in gardens as ornamental shrub at Tithal and Dumas.

Grown in many parts of India.

Native of Fiji Islands.

Bridelia Willd.

Bridelia squamosa (Muell.-Arg.) Gehrm. in Engl. Bot. Jahrb. 41, Beibl. 95: 30, 1908; Santapau, in JBNHS. 50: 308, f. 2, 1951; Sant. 243; Fl. Dang, 82.

B. retusa Spreng, var. squamosa Muell.-Arg. in DC. Prodr. 15(2): 493, 1866; FBI. 5: 268.

B. retusa Hook. f. in FBI. 5: 268; C. 3: 68; (ambo pro parte, non Spreng.).

A medium-sized tree with greyish bark. Leaves elliptic-oblong to ovate-lanceolate, rigidly coriaceous, tomentose beneath, crenate. Flowers yellowish-green, in axillary clusters or on long axillary panicled spikes. Fruit a fleshy drupe. (Fl. Fr. June - October).

PPB. 982.

Not common, noted few trees.

Gujarat, Maharashtra, Karnatak, throughout India.

Ceylon, Burma.

Cleistanthus Hook. f.

Cleistanthus malabaricus Muell.-Arg. in DC. Prodr. 15; part II: 508, 1866; FBI. 5: 276; Bedd. For. Man. in Flor. Sylvat. P. cciii; Talb. Trees, Bomb. ed. 2: 299; Woodr. in JBNHS. 12: 369, 1899; Watt, Dict. Econ. Prod. 2: 369.

A large shrub. Leaves entire, alternate, bifarious, acuminate. Flowers minute, monoecious, in axillary clusters. Capsules sparsely fulvous-hairy; seeds rugose, 3-angled. (Fl. Fr. November - March).

PPB. 988.

Common shrub along the coast at Tithal.

India (W. Peninsula).

Securinega Juss. (nom. cons.)

Securinega virosa (Roxb. ex Willd.) Pax & Hoffm. in Pfam. (ed. 2) 19C : 60, 1931; Sant. 244; Fl. Dang, 85; Airy Shaw, loc. cit. 340.

Phyllanthus virosus Roxb. ex Willd. Sp. Pl. 4: 578, 1805.

Fluggea microcarpa Blume, Bijdr. 580, 1826; FBI. 5: 328; C. 3: 77.

An erect, glabrous, unarmed shrub. Leaves variable, obovate or rounded, obtuse. Flowers greenish yellow, minute, in axillary clusters. Fruit a globose berry. (Fl. Fr. July - December).

PPB. 981.

Fairly common, observed in hedges.

Throughout India.

Trop. Africa, China, Malay Islands, Australia.

Phyllanthus Linn.

Stipules peltate :

Leaves scattered on the branches;

capsule smooth ..... maderaspatensis

Leaves closely set on the branches;
capsule not as above ..... simplex

Stipules not peltate ..... asperulatus

Phyllanthus maderaspatensis Linn. Sp. Pl. 982, 1753; FBI. 5: 292; C. 3: 82; G. 1289; Wt. Icon. t. 1895; f. 3; Sant. 246; Padate, in JMSU. 17 & 18(3): 110, 1968 & 69.

An erect, glabrous herb. Leaves distant, cuneate-obovate, mucronate. Male flowers clustered; small, subsessile; females large, axillary, solitary, shortly pedicellate. Capsules depressed-globose, 3-lobed. (Fl. Fr. August - January).

Local name : Hazarmani.

PPB. 1020.

Rare; noted on gravelly soil at Dahej.

In the drier regions of India.

Tropical Africa, Arabia, Ceylon, China, Java, Australia.

Phyllanthus simplex Retz. Obs. 5: 29, 1789; FBI. 5: 295; C. 3: 83; Maheshwari, 319; Fl. Pavagadh, 210.

An erect, annual herb. Leaves linear-oblong, distichous, obtuse. Flowers unisexual, solitary, axillary on slender pedicels; females borne below the males. Capsule globose, minutely warty, crustaceous. (Fl. Fr. September - January).

PPB. 975.

Commonly observed growing on the banks of canal.

Throughout India.

Ceylon, Malay Islands, China, Pacific Islands.

Phyllanthus asperulatus Hutch. in Kew Bull. 1920: 27-28, 1920; Webster, in JAA. 37: 14, 1956; Sant. 245.

P. niruri auct. non Linn.; FBI. 5: 298; C. 3: 84; Wt. Icon. t. 1894; Chavan & Padate, in Ind. For. 86(4): 215, 1960.

A glabrous, small, erect, annual herb. Branches spreading. Leaves simple, subsessile, oblong, distichous, stipules lanceolate-subulate, very acute. Flowers yellowish, very numerous, axillary, hanging down below the branchlets; males 1-3 together, female solitary. Capsules depressed-globose, smooth; seeds trigonous, pale brown, rounded and with longitudinal regular parallel ribs on the back. (Fl. Fr. July - April).

Local name : Bhonya Amli.

PPB. 912.

Common in sandy areas at Tithal.

Throughout India.

Ceylon, tropics generally.

Kirganelia Baill.

Kirganelia reticulata (Poir.) Baill. Etud. Gen. Euph. 613,

1858; G. 1294; Sant. 246; Chavan & Padate, in Ind. For. 86(4): 215, 1960; Maheshwari, 320; Fl. Pavagadh, 211; Sastry & Rao, loc. cit. 104.

Phyllanthus reticulatus Poir. in Lamk. Encycl. 5: 298, 1804; FBI. 5: 288; C. 3: 81.

A large, glabrous, straggling shrub with drooping branches. Leaves oblong-elliptic, distichous. Flowers greenish-yellow, in axillary fascicles on leaf bearing branchlets. Berry globose, smooth, dark purple. (Fl. Fr. July - April).

Local name : Kamboi.

PPB. 1339, 1341.

Noted wild in hedges at Tithal, Nargol and Umargam.

Throughout Trop. India.

Trop. Africa, China, Malay Islands.

Emblica Gaertn.

Emblica officinalis Gaertn. Fruct. 2: 122, 1791; Wt. Icon. t. 1896; G. 1295; Sant. 246; Maheshwari, 320; Fl. Pavagadh, 211; Padate, in JMSU. 17 & 18(3): 109, 1968 & 69.

Phyllanthus emblica Linn. Sp. Pl. 982, 1753; FBI. 5: 289; C. 3: 81.

A middle-sized tree with spreading branches. Leaves linear-oblong, distichous. Flowers yellow or greenish-yellow,

in axillary fascicles below the leaves. Fruits fleshy, pale yellow. (Fl. Fr. March - June).

Local name : Amla.

PPB. 1342, 1345.

Commonly cultivated for its edible fruits.

Throughout Trop. India.

Ceylon, Malay Islands.

URTICACEAE

Pouzolzia Gaud.

Pouzolzia zeylanica (Linn.) Benn. Pl. Jav. Rar. 67, 1838; Sant. 288.

Parietaria zeylanica Linn. Sp. Pl. 1052, 1753.

Pouzolzia indica Gaud. Bot. Freyc. Voy. 503, 1826; FBI. 5: 581; C. 3: 137; Wt. Icon. t. 1980, f. 1, t. 2100, f. 40.

An erect glabrous herb. Leaves stipulate, ovate or ovate-lanceolate, elliptic, acute, base rounded or somewhat acute; petioles slender. Flowers greenish. (Fl. Fr. Rainy season).

PPB. 983.

Noted at Meh Dungri, Tithal, Velsad etc.

Deccan; S. M. Country; throughout India.

Ceylon, Malay Islands, China.

MORACEAE

Flowers in short spikes or heads;
stamens inflexed in bud .....Streblus

Flowers crowded in globose heads or inside fleshy receptacles; stamens straight in bud :

Flowers all exposed .....Artocarpus

Flowers on the inner wall of a closed receptacle..Ficus

Streblus Lour.

Streblus asper Lour. Fl. Cochinch. 2: 615, 1790; FBI. 5: 489; C. 3: 141; Talb. 2: 502, t. 516; Chavan & Padate, in Ind. For. 86(4): 216, 1960.

Spicarpurus orientalis Blume, Bijdr. 488, 1825; D. & G. 240; Wt. Icon. t. 1961.

A small tree. Leaves elliptic, obovate, rough, acute. Flowers unisexual; males in shortly pedunculate, globose heads; females solitary, on axillary fascicled pedicels. Fruit yellow, subglobose, loosely enclosed in the enlarged perianth. (Fl. Fr. January - March).

Local name : Sarevo.

PPB. 379, 893.

Common in hedges and on the elevated banks.

Drier parts of India.

Ceylon, Malay Islands, Cochinchina, China, Siam.

Artocarpus J.R. & G. Forst. (nom. cons.)

Artocarpus heterophyllus Lamk. Encycl. 3: 210, 1789; Bailey, Man. Cult. Pl. 338; Sant. 260; Maheshwari, 322.

A. integrifolius auct. (non Linn. f.); C. 3: 158.

A large, evergreen tree. Leaves elliptic to obovate, coriaceous. Flowers crowded on globose large receptacle; male heads cylindric; females tubercled and very large, hanging on the trunk and old branches. (Fl. November -January).

Local name : Phannas, Jack-fruit.

PPB. 1349.

Cultivated for its fruits at Nargol, Umargam etc.

Indigenous in some of the forests of the Western Ghats.

Ficus Linn.

1. Receptacles sessile :

2. Leaves glabrous :

3. Leaves broadly ovate, cordate, acuminate; aerial roots absent .....religiosa

3. Leaves elliptic or narrowly oblong-ovate, acute; aerial roots often present..amplissima

2. Leaves tomentose beneath .....benghalensis

1. Receptacles stalked :

4. Leaves alternate .....racemosa

4. Leaves opposite .....hispida

Ficus religiosa Linn. Sp. Pl. 1059, 1753; FBI. 5: 513; C. 3: 149; Talb. 2: 514; Sant. 257; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

Urostigma religiosa Gasp. Ric. Caprif. 82, t. 7, ff. 1-5, 1845; Wt. Icon. t. 1967.

A large, glabrous tree without aerial roots. Leaves entire, ovate, cordate, acuminate, shining. Receptacles depressed-globose, smooth, sessile. (Fl. Fr. July - December).

Local name : Pipal, piplo.

PPB. 1142.

A sacred tree for Hindus. Noted along the coast.

Wild in sub-Himalayan forests, in Bengal and in Central India, elsewhere planted.

Ficus amplissima Sm. in Rees Cyclop. 14:1, Santapau & Janardhanan, 46.

F. tsiela Roxb. Fl. Ind. 3: 349, 1832; FBI. 5: 515; C. 3: 150; Talb. 2: 518; Padate, in JMSU. 17 & 18(3): 110, 1968 & 69.

A large, glabrous, evergreen tree with long, spreading branches, sending down aerial roots. Leaves ovate, obtuse, bright green, coriaceous, stipules ovate, acuminate. Receptacles axillary globose, sessile, in pairs, red when ripe. (Fl. Fr. March - May).

Local name : Pipdi.

PPB. 666.

Commonly seen as a strangler on Borassus flabellifer.

Central India, Western Peninsula.

Ceylon.

Ficus benghalensis Linn. Sp. Pl. 1059, 1753; FBI. 5: 499; C. 3: 145; Talb. 2: 507, f. 514; Sant. 256; Fl. Dang, 86.

Urostigma bengalense Gaspar, Nov. Gen. Fic. 7, 1844; Wt. Icon. t. 1989.

A large, evergreen tree with long, spreading branches, sending down aerial roots. Leaves ovate, obtuse, coriaceous. Receptacles globose, sessile, in pairs, red when ripe. (Fl. Fr. March - May).

Local name : Vad.

PPB. 1141.

A common avenue tree. Commonly noted in coastal areas at Ubhrat.

"Really wild only in the sub-himalayan forests and on the lower slopes of hill ranges in S. India"; elsewhere planted for shade.

Ficus racemosa Linn. Sp. Pl. 1060, 1753; Corner, in Dansk. Bot. Arkiv. 23: 28, 1963; Sant. 259.

F. glomerata Roxb. Pl. Cor. 2: 13, t. 123, 1798; Wt. Icon. t. 667; FBI. 5: 535; C. 3: 154; Talb. 2: 524; Rao & Aggarwal, loc. cit. 23.

A medium-sized, evergreen, deciduous tree. Leaves ovate-oblong or elliptic-lanceolate, glabrous, stipules scarious, ovate-lanceolate. Receptacles clustered, on short leafless branchlets. (Fl. Fr. April - August).

Local name : Umerda.

PPB. 1171.

Noted near habitation at Hajira, Nargol, Umargam.

Throughout India.

Ceylon, Burma.

Ficus hispida Linn. f. Suppl. 442, 1781; FBI. 5: 522; C. 3: 154; Talb. 2: 523; Sant. 258; Fl. Pavagadh, 218; Padate, in JMSU. 17 & 18(3): 110, 1968 & 69.

A shrub or a small tree, hispidly pubescent in all parts. Leaves opposite, ovate or ovate-oblong, hispid. Receptacles obovoid, pedunculate, hispid, in pairs or fascicled on short, tubercled branches. (Fl. Fr. December - May).

PPB. 1347.

Commonly found growing in waste places at Valsad, Nargol and Umargam.

More or less throughout India.

Ceylon, Burma, China.

CASUARINACEAE

Casuarina Linn.

Casuarina equisetifolia Linn. Amoen. Acad. 4: 143, 1759 ('equisetifolia'); FBI. 5: 598; C. 3: 161; Sant. 261; Fl. Dang, 87; Padate, in JMSU. 17 & 18(3): 110, 1968 & 69; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

A tall, weak tree with cylindrical, jointed, ribbed stems. Branches drooping; branchlets very slender, cylindrical, jointed, internodes ribbed. Leaves reduced to scales, arranged in whorls. Male flowers in cylindric spikes; females in globose or ovoid heads. Nutlets thin, winged. (Fl. Fr. March - July).

Local name : Vilayati Sharu.

PPB. 766.

Extensively planted all along the sandy coast at Hajira, Dumas, Ubrat, Tithal.

Cultivated throughout India.

Native of Malay Archipelago, Bangladesh, Australia.

CLASS. II. MONOCOTYLEDONS

HYDROCHARITACEAE

1. Leaves cauline and in whorls ..... Hydrilla

1. Leaves radical :

2. Flowers unisexual ..... Vallisneria

2. Flowers hermaphrodite ..... Ottelia

Hydrilla Rich.

Hydrilla verticillata (Linn. f.) Royle, Ill. Bot. Himal. t. 356, 1839; FBI. 5: 659; C. 3: 170; Aquat. Angios. 55, f. 37; Chavan & Padate, in JMSU. 11(3): 63-78, 1962; Maheshwari, 331.

Serpicula verticillata Linn. f. Suppl. 416, 1781.

A submerged, much-branched herb with cauline, whorled,

oblong-linear, thin leaves. Flowers dioecious; male flowers small and pedicellate, female ones sessile. (Fl. Fr. October - January).

PPB. 1264.

Common in ponds and along river Mahi. Very often grown in aquaria.

Throughout India.

Ceylon, Central Europe, Mauritius, Madagascar, Tropical Asia and Australia.

Vallisneria Linn.

Vallisneria spiralis Linn. Sp. Pl. 1015, 1753; FBI. 5: 660; C. 3: 171; Sant. 262; Aquat. Angios. 57, f. 39; Chavan & Padate, in JMSU. 11(3): 63-78, 1962; Maheshwari, 331.

Submerged, stoloniferous herbs with thin, radical leaves. Flowers unisexual; male flowers small, on short peduncles; female ones on long spirally coiled peduncles. (Fl. Fr. November - April).

PPB. 1265.

Abundant along the banks of Mahi river.

Throughout India.

Westward to Spain and in warmer regions of the Old and New Worlds.

Ottelia Pers.

Ottelia alismoides (Linn.) Pers. Syn. Pl. 1: 400, 1805; FBI. 5: 662, 1882; C. 3: 173; Aquat. Angios. 61, f. 43; Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

Stratiotes alismoides Linn. Sp. Pl. 1: 535, 1753.

A succulent, flaccid, submerged or partly floating rooted herb. Submerged leaves narrow, or oblong and the floating ones oblong-orbicular with cordate or rounded base; margin wavy. Flowers white with a yellow tinge, solitary, hermaphrodite, sessile within a tubular long-pedunculate spathe. Fruit winged; wings undulating, enclosed in the spathe. (Fl. Fr. August - December).

PPB. 746.

Common in fresh water canals and in cultivated fields in the hinterland at Dumas.

PLATE No. 39

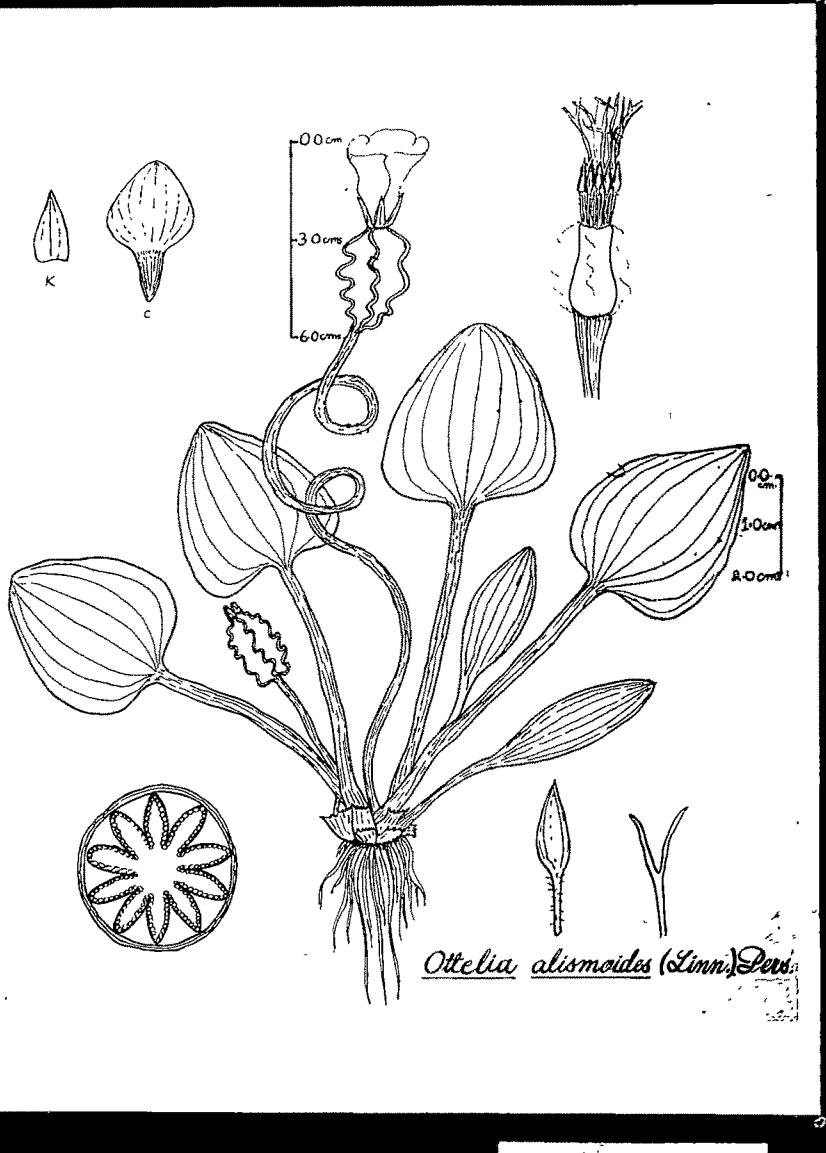
Throughout India.

Ceylon, Trop. Asia, Australia.

CANNACEAE

Canna Linn.

Canna flaccida Salisb. Icon. Stirp. Rar. t. 2, 1791; Kranzlin, in Pfreich. 56: 49, f. 9; Bailey, Man. Cult. Pl. 291 &



Ottelia alismoides (Linn.) Pers.

PLATE No. 39.

Cycl. Hort. 656; Sant. 277.

A perennial herb with rhizomatous stem. Leaves large, oblong, lanceolate. Flowers bright red, yellow or variegated in loose, few-flowered raceme. (Fl. Almost all the year round).

PPB. 1266.

Very common in most of the public and private gardens.

Introduced in India by an American.

AMARYLLIDACEAE

Ovary superior ..... Allium

Ovary inferior ..... Crinum

Allium Linn.

Leaves flat, not hollow .....sativum

Leaves cylindric, usually hollow .....cepa

Allium sativum Linn. Sp. Pl. 296, 1753; FBI. 6: 337; C. 3: 284; Bailey, Cycl. Hort. 248.

An annual, erect herb with radical, flat, non-fistular leaves; leaf bases overlapping forming a small bulb. Flowers white or pinkish, in lax umbels on a long scape, often displaced by bulbils. (Fl. Fr. November - May).

Local name : Lasan.

PPB. 1351.

Cultivated as a winter crop along the Mahi estuary at Chokari.

Widely cultivated in irrigated parts of Gujarat, Maharashtra, Karnatek, Andhra, Tamil Nadu, Bengal; throughout India.

Allium cepa Linn. Sp. Pl. 300, 1753; FBI. 6: 337; C. 3: 284; Gr. 220; D. & G. 92; Bailey, Cycl. Hort. 248.

An annual, erect herb with radical, hollow leaves, leaf bases arranged concentrically round a reduced stem forming a bulb. Flowers small in simple scapose umbels, subtended by 2 or 3 bracts. (Fl. Fr. February - May).

Local name : Dungri.

PPB. 1359.

Commonly cultivated in winter at Chokari, Dhuvaran, Kavi.

Cultivated throughout India.

Crinum Linn.

Leaves 2.5 to 5 cm. broad; perianth lobes lanceolate ..... pratense

Leaves 12.5 to 17.5 cm. wide; perianth lobes linear ..... asiaticum

Crinum pratense Herbert, Amaryllid. 256, 1837; FBI. 6: 282; C. 3: 257.

A herb with tunicated white bulb. Leaves linear, suberect, with entire margin. Scape lateral, compressed. Flowers white, large, showy, in umbels surrounded by large, ovate, acute bracts. (Fl. Fr. October - February).

PPB. 1267.

Observed on sandy river beds or at times partly submerged in running water.

Gujarat, Maharashtra, Karnatak, Andhra.

Burma.

Crinum asiaticum Linn. Sp. Pl. 293, 1753; FBI. 6: 280; C. 3: 256; Bailey, Man. Cult. Pl. 253; Wt. Icon. tt. 2021-2022.

Herbs with large bulbs. Leaves basal, dark green. Flowers white, fragrant, large, in an umbel subtended by bracts; scape cylindrical. (Fl. Fr. August - November).

PPB. 1269.

Planted in gardens in lawns or near hedges.

A native of tropical Asia.

AGAVACEAE

Agave Linn.

Agave americana Linn. Sp. Pl. 323, 1753; Bailey, Man. Cult. Pl.

239 & Cycl. Hort. 234, ff. 139, 140; Chavan & Padate, in Ind. For. 86(4): 216, 1960.

A stout shrub with radical leaves. Leaves persistent, stiff, heavy with spiny apex and margins. Flowers in panicles, on stout, very long scapes. (Fl. Fr. June - October).

PPB. 1268.

Fairly abundant in waste places and in hedges, where the plant appears to have become naturalised.

Common in drier parts of India.

ORCHIDACEAE

Pollinia 2 or 4, attached singly or in pairs or fours by one or rarely two caudicles to a viscid gland derived from the stigma ..... Vanda

Pollinia powdery or lamellate, never waxy ..... Habenaria

Vanda R. Br.

Vanda tesselata Hook. Fl. Brit. Ind. 6: 52, 1892; Haines, 3: 1233; G. 3: 1010.

V. roxburghii R. Br. in Bot. Reg. 6: t. 506, 1820; FBI. 6: 52; Wt. Icon. t. 916; C. 3: 208.

An epiphytic, stout herb. Leaves thickly coriaceous,

recurved. Flowers yellow with brown lines and white margins, in axillary, simple or dense lax-racemes. Capsules clavate-oblong with acute ribs. (Fl. Fr. July - August).

PPB. 1350.

Commonly observed as an epiphytic on Mangifera at Tithal.

India (Bengal, Bihar, W. Peninsula); Ceylon.

Habenaria Willd.

Habenaria marginata Coleb. in Hk. Exact. Bot. t. 136, 1825; FBI. 6: 150; Gr. 201; D. & G. 268; C. 3: 226; Sant. 272, Orch. Bomb. 33, t. 5, f. 17.

A terrestrial, glabrous herb, 20-30 cm. high. Leaves sub-sessile, oblong, margin white or yellow. Flowers yellow, 1.5 cm. across, many, in 5-10 cm. long spikes, bracts ovate-lanceolate. Capsules fusiform, beaked. (Fl. Fr. August - October).

PPB. 863.

Common in open grasslands at Tithal.

India, (Western Himalaya, Bihar, Bengal, Western Peninsula), and Burma.

DIOSCOREACEAE

Dioscorea Linn.

Dioscorea bulbifera Linn. Sp. Pl. 1033, 1753; Wt. Icon. t. 878;

C. 3: 265; Prain & Burkill, Ann. RBC. 111-132, tt. 49-51, 1936; Santapau, in JBNHS. 49: 628, 1949; Sant. 281; Burkill, in Fl. Males. I, 4(3): 311, 1951; Padate, in JMSJ. 17 & 18(3): 110, 1968 & 69.

D. sativa Thunb. Fl. Jap. 151, 1784; FBI. 6: 295 (excl. D. cliffortiana auct. non Linn.).

A large, climbing herb with long tuberous roots and stems twining to the left. Leaves broadly ovate, cordate, membranous, dark-green, acuminate with axillary bulbils of various sizes. Flowers greenish-white, in spikes. Capsule glabrous, quadrately oblong. (Fl. Fr. August - October).

PPB. 861.

Noted on hedges during monsoon only.

Throughout India; Ceylon.

LILIACEAE

Habit climbing :

Leaf apex tendrillar, flowers big ..... Gloriosa

Leaves reduced to scales, stems modified into green, needle-shaped cladodes, flowers small .....Asparagus

Habit erect :

Leaves very thick with mucilage ..... Aloe

Leaves not thick and without mucilage ..... Asphodelus

Gloriosa Linn.

Gloriosa superba Linn. Sp. Pl. 305, 1753; Wt. Icon. t. 2047; FBI. 6: 358; C. 3: 274; Sant. 282; Fl. Dang, 90; Fl. Pavagadh, 224.

Methonia superba Dalzell & Gibson, Bom. Fl. 205, 1861.

A herbaceous climber. Leaves sessile, ovate, lanceolate, tip tendrilar, Flowers generally large, axillary, solitary, scarlet to crimson coloured. (Fl. Fr. July - October).

Local name : Vadhavadiyo.

PPB. 860.

Commonly noted on hedges throughout the area.

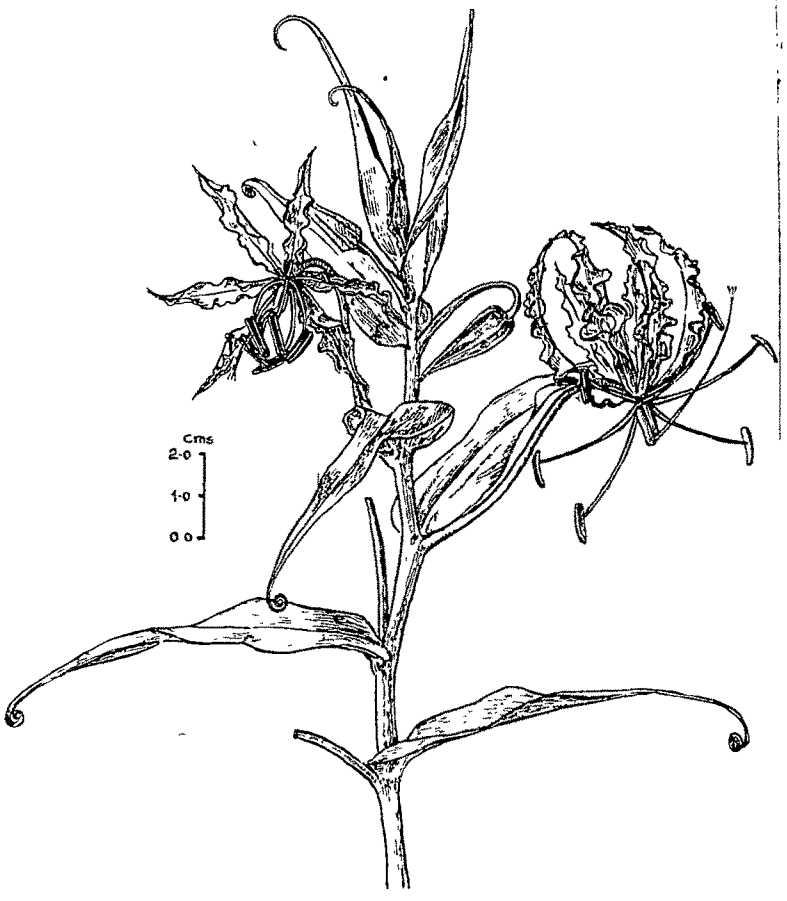
PLATE No.40

Throughout Tropical India.

Ceylon, Trop. Africa, Malacca, Cochinchina.

Asparagus Linn.

Asparagus racemosus Willd. var. javanica (Kunth) Baker, in JLS. 14: 624, 1874; FBI. 6: 316; C. 3: 270; Sant. 282; Fl. Raj. 126; Rao and Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.



Gloriosa superba Linn.

PLATE No. 40.

A. javanica Kunth, Enum. (1850) V. 5, p. 100.

An extensively, scandent, spiny, much branched undershrub. Roots tuberous, branches angular. Leaves scaly, linear-subulate, often spinous; spines suberect or subrecurved. Cladodes very slender, 2-6 together, narrowly oblong-linear, acicular. Flowers small, white, scented, in simple or branched racemes. (Fl.Fr. July - October).

Local name : Satavari.

PPB. 747.

Not common; noted on sandy soil at Dumas.

Local uses : Roots eaten by local people.

Gujarat, Maharashtra, Karnatak, Western Peninsula, Java.

Aloe Linn.

Aloe barbadensis Mill. Gard. Dict. n. 2, 1788; Bailey, Man. Cult. Pl. 209; Maheshwari, 335.

A. perfoliata var. vera Linn. Sp. Pl. 320, 1753.

A. vera (Linn.) Webb. & Berth. (non Mill.); Rao & Aggarwal, loc. cit. 23.

An erect herb with highly succulent, radical leaves. Leaves thick, numerous, dentate, linear-lanceolate. Flowers

yellowish-green, in simple, erect racemes. (Fl. Fr. March - April).

Local name : Kunvarpathu.

PPB. 867.

Common in sandy soil at Tithal.

A native of Mediterranean region, now introduced throughout the tropics.

Asphodelus Linn.

Asphodelus tenuifolius Cav. in Ann. Gene. Nat. 3: 46, t. 27, f. 2, 1801; FBI. 6: 332; C. 3: 279; Maheshwari, 337; Padate, in JMSU. 17 &18(3): 110, 1968 & 69.

Annual, erect, glabrous herb with radical, fistulous leaves. Flowers white with purple streaks, in lax-racemes on a scape. Capsule globose. (Fl. Fr. January - April).

PPB. 1088.

A common weed of cultivated fields of winter crops.

Throughout India as a weed in cultivated fields.

Westward to the Conary Islands.

COMMELINACEAE

Fertile stamens 3, staminodes present :

Cymes enveloped in spathaceous bracts ..... Commelina

Cymes in panicles, not enveloped in spathaceous bracts ..... Murdannia

Fertile stamens 6, staminodes absent ..... Cyanotis

Commelina Linn.

Ovary 5-ovuled; capsule 3-5-seeded :

Capsule 3-seeded; seeds smooth ..... forskalii

Capsule 5-seeded; seeds rugose, closely pitted ..... benghalensis

Ovary 3-2-ovuled; capsule 3-2-seeded ..... undulata

Commelina forskalii Vahl, Enum. 2: 172, 1806; FBI. 6: 371; C. 3: 292; Fl. Raj. 128; Rao & Aggarwal, Bull. Bot. Surv. India 6(2-4): 182, 1964.

A diffuse, branched herb, rooting at the lower nodes. Leaves narrowly oblong, often with undulate or crenulate margins; leaf-sheath finely striate, pubescent. Flowers light blue; spathe broadly ovate, hairy. Capsule 3-seeded;

seeds smooth. (Fl. Fr. August - November).

PPB. 782.

Noted among grasses, not common.

Gujarat, Maharashtra, Karnatak, W. Peninsula.

Tropical Africa.

Commelina benghalensis Linn. Sp. Pl. 41, 1753; FBI. 6: 370; C. 3: 291; Wt. Icon. t. 2065; Sant. 286; Chavan & Padate, in Ind. For. 86(4): 216, 1960.

A procumbent herb with stem dichotomously branched from the base upwards. Leaves ovate-obtuse, leaf sheath with ciliate margins. Flowers blue, enclosed in ovate-lanceolate spathes. Capsule usually 5-seeded; seeds closely pitted. (Fl. Fr. July - November).

PPB. 930.

Commonly seen in moist places during monsoon.

Throughout India.

Ceylon, China, Tropical Asia and Africa.

Commelina undulata R. Br. Prodr. 270, 1810; Rao, in Notes from the Roy. Bot. Gard. Edin. 26(4): 351, 1966; Raizada, in Ind. For. 94(6): 438, 1968; Padate, in JMSU. 17 & 18(3): 110, 1968 & 69.

C. obliqua Buch.-Ham. (non Vahl) var. mathewii C.B.Clarke; FBI. 6: 372; C. 3: 293.

C. kurzii C.B.Clarke; FBI. 6: 373; Rao and Kammathy, in JBNHS. 59(1): 61, 1962.

C. paludosa Bl. var. mathewii (C.B. Clarke) Rolla Rao and Kammathy, in Bull. Bot. Surv. Ind. 3: 168, 1961.

A glabrous, stout, diffuse herb. Leaves variable in size, lanceolate or linear-lanceolate, acute-acuminate, mouth of the sheath bearded. Flowers violet-blue. Spathes sessile, solitary or crowded, in terminal heads. Capsule 3-2-seeded; seeds smooth. (Fl. Fr. August - October).

PPB. 883.

Not common; only observed at few places at Tithal.

Throughout India.

Ceylon, Malay Islands.

Murdannia Royle

Cells of the ovary 3- -ovulate; stamens 3 perfect...spirata

Cells of the ovary 2-ovulate; stamens 2 perfect .....nudiflora

Murdannia spirata (Linn.) Bruckn. in Pfam. (ed. 2) 15A: 173, 1930; Sant. 285; Tiwari & Maheshwari, loc. cit. 587.

Commelina spirata Linn. Mant. 176, 1767.

Aneilema spiratum R. Br. Prodr. 271, 1810; FBI. 6: 377; C. 3: 296.

A small, branched, annual herb. Leaves narrowly linear-lanceolate, acute, base cordate and amplexicaul, ribbed when dry. Flowers few in branched panicles. Capsule oblong, shining, 3-gonous. (Fl. Fr. September - October).

PPB. 846.

Commonly observed in moist places and in wet sandy grassy meadow in the backshore.

Throughout India.

Ceylon, Malay Islands, China.

Murdannia nudiflora (Linn.) Brenan, in Kew Bull. 189, 1952; Rao, in Bull. Bot. Surv. Ind. 3 (3 & 4): 393, 1961; Raizada, loc. cit. 447.

Commelina nudiflora Linn. Mant. 177, 1967 (non Linn. 1753); pro parte.

Murdannia malabarica (Linn.) Bruckn. in Pfam. (ed. 2) 159: 178, 1930; Sant. 286; Raizada, in Ind. For. 92(5):317,1966.

Aneilema nudiflorum R. Br. Prodr. 271, 1810; FBI. 6: 378; C. 3: 298.

A slender, procumbent annual, often rooting at nodes; roots fibrous. Leaves linear-oblong or lanceolate, acute-acuminate. Flowers blue-purple, in terminal panicles. Capsule trigonously subglobose, 3-celled, having 2 seeds in each cell. (Fl. Fr. July - October).

PPB. 928.

Commonly observed in moist places along ditches and in sandy soil near water.

Throughout India.

Ceylon, China, Malay Islands.

Cyanotis D. Don (nom. cons.)

Cyanotis axillaris (Linn.) Schult. f. Syst. 7: 1154, 1830; FBI. 6: 388; C. 3: 305; Sebnis & Pathak, in Ind. Journ. Agron. 6(2): 150, 1961; Rao et al. Bull. Bot. Surv. India 8(1): 65, 1966.

Tradescantia axillaris Linn. Mant. 321, 1771.

A trailing or erect, much branched annual. Leaves linear or linear-lanceolate. Flowers pinkish blue to purple, in cymes or fascicles in the inflated sheaths. Capsule oblong-ellipsoid. (Fl. Fr. August - October).

PPB. 1172.

Noted in moist situations at Tithal, Meh Dungri along the coast.

Throughout India; Ceylon, East Asia, Trop. Australia.

ARECACEAE (PALMAE)

1. Leaves fan shaped, i.e. flabelliform :

   2. Stems dichotomously branched ..... Hyphaene

   2. Stems not as above ..... Borassus

1. Leaves feather-like, i.e. pinnate :

   3. Leaves bipinnate .....Caryota

   3. Leaves simply pinnate :

      4. Lower leaflets spinescent ..... Phoenix

      4. Lower leaflets not spinescent :

         5. Stems whitish, more or less thickened at the middle ..... Roystonea

         5. Stems not as above :

            6. Fruit 1½ - 2 in. in size, smooth, rounded, orange or scarlet ..... Areca

            6. Fruit 4-10 in. long, trigonously obovoid, green or yellowish ..... Cocos

Hyphaene Gaertn.

Hyphaene indica Becc. in Aricoltura Coloniale II. Fasc. III, 1908; Blatter, in JBNHS. 21: 97; Rao and Aggarwal, loc. cit. 23; Rao, in Ind. Sci. Cong. 51 & 52: 402-403, 1965.

Tall palms. Stems dichotomously branched. Leaves fan-shaped. Fruits very hard. (Fl. Fr. January - May).

PPB. 1144.

Common along the coast at Dandi, Ubhrat, Daman, Also reported from the Saurashtra coast and in Baroda.

Gujarat, Diu, Ahmedabad and probably all along the western coast.

Borassus Linn.

Borassus flabellifer Linn. Sp. Pl. 1187, 1753; FBI. 6: 482; C. 3: 321; Blatter, Palms. Brit. Ind. 174-213, tt. 38-39; Sant. 289; Fl. Dang, 91; Rao et al., Bull. Bot. Surv. India 8(1): 65, 1966.

A tall tree with palmately divided leaves. Flowers unisexual, on branched spadix, enclosed into numerous open spathes. Fruit a large, subglobose, brown drupe. (Fl. Fr. February - May).

Local name : Tad.

PPB. 769.

Common throughout the area; usually strangled by Ficus amplissima.

Local uses : Every part of the plant body is utilized. The plants are tapped for 'toddy'.

Throughout India.

A native of tropical Africa; Malayan Peninsula, Sumatra, Borneo, Celeves, Flores and the Molucca Isles.

Caryota Linn.

Caryota urens Linn. Sp. Pl. 1189, 1753; FBI. 6: 422; Brandis, Ind. Tr. 654; Blatt. Palms, 339, t. 57, f. 48; Santapau, in RBSI. 16(1): 327, 1953.

A tall, feather-leaved palm. Leaves bipinnate, the primary divisions arched and drooping. Leaflets fasciculate or alternate, cuneiform, obliquely truncate, fish-tail-like. Spadix very large, 2.5-3.5 m. long. Peduncle curved, covered over with large, coriaceous spathes; branches very long, pendulous, resembling a huge horse-tail. Male buds narrowly cylindric. Fruits dark purple, pericarp thin. (Fl. Major part of the year, Fr. - July).

PPB. 767.

Noted at Daman, Nargol and Umergam.

Throughout the hotter parts of India, from the Sikkim, Himalaya and Assam southwards to Ceylon and Singapore.

Trop. Asia, Malaya.

Phoenix Linn.

Phoenix sylvastris (Linn.) Roxb. Hort. Beng. 73, 1814, nom. nud. & Fl. Ind. 3: 787, 1832; FBI. 6: 425; C. 3: 311; Blatt. Palms 3, tt. 2, 3; Sant. 288; Fl. Dang, 91; Rao and Aggarwal, loc. cit. 23.

Elate sylvestris Linn. Sp. Pl. 1189, 1753, pro parte.

A tall palm, sometimes with stunted growth. Trunk usually with persistent leaf bases. Leaves pinnate, long, lower leaflets modified into spines. Flowers dioecious, in compound spadix. Drupe edible, oblong-ellipsoid, orange-yellow. (Fl. Fr. January - April).

Local name : Khajuri.

PPB, 768.

Local uses : Leaves are used for making mats, baskets, brooms etc. From leaf-fibres ropes are made, fruit is used as food; tree is tapped for 'toddy'.

Common near human habitations at Nargol and Umargam.

Common throughout India.

A native of Tropical Africa; Malayan Peninsula, Borneo, Celebes.

Roystonea O. F. Cook.

Roystonea regia (H.B. & K.) O.F. Cook. in Bull. Torrey. Bot. Cl. 531, 1901; Bailey, loc. cit. 173; Maheshwari, 343.

Oreodoxa regia H.B. & K. Nov. Gen. & Sp. 1: 305, 1815; Blatt. Palms. 396, t. 73; D. & G. Suppl. 95; C. 3: 321.

A graceful palm with whitish, bottle-like trunks. Leaves pinnate.

PPB. 1355.

Observed only at Nergol.

A native of Cuba, planted in gardens along the roads, where it forms a beautiful avenue.

Areca Linn.

Areca catechu Linn. Sp. Pl. 1189, 1753; FBI. 6: 405; Gr. 225; D. & G. Suppl. 95; Trim. Fl. Ceyl. 4: 321; Watt, Dict. Econ. Prod. 1: 291; C. 3: 320.

A graceful slender-stemmed palm; trunk reaching nearly 100 ft. high. Leaves pinnate, 4-6 ft. long; leaflets quite glabrous; the upper leaflets confluent. Spadix androgynous, from below the leaves, branched.

Local name : Supari; Betal-nut Palm.

PPB. 1352.

Commonly cultivated along the coast at Umargam.

Original country is uncertain (said to be Cochinchina), cultivated throughout Bombay Presidency, abundantly in the Sirsi and Siddapur talukas of N. Kanara.

Cocos Linn.

Cocos nucifera Linn. Sp. Pl. 1188, 1753; FBI. 6: 482; C. 3: 322; Bailey, Man. Cult. Pl. 175; Fl. Dang, 91.

A tall palm with pinnate leaves. Flowers in large spadix; male flowers above, female flowers below. Drupe fibrous, large, obovoid. (Fl. mostly throughout the year).

PPB. 1066.

Almost all parts of the plant are economically important, because of this it is also known as "Kalpawriksha".

Noted wild as well as cultivated in private gardens along the coast.

Supposed to be a native of Cocos Island and the North Andmans.

TYPHACEAE

Typha Linn.

Typha angustata Bory & Chaub. Exp. Mor. 3(2): 33, 1832; FBI. 6: 489; Graebn. in Pfreich. 2: 14, f. 4f.; C. 3: 326; Sant. 289; Chaven & Padate, in Ind. For. 86(4):

216, 1960; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

I. elephantina Gr. 227, 1839 (non Roxb.).

An erect, stout, marshy shrub with semi-circular, long, linear, and radical leaves. Flowers small, brown, in very dense, cylindric superposed spikes; the male and females separated by a considerable interval. Female flowers mixed with clavate-tipped pistillodes, bracteoles subspathulate, equalling the linear stigmas, both longer than the hairs. (Fl. August - October).

Local name : Gha Bajariyun.

PPB. 698.

Common in marshes.

More or less throughout India.

North Asia, North Africa, Pakistan.

PANDANACEAE

Pandanus Linn. f.

Pandanus odoratissimus Linn. f. Suppl. 424, 1781; St. John, in Taxon 12(5): 201-204, 1963.

P. fascicularis Lamk. Encycl. 1: 372, 1785; FBI. 6: 485; Maheshwari, 344.

P. tectorius Soland ex Balf. f. in JLS. 17: 63, 56, 1876; C. 3. 324.

A much-branched, thick bush. Leaves glaucous-green, 3-5 ft. long, ensiform, erect, caudate-acuminate, coriaceous, dentate, closely, spirally arranged at the end of branches. Flowers dioecious; spadix with subsessile cylindric spikes. (Fl. February - August).

PPB. 810.

Observed in sandy places near the sea coast.

Sea coast of the Indian Peninsula on both sides, Sundribans, Birma, Andamans.

ARACEAE

Pistia Linn.

Pistia stratiotes Linn. Sp. Pl. 963, 1753; FBI. 6: 497; C. 3: 328.

Free floating, stoloniferous, aquatic herbs with long hanging roots. Leaves in rosette like tufts, obovate, cuneate. Spathes small, axillary. Flowers unisexual. (Fl. Fr. September - December).

PPB. 1067.

Floating herb, in fresh water pools and puddles at Dumas.

Common in tanks throughout the Bombay State and India in general.

LEMNACEAE

Fronds with several roots ..... Spirodela

Fronds with one root ..... Lemna

Spirodela Schleid.

Spirodela polyrhiza (Linn.) Schleid. in Linnaea 13: 392, tt. 5, 6, 1839; McCann, in JBNHS. 43: 156, 1942; Aquat. Angios. 77.

Lemna polyrhiza Linn. Sp. Pl. 970, 1753; FBI. 6: 557; C. 3: 343; Biswas & Calder (2nd Ed.) 101; Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

A small, gregarious, free-floating, aquatic herb. Fronds obovate to orbicular, opaque, dark green above and purplish beneath. Each frond giving rise to tuft of roots. (Fl. Rarely observed).

PPB. 1271.

Fairly common in ponds, puddles and ditches, often completely covering the water surface and even in the stagnant waters of the rice fields.

More or less throughout India.

Temperate and tropical regions throughout the globe.

Lemna Linn.

Lemna gibba Linn. Sp. Pl. 970, 1753; FBI. 6: 556; C. 3: 343; Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

A small, floating, aquatic herb. Fronds suborbicular or obovate, entire, opaque, each with a single root. Flowers not observed.

PPB. 1275. (Wet preservation, Botany Museum).

Common; observed on water surface of ponds throughout the area.

Cosmopolitan in distribution.

ALISMATACEAE

Flowers polygamous; receptacle flat; stamens 6...Limnophyton

Flowers unisexual; receptacle globose or oblong, stamens usually many .....Sagitteria

Limnophyton Miquel.

Limnophyton obtusifolium (Linn.) Miq. Fl. Ind. Bat. 3: 242, 1855; FBI. 6: 560; C. 3: 345; Aquat. Angios. 86, Pl. 3, f. 52; Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

Sagitteria obtusifolia Linn. Sp. Pl. 993, 1753.

A scapigerous, stemless, amphibious herb, with radical,

sagittate leaves. Flowers white, polygamous, in paniculate whorls, on an angular, stout scape. (Fl. Fr. November-February).

PPB. 1030.

Very common in pools, ponds and ditches throughout the area.

Throughout India.

Ceylon, Trop. Africa, Madagascar.

Sagittaria Linn.

Sagittaria sagittifolia Linn. Sp. Pl. 2: 993, 1753; FBI. 6: 561; C. 3: 345; Chavan & Sabnis, in JIBS. 40(1): 127, 1961; Aquat. Angios. 87, 1962.

A floating, aquatic, erect, fibrous rooted herb. Leaves radical, 2-8 in. long, very variable, with long petiole, sagittate, acute, smooth. Flowers white, in 3-5 whorls along the scapes, with 3-5 flowers in each whorl, the lower whorls female, the upper male, in paniculate, cuspidate whorls. Achenes obliquely obovate, flattened, apiculate, winged. (Fl. Fr. April - May).

PPB. 606.

Rare, only noted at Nargol.

In tanks throughout the plains of India from the Punjab to Bengal and Munnipore, Europe, N. Asia, N. America.

BUTOMACEAE

Tenagocharis Hochst.

Tenagocharis latifolia (D. Don) Buchen. Abh. Naturw. Ver. Bremen. 2: 2, 3, 6, 1868; Van Steenis, in Fl. Males, 1, 5: 118, f. 1, 1954; Aquat. Angios. 88, Pl. 4, f. 53; Chavan & Padate, in JMSU. 11(3): 63-78, 1962 & Padate, in JMSU. 17 & 18(3): 110, 1968 & 69.

Butomus latifolius D. Don, Prodr. Fl. Nep. 22, 1825.

Butomopsis lanceolata Kunth, Enum. Pl. 3: 165, 1841; FBI. 6: 562; G. 3: 347; Biswas & Calder (2nd ed.) 107.

An amphibious herb. Leaves lanceolate to oblanceolate with long petioles. Umbels simple, many-flowered on long stout scapes. Flowers white with long, thin pedicels. (Fl. Fr. Late August - December).

PPB. 1276.

Common along the banks of ponds and muddy soils of the rice fields.

Throughout the plains of India.

Australia, Tropics of the Old World.

POTAMOGETONACEAE

Potamogeton Linn.

Leaves filiform ..... pectinatus

Leaves ovate-lanceolate,

membranous, perfoliate ..... perfoliatus

Potamogeton pectinatus Linn. Sp. Pl. 127, 1753; FBI. 6: 567; C. 3: 350; Aquat. Angios. 95, f. 55, 1-3; Maheshwari,349.

A submerged, hydrophytic herb with slender, filiform stems. Leaves alternate, narrowly linear or filiform. Flowers minute, in whorls on a slender peduncle. (Fl. Fr. October - March).

PPB. 1278.

Not common; though locally abundant at few places.

Plains of India ascending to Himalayas.

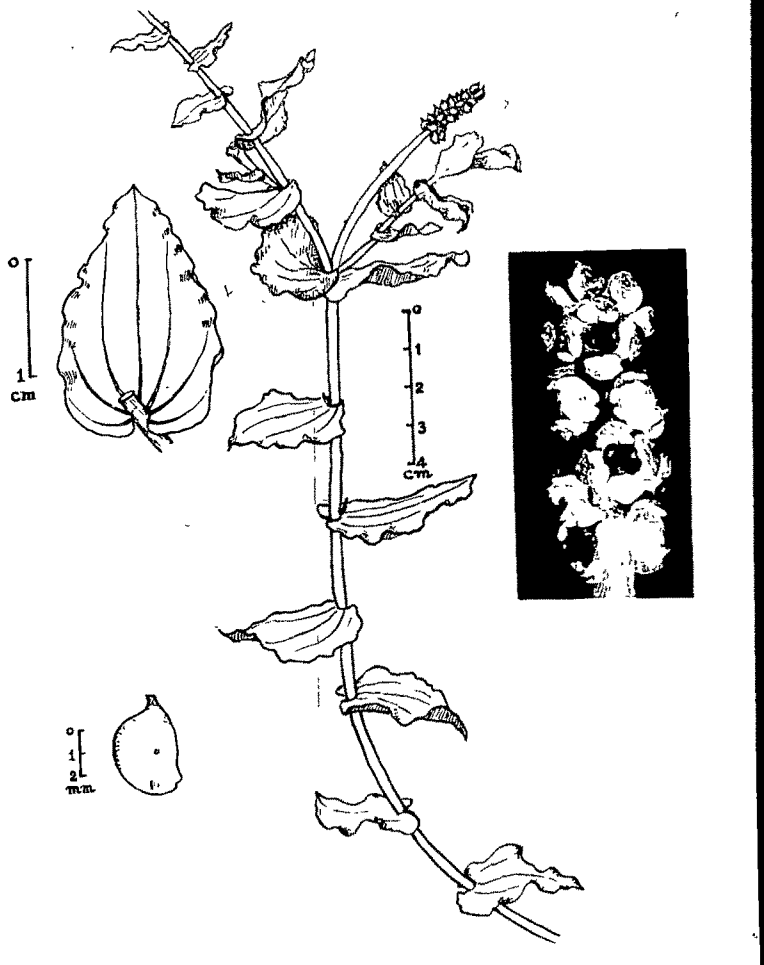
Ceylon, almost cosmopolitan.

Potamogeton perfoliatus Linn. Sp. Pl. 126, 1753; FBI. 6: 566; C. 3: 349; Aquat. Angios. 95, f. 55, 4-5.

Aquatic submerged herbs with creeping root-stock. Leaves sessile, ovate-lanceolate, membranous, perfoliate, amplexicaul, base cordate, stipules small, caducous. Flowers in short, condensed spikes. Sepals with long claws, elliptic-obovate. Drupelets obliquely ovoid, shortly beaked. (Fl. Fr. November - May).

PPB. 86.

Submerged herbs in fresh water canals and in ponds at Cambay.



Potamogeton perfoliatus Linn.

PLATE No. 41.

PLATE No. 41

Throughout India, extending to the Himalayas.

W. Tibet, Asia, Africa, N. America, Australia.

NAJADACEAE

Najas Linn.

Leaves very narrow, remotely toothed and not fleshy ..... minor

Leaves not very narrow, closely toothed and fleshy ..... marina var. muricata

Najas minor All. Fl. Pedem. 2: 221, 1785; FBI. 6: 569; C. 3: 352; Rendle, in Pfreich. 7: 14; Chavan & Padate, in JMSU. 11(3): 63-78, 1962.

A small, delicate, submerged, aquatic herb with dichotomously branching stem. Leaves very narrow and remotely toothed, not fleshy. (Fl. Fr. Almost round the year).

PPB. 85.

Abundant in ponds at Tithal, Dumas, Cambay.

Throughout India, North Andamans.

Ceylon and Old World generally.

Najas marina L. var. muricata (Del.) R. Br. ex K. Schum. in Fl. Bras. 3(3): 725, 1894, non Hartmann; Rendle, in Pfreich. 7: 8; Padate, in JMSU. 17 & 18(3): 110,1968 & 69.

N. muricata Del. Fl. Egypt. 281, t. 50, f. 1, 1812.

N. maior All. FBI. 6: 569.

A robust, submerged, aquatic with closely toothed and fleshy leaves; marginal teeth quite prominent and a little stout. (Fl. Fr. October - January).

PPB. 1280.

Only noted in running waters of river Mahi.

Throughout India.

Ceylon, Trop. Africa, Australia, Algiers, Egypt.

ERIOCAULACEAE

Eriocaulon Linn.

Eriocaulon sieboldianum Sieb. & Succ. ex Steud. Syn. Pl. Cyp. 2: 272, 1855; FBI. 6: 577; C. 3: 357.

A small, stemless, tufted plant about 12 cm. high. Leaves narrowly linear, subulate. Flowers peduncles numerous with small, white, globose heads. Petals of male flowers sub-equal, not produced beyond the bracts; petals absent in female flowers. Ovary 3-lobed, styles 3, filiform. (Fl. Fr. September-November).

PPB. 847.

Observed on marshy grounds during monsoon.

Gujarat, Maharashtra, Karnatak, W. Peninsula.

CYPERACEAE

1. Achene-bearing glumes containing perfect stamens as well :

2. Empty glumes at base of spikelets 0-2 :

3. Glumes all distichously arranged (see also Fimbristylis); hypogynous bristles 0 :

4. Nut flattened with one edge against rachilla ..... Pycreus

4. Nut trigonous or if flattened one edge not against rachilla ..... Cyperus

3. Glumes spirally arranged (basal ones sometimes distichous in Fimbristylis); hypogynous bristles or scales sometimes present :

5. Style-base dilated and constricted or articulated above the achene :

6. Hypogynous bristles present; leaves 0 ..... Eleocharis

6. Hypogynous bristles 0;
leaves usually developed :

7. Style-base persistent; if
falling, not leaving a
tumour on the achene ..... Fimbristylis

7. Style deciduous, leaving a
tumour on the achene ..... Bulbostylis

5. Style-base not dilated,
continuous with achene;
hypogyneus bristles present .....Scirpus
(absent in some)

2. Empty glumes at base of spikelets 3 or more..Rhynchospora

1. Achene bearing glumes devoid of
perfect stamens .....Scleria

Pycreus Palisot de Beauvois.

Pycreus pumilus (L.) Nees, Linnaea 9: 283, 1834; Saldanha and Nicolson, 693.

Cyperus pumilus Linn. Cent. Pl. 2: 6, 1756 & Sp. Pl. (ed. 2) 69, 1762; Kuekenth, loc. cit. 375, f. 44 A-E; Maheshwari, 352; C. 3: 370; Sant. 300; Sabnis, in Bull. Bot. Surv. India 4(1-4): 200, 1962.

Pycreus pumilus Domin, in Bibl. Bot. 85: 417, 1915.

P. nitens Nees, in Nov. Act. Nat. Cur. 19 (Suppl. 1): 53, 1843; FBI. 6: 591.

A small, glabrous, tufted annual. Leaves narrowly linear, acuminate. Spikelets arranged in umbels, 20-30-flowered, linear, compressed, glumes ovate, bifid; stamens usually 1; Stigma 2. Achene compressed, ellipsoid or obovoid, brown. (Fl. Fr. August - October).

PPB. 1071.

Observed on wet sandy soils at Tithal, Meh Dungri, Dehej.

Throughout India.

Ceylon, Malaya, China, Tropical Africa and Australia.

Cyperus Linn.

1. Stigmas usually 2 :

   2. Fruit a laterally compressed achene ..... triceps

   2. Fruit a dorsally compressed achene :

      3. Spikelets in terminal, sessile heads .....michelianus ssp. pygmaeus

      3. Spikelets in lateral, sessile heads .....laevigatus

1. Stigmas usually 3 :

   4. Spikelets in simple umbels :

5. Nut white when ripe; globosely obovoid .....flavidus

5. Nut brown, obtusely trigonous .....difformis

6. Spikelets in globose heads on the rays of an umbel or spikelets stellately spreading:

7. Plants glaucous-green; rhizome elongate, dichotomously branched giving off solitary stems, common on the sea-coast ..... arenarius

7. Plants not as above, stems solitary or tufted ..... haspan

6. Spikelets spicate on the umbel rays :

8. Small or medium annuals :

9. Spikelets golden-yellow; glumes with squarrosely recurved arista .....squarrosus

9. Spikelets green, compressed but with a medium ridge on each side; glumes not as above .....compressus

8. Perennials :

10. Leaves short, rarely ½ as long as the stem..tegetum

10. Leaves long, more than half as long as the stem or longer :

11. Stolons slender; bulbs covered with black lanceolate scales at the base ..... bulbosus

11. Stolons slender; bulbs not as above :

12. Glumes closely imbricate .... rotundus

12. Glumes plicate-striate; spikelets shorter and broader than those of above ..... esculentus

4. Spikelets in compound umbels :

13. Rachilla not or scarcely winged :

14. Rachis flexuous, hispid on angles; glumes dorsally 7-nerved; achenes 1.5 cm. long ..... rectangularis

14. Rachis glabrous; glumes dorsally 3-5-nerved; achenes 1-1.25 cm..... iria

13. Rachilla distinctly winged ..... pangori

Cyperus triceps (Rottb.) Endl. Cat. Hort. Vindob. 1: 94, 1842; Kuekenth, in Pfreich. 101: 578; Sabnis, loc.cit.200.

Kyllinga triceps Rottb. Descr. et Icon. 14, t. 4, f. 6, 1733; FBI. 6: 587; C. 3: 391; Chavan & Padate, in Ind. For. 86(4): 216, 1960.

A small, tufted plant, 5-20 cm. tall. Leaves linear, as long as or longer than the stems. Spikelets in white, sessile, angular heads in groups of 3; spikelets 1-flowered. Fruit an oblong or ellipsoid-oblong, laterally compressed achene. (Fl. Fr. July - October).

PPB. 30, 324.

Very common throughout the area. Common in moist places and on open grasslands during monsoon.

More or less throughout India.

Pakistan, Ceylon, Burma, Africa, China, Australia.

Cyperus michelianus (Linn.) Link. ssp. pygmaeus (Rottb.) Aschers. et Graebner, Synops. 2: 273, 1903; Kuekenth. in Pfreich. 101; 312; Sant. 300; Sabnis, loc. cit. 200.

Scirpus michelianus Linn. Sp. Pl. 52, 1753; C. 3: 410.

Cyperus pygmaeus Rottb. Descr. et Icon. 20, 1773; C. 3: 372; Maheshwari, 352.

Juncellus pygmaeus C. B. Clarke, in FBI. 6: 596.

A small prostrate or sub-erect herb. Leaves numerous, linear, acuminate, green. Spikelets in compact, terminal greenish heads; glumes of the spikelets distichously arranged. Achene ellipsoid, tipped by the style base. (Fl. Fr. July - November).

PPB. 24.

Commonly observed on sandy river banks forming dense tufted patches.

More or less throughout India.

Ceylon, Tropical and North Africa, China, Malaya and Australia.

Cyperus laevigatus Linn. Mant. 179, 1771; Kuekenth, loc. cit. 321; C. 3: 373; Maheshwari, 352.

Juncellus laevigatus C. B. Clarke, in FBI. 6: 596, 1893.

An erect, glabrous, tufted annual. Leaves linear, usually short. Spikelets 12-30-flowered, linear, compressed. Achene dorsally compressed. (Fl. Fr. August - October).

PPB. 26.

Observed in wet, sandy places along the coast.

Gujarat, Maharashtra, W. Peninsula, Kashmir, Punjab.

Europe, Africa, W. Asia, Australia, S. America.

Cyperus flavidus Retz. Obs. 5: 13, 1789 non Clke. in Journ. Linn. Soc. 20: 287, 1883; FBI. 6: 600, 1893; C.3: 375.

C. globosus Auct. non Forsk. 1775; Benth. 260; C. 3: 370, Sexton & Sedgwick, 304; Sedgwick, 688; Vartak, 340, f. 6 opp. 338.

Pycreus globosus Reichenb. Fl. Germ. Exc. 2: 140, 1830;

Duthie 2: 392; Haines 2: 948; Fischer, 1132; Blatter & McCann. 29.

Cyperus capillaris Koenig ex Roxb. Fl. Ind. 1: 194, 1832; Thakar 707, 1910.

Pycreus capillaris Nees in Linnaea 9: 283, 1834; FBI.6:592.

Slender annual herbs. Stems tufted, 6-8 in. high, weak, obtusely trigonous. Leaves shorter or longer than the stem, broad, linear, acute. Umbel compound or decompound, yellow when mature, finally blackening, rays many, bearing heads of stellately spreading minute spikelets. Glumes rounded (not mucronate) at the tip. Stamen 1. Nut globosely obovoid, trigonous, rounded, shortly and stoutly stipitate. (Fl. Fr. August- November).

PPB. 814.

Frequent in open dry areas at Tithal.

More or less throughout India in rice fields; Ceylon, warm regions of the Old World.

Cyperus difformis Linn. Cent. Pl. 2: 6, 1756; FBI. 6: 599; C. 3: 376; Kuekenth, loc. cit. 237; Sabnis, loc. cit. 200; Sant. 298; Maheshwari, 355; Shastry & T. Anand Rao, in Bull. Bot. Surv. India 15(1 & 2): 105, 1973.

A small herb with weak stems. Leaves linear, smooth, shorter than the stem. Spikelets green, in compact, globose heads, in umbels. Achene trigonous, obovoid, brown. (Fl. Fr. September - January).

PPB. 22.

Frequent in wet rice fields in coastal areas at Valsad and Tithal.

Throughout India and the Old World.

Cyperus arenarius Retz. Obs. 4: 9, 1786; Kukenth. 270; Clarke, in JLS. 21: 106 & FBI. 6: 602; Trimen, 5: 23; C. 3: 378; Sedwick, in JBNHS. 25: 692; Rao & Shanware, in Bull. Bot. Surv. India 9(1-4): 247, 1967.

A typical sand plant with very well developed rhizomes. Spikelets straw-coloured in heads. (Fl. & Fr. Usually in the dry months, from January to March).

PPB. 772.

On dry sandy banks away from the water current at Hajira.

PLATE No. 42

Punjab, Sind and along the sea coast upto extreme south and Orissa.

Ceylon, Persia, Arabia.

Cyperus haspan Linn. Sp. Pl. 45, 1753; FBI. 6: 600; Prain, 860; C. 3: 376; Blatter & McCann. 260; Kukenthal, 247, no. 200; Kern 6(1): 58; Tiwari & Maheshwari, 90: 155.

Perennial, solitary or tufted herbs. Rhizome stout, shortly creeping, clothed with scales. Stem trigonous,

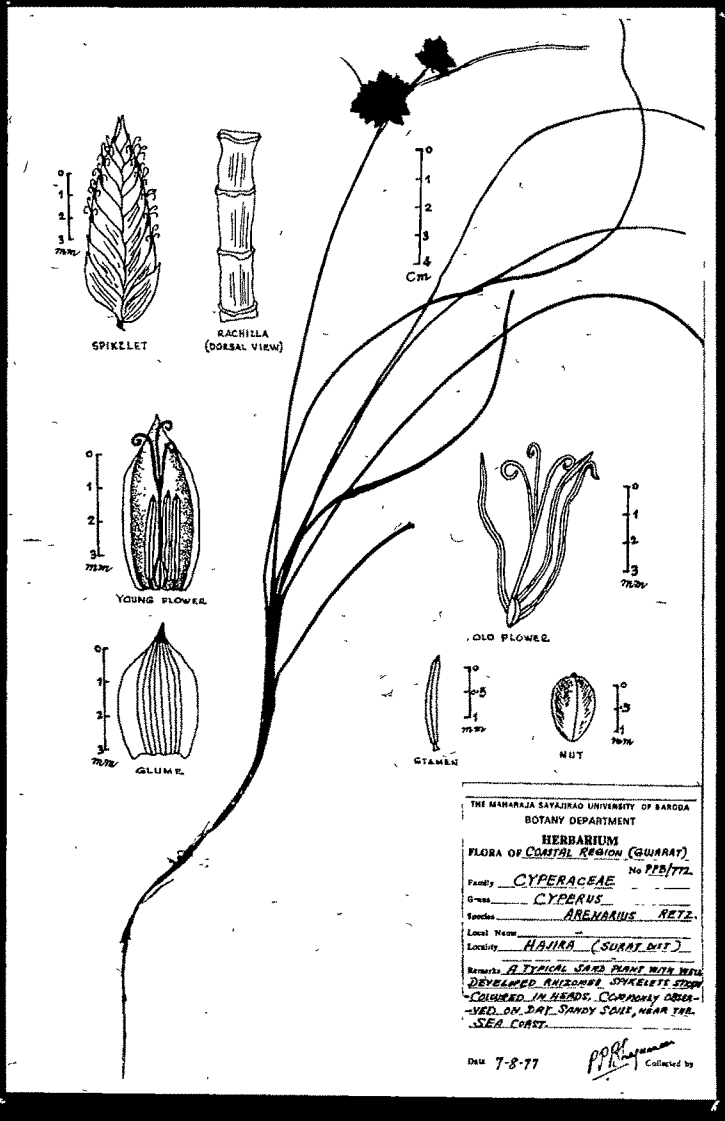

SPIKELET
RACHILLA
(DORSAL VIEW)
Cm
YOUNG FLOWER
OLD FLOWER
GLUME
STAMEN
NUT
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No PPB/772.
Family CYPERACEAE
Genus CYPERUS
Species ARENARIUS RETZ.
Local Name
Locality HAJIRA (SURAT DIST.)
Remarks A TYPICAL SAND PLANT WITH WELL DEVELOPED RHIZOMES. SPIKELETS STOUT COLOURED IN HEADS. COMMONLY OBSERVED ON DRY SANDY SOILS, NEAR THE SEA COAST.
Date 7-8-77
Collected by

PLATE No. 42.

glabrous. Umbel simple or compound, of 4-12 unequal rays, secondary rays bearing 3-8 slender stellately spreading spikelets. Nut globosely obovoid, rounded and shortly apiculate at apex; trigonous. (Fl. Fr. October - January).

PPB. 850.

Common in wet areas, along the coast.

Throughout India, Ceylon, Malaya, Indo-China, Tropical Africa and Australia.

Cyperus squarrosus Linn. (non C.B.Clarke) Cent. Pl. 2: 6, 1756; Kuekenth, loc. cit. 505; Sant. 300; Mirashi & Donde, in Bull. Bot. Soc. Nag. 3(2): 48, 1962.

C. aristatus Rottb. Descr. et Icon. 23, t. 6, f. 1, 1773; FBI. 6: 606; C. 3: 380; Sabnis, loc. cit. 200; Rao & Aggarwal, Proc. Symp. 33, 1964 (1971).

A small, tufted, glabrous annual. Leaves linear, acuminate, usually shorter than the stem. Spikelets golden-yellow or brown, arranged on the rays of an umbel; glumes with squarrosely recurved arista. Achene apiculate, trigonous and reddish-brown. (Fl. Fr. July - February).

PPB. 774.

Commonly noted in moist places and also noted as a weed in cultivated fields and on loose gravelly soils.

Throughout India.

Ceylon, Tropical Africa, Australia, the whole of America.

Cyperus compressus Linn. Sp. Pl. 1: 46, 1753; FBI. 6: 605; C. 3: 379; Kuekenth, loc. cit. 156; Sant. 297; Sabnis, loc. cit. 200; Sastry and Rao, in Bull. Bot. Surv. India 15(1 & 2): 105, 1973.

A small, glabrous, tufted annual. Umbels simple. Spikelets much compressed, green, later turning to dark brown. Achene obovoid, triquetrous, black. (Fl. Fr. August - March).

PPB. 918.

Common along sandy backshore.

Throughout India.

Almost all tropical and sub-tropical countries.

Cyperus tegetum Roxb. Hort. Beng.: 6, 1814 (nomen. nudum.) & Fl. Ind. 1: 208, 1832; FBI. 6: 613; Sedgwick, in JBNHS. 25: 695; C. 3: 384; Rao et al., in Bull. Bot. Surv. India 8(1): 67, 1966.

A stout perennial. Stem trigonous or triquetrous at the top. Spikelets reddish brown usually in compound or rarely decompound umbels; glumes remote; scarcely imbricating in fruit. Achenes yellowish brown, trigonous. (Fl. Fr. September - November).

PPB. 784.

Common in wet sandy backshore.

Throughout India.

Ceylon, Tropical Africa, Mauritius.

Cyperus bulbosus Vahl, Enum. 2: 342, 1806; FBI. 6: 611; Trim. Fl. Ceyl. 5: 22; C. 3: 384; Fl. Raj., 132; Sabnis, loc. cit. 200; Rao, Bull. Bot. Surv. India Vol. 13: 200, 1971.

A small, slender perennial. Underground bulb clothed with black, lanceolate scales. Leaves long, spreading and recurved. Spikelets reddish-brown, sessile, arranged in spikes forming an umbel. (Fl. Fr. July - March).

PPB. 639.

Observed on sandy soils and in moist situations; not common.

Gujarat, Rajasthan.

Pakistan, Ceylon, Tropical Africa and Australia.

Cyperus rotundus Linn.

stolons 4-8 in. long, bearing hard black fragrant tubers; stems 10-75 cm. long ..... rotundus ssp. rotundus

Stolons not or rarely tuberiferous; stems 60-120 cm. long ..... rotundus ssp. tuberosus

Cyperus rotundus Linn. sub.sp. rotundus Linn. Sp. Pl. 1: 45, 1753; FBI. 6: 614; C. 3: 385; Kuekenth, loc. cit. 107; Sabnis, loc. cit. 201; Sastry and Rao, Bull. Bot. Surv. India, 15(1 & 2): 106, 1973.

An erect, glabrous, perennial herb. Stem triquetrous, stolon slender, long. Leaves linear, narrow, shorter or longer than the stem. Spikelets reddish-brown, in simple umbels; glumes closely imbricate. Achene grey-black, trigonous, obovoid. (Fl. Fr. September - December).

PPB. 354, 640, 916.

A common weed along river banks and in cultivated fields along the coast.

Throughout India.

Ceylon and all warm countries.

Cyperus rotundus Linn. Sub-Sp. tuberosus (Rottb.) Kuekenth, in Engl. Pflanzenreich. Cyp. 101: 113, 1935-36; Sabnis, loc. cit. 210.

C. tuberosus Rottb. Descr. et Icon. 28, t. 7, f. 1, 1773; FBI. 6: 616; Trim. Fl. Ceyl. 5: 33; C. 3: 385; Sedgwick, in JBNHS. 25: 696.

A perennial sedge. Stems slender ½-1 meter high. Stolons slender, elongate. Spikelets in umbels; glumes not closely imbricate as in C. rotundus Linn. (Fl. Fr. June - August).

PPB. 3, 575.

Very common all along the shore at Dumas, Meh Dungri, Tithal.

India, Australia, Mauritius.

Cyperus esculentus Linn. Sp. Pl. 1: 45, 1753 & 2: 67, 1762; FBI. 6: 616; Chavan & Sabnis, in JMSU. 7(2): 61, 1958 & 8(2): 16, 1959; Padate, in JMSU. 17 & 18(3): 101, 1968 & 69.

A tall, erect, perennial, amphibious herb. Looks very much like C. rotundus. Stolons long and slender. Spikelets usually shorter and broader than those of C. rotundus; glumes plicate-striate. Achene trigonous. (Fl. Fr. July - January).

PPB. 1070.

Common throughout the area; noted along the banks of streams, rivers and ponds.

Upper Gangetic Plain, from the Ganges Plain to Niligiris and Anamalais.

In nearly all warm countries especially America, S. Europe and Africa.

Cyperus rectangularis (Kuekenthal) Bennet, in Ind. For. 95: 692, 1969.

Cyperus iria var. rectangularis Kuekenth, loc. cit. 152.

C. alulatus Kern, in Reinwardtia, 1(4): 463-466, 1962.

A small, tufted annual. Spikelets small, few-flowered, in decompound umbels. The plant resembles C. iria from which it differs in having hispid rachis and glumes dorsally 7-nerved. (Fl. Fr. July - October).

PPB. 804, 915.

Commonly noted on muddy banks.

Gujarat, Maharashtra.

Malaysia.

Cyperus iria Linn.

Spikes drawn out into almost linear raceme ..... var. parviflorus

Spikes not as above ..... var. iria

Cyperus iria Linn. var. parviflorus (Nees) Miq. in Fl. Ind. Bot. 3: 270, 1859; Kuekenth. loc. cit. 101; 152.

C. parviflorus Nees (excl. syn.) in Wight Contrib. Bot. Ind. 87, 1834, non Vahl.

C. iria Linn. var. paniciformis C. B. Clarke, in FBI. 6: 607; C. 3: 381; Chavan & Sabnis, in JMSU. 8(2): 16, 1959.

The variety differs from the species in the character

of the inflorescence, in which the ultimate spikes are drawn out into almost linear racemes.(Fl. Fr. August - October).

Noted in moist places; rare.

PPB. 843.

Gujarat, Kashmir, W. Peninsula, Andamans.

China, Japan, Malaya, Polynesia.

Cyperus iria Linn. var. iria Linn. Sp. Pl. 1: 45, 1753; FBI. 6: 606; Kuekenth. loc. cit. 150; Sant. 299; Sabnis, loc. cit. 201.

An erect, glabrous annual. Stem triquetrous. Leaves linear, acuminate. Umbels decompound; spikelets linear, oblong, compressed; glumes dorsally 3-5-nerved. Achene triquetrous, ellipsoid, black. (Fl. Fr. August - October).

PPB. 835.

Noted in moist places along the coast.

Very common and abundant in North, Central and South Gujarat.

Throughout India.

Ceylon, China, Japan, Malaya, Australia, Persia, Afghanistan, Tropical Africa.

Kern, loc. cit. has shown that Cyperus iria as understood by many Indian botanists can be separated into two species

Cyperus iria Linn. and Cyperus alulatus Kern (Cyperus rectangularis (Kuekenth.) Bennet), on the following ground.

Rachis flexuose, hispid on angles, spikelets compressed, rectangular; internode of rachilla 0.6 - 1 mm. long; glume 1.75 - 2 mm. long and as much broad, dorsally 7-nerved; achenes 1.5 mm. long ..... rectangularis (alulatus)

Rachis glabrous; spikelets 1.5 - 2 mm. broad, internode of rachilla small (ca. 0.5 mm.); glumes small, 1.2.5 x 1.5 mm., dorsally 3-5-nerved, achenes small, 1-1.25 mm. long ..... iria

Both these species are found in Gujarat often intermixed which can be sorted out in the laboratory only.

Cyperus pangorei Rottb. Descr. et Icon. 31, 1773; Mirashi & Donde, in Bull. Bot. Soc. Nagpur 3(2): 49, 1962; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

C. corymbosus Rottb. Descr. et Icon. 42, 1773; Clarke, in JLS. 21: 158 & FBI. 6: 612; Trim. Fl. Ceyl. 5: 29; C. 3: 383; Sabnis, loc. cit. 201.

A robust, perennial, stoloniferous sedge. Stems 1-2 meters high, more or less septate or articulate when dry. Spikelets reddish, in compound umbels; glumes close to the

rachilla. Achenes trigonous, obovoid. (Fl. Fr. July - January).

PPB. 1163.

Noted in marshy places at Nergol; rare.

Throughout India.

Ceylon, China, Japan, Tropical Asia, Africa, America and Madagascar.

Eleocharis R. Br.

Glumes subrigid, smooth or striate, but keeled; stems usually stout ..... dulcis

Glumes membranous, usually 1-3-nerved; stems usually slender;

Bristles glistening, white ..... atropurpurea

Bristles brown or rusty ..... geniculata

Eleocharis dulcis (Burm. f.) Trin. ex Henschel, Vita Rumph. 186, 1833; Blake, in JAA. 28: 227, 1947; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

Andropogon dulce Burm. f. Fl. Ind. 219, 1768.

Scirpus plantagineus Retz. Obs. 5: 14, 1789.

Eleocharis plantaginea (Retz.) R. et S. Syst. 2: 1150, 1817; FBI. 6: 625; C. 3: 402; Sabnis, loc. cit. 200.

A dark green, stoloniferous sedge. Stems densely tufted; transversely septate. Spikelets solitary, terminal; glumes closely imbricate; bristles retrosely scabrid, yellow, longer than the achene. (Fl. Fr. August - December).

PPB. 1289, 1291.

Common, almost monopolizing the shallow banks of the ponds and rivers at Chokari, Valsad and Dumas.

N.W. India, Assam, Gujarat, Maharashtra, Karnatak, Andhra, Madras, Kerala.

Pakistan, Ceylon, Malay Peninsula, Tropics of the Old World.

Eleocharis atropurpurea (Retz.) Kunth, Enum. 2: 151, 1837; FBI. 6: 627; C. 3: 403; Sant. 302; Sabnis, loc. cit. 200; Maheshwari, 358.

Scirpus atropurpureus Retz. Obs. 5: 14, 1789.

A small, tufted, slender annual. Leaves absent. Spikelets ovoid, obtuse or sub-acute, dark brown, solitary and terminal; glumes broadly ovate-oblong; bristles white. Achene minute, black, biconvex. (Fl. Fr. July - January).

PPB. 25.

Commonly noted on sandy or muddy banks.

W. Himalaya, Assam, Rajasthan, Gujarat, Maharashtra, Karnatak.

Ceylon, Tropics generally.

Eleocharis geniculata (Linn.) Roem. et Schult. Syst. Veg. 2: 150, 1817.

Scirpus geniculatus Linn. Sp. Pl. 48, 1753.

Eleocharis capitata R. Br. Prod. 225, 1910; C. 3: 404; Blatt. & McC. in JBNHS. 37: 538; Sedgwick, in JBNHS. 26: 199.

An annual. Stems densely tufted, slender, trigonous. Spikelet solitary, terminal, globose-ovoid; bristles brown, as long as or longer than the achene. (Fl. Fr. October - December).

PPB. 1072.

An inhabitant of sandy sea-shores; it is difficult to distinguish from E. atropurpurea (Retz.) Kunth.

Bihar, Bengal, Maharashtra, Gujarat and Madras.

Singapore, Ceylon, most warm countries.

Fimbristylis Vahl (nom. cons.)

1. Stigmas 2 :

2. Spikelets solitary, terminating the stem (rarely 2 or 3 in Polytrichoides)

3. Leaves 0 or very short ..... tetragona

3. Leaves like the stem :

4. Nut sessile, yellow dotted with white spots ..... polytrichoides

4. Nut stipitate, snow-white with a brown patch on each face ..... schoenoides

2. Spikelets umbellate or capitate :

5. Annuals ..... dichotoma

5. Perenniels :

6. Leaves 0 or very short;stamens 2-3..ferruginea

6. Leaves many, stamens usually 2 .....cymosa

1. Stigmas 3 :

7. Spikelet solitary .....ovata

7. Spikelets many, umbellate :

8. Spikelets in simple or compound umbels..tenera

8. Spikelets in a sessile head or cluster ;

9. Leaf margin scaberulous; spikelets ellipsoid; glumes mucronate .....miliacea

9. Leaf margin smooth; spikelets globose; glumes obtuse .....littoralis

Fimbristylis tetragona R. Br. Prodr. Fl. Nov. Holl. 226, 1810; FBI. 6: 631; Trim. Fl. Ceyl. 5: 48; C. 3: 393; Sedgwick, in JBNHS. 26: 193; Blatt. & McC. in JBNHS. 37, 539; Sant. 269.

A small, slender tufted plant with a solitary terminal spikelet. Spikelet ovoid-conical; rachilla studded with tetragonal pits. Achene narrowly elongate, cylindric and curved. (Fl. Fr. January).

PPB. 833, 1335.

Very rare; on the wet sandy banks at Dumas, near Surat.

PLATE No. 43.

Throughout India, except the North-West.

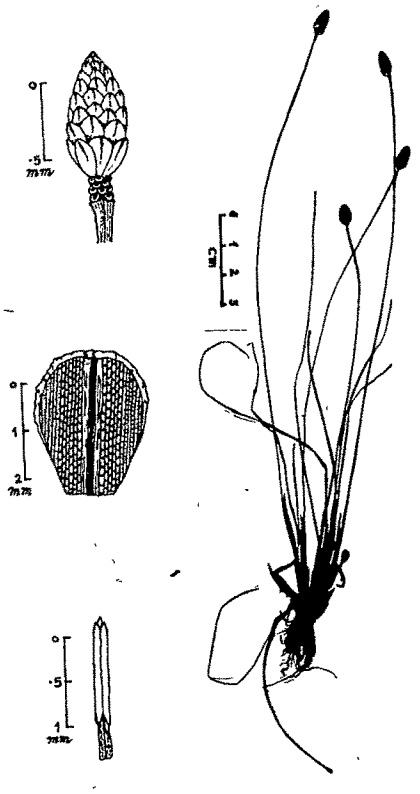
Ceylon, East Asia, Australia.

Fimbristylis polytrichoides R. Br. Prodr. 226, 1810; FBI. 6: 623; Trim. Fl. Ceyl. 5: 49; C. 3: 393; Sedgwick, in JBNHS. 26: 193; Blatt. & McC. in JBNHS. 37: 540; Sastry and Rao, Bull. Bot. Surv. India 15: 106, 1973.

A small, slender annual with a solitary, terminal spikelet. Spikelet oblong-ellipsoid, many-flowered; rachilla stout, deeply pitted. Achene minutely tuberculate, obovate with obcordate apex. (Fl. Fr. August - January).

PPB. 776.

On moist sandy banks of salt water creeks at Dabka,



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM

FLORA OF ---

No PPB/833

Family CYPERACEAE

Genus *Fimbristylis*

Species *tetragona* R.Br. Prodr.

Local Name ---

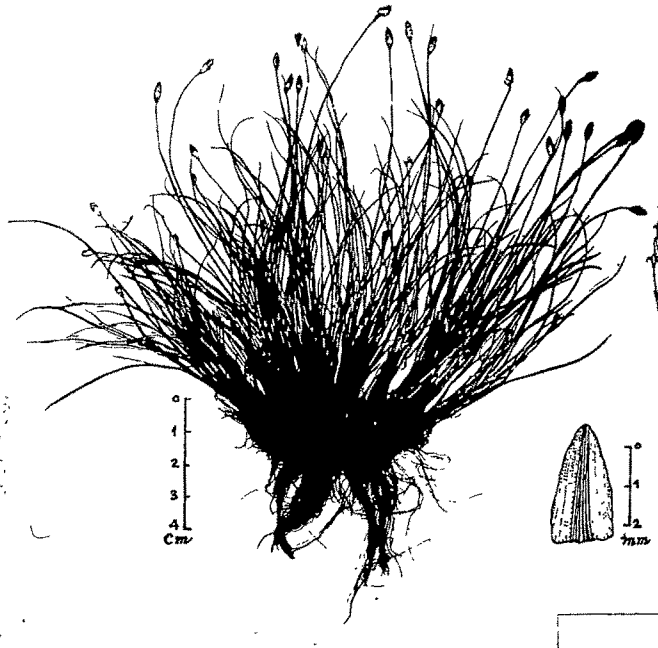
Locality TITHAL (VALSAD)

Remarks STAMEN 1, FILAMENT FLATTENED, STIGMAS 3, NUT PALE STRAW COLORED, TRABECULATE, WITH PARALLEL RIBS & MINUTE CROSS BARS.

Date 22-9-77

P.P. Bhagwanani
Collected by

PLATE No. 43.



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PPB/776
Family CYPERACEAE
Genus FIMBRISTYLIS
Species POLYTRICHOIDES
Local Name R. BR. PRODR.
Locality HAJIRA (SURAT DIST.)
Remarks A SMALL, SLENDER ANNUAL WITH A SOLITARY TERMINAL SPIKE-LET MANY-FLOWERED RACHILLA DEEPLY PITTED. ACHENE OBOVATE YELLOW WITH WHITE SPOTS. COMMONLY NOTED ON WET SANDY BANKS.
Date: 22-9-77
Illustrated & Collected by

PLATE No. 44.

Dumas and Bulsar.

PLATE No. 44

Bengal, Sunderbans, Western Peninsula.

Ceylon, Malacca and tropics of the Old World.

Fimbristylis schoenoides Vahl, Enum. 2: 286, 1806; FBI. 6: 634; Trim. Fl. Ceyl. 15 : 49-50; C. 3: 394; Sedgwick, in JBNHS. 26: 194; F. 31: 1150; Blatt. & McC. in JBNHS. 37: 541; Chavan & Sabnis, in JMSU. 7(2): 63 & 8(2): 17.

Scirpus shoenoides Retz. Obs. 5: 14, 1789.

A densely tufted, annual herb. Rhizome 0 or rarely very short. Stems tufted, slender, obtusely angled, striate. Inflorescence consists of a solitary or 2-5, distantly arranged, pale, glistening spikelets. Glumes deciduous, loosely imbricate, almost semicircular. Achene turbinate, biconvex, snow-white with a brown patch in the centre of each face. (Fl. Fr. July - October).

PPB. 837.

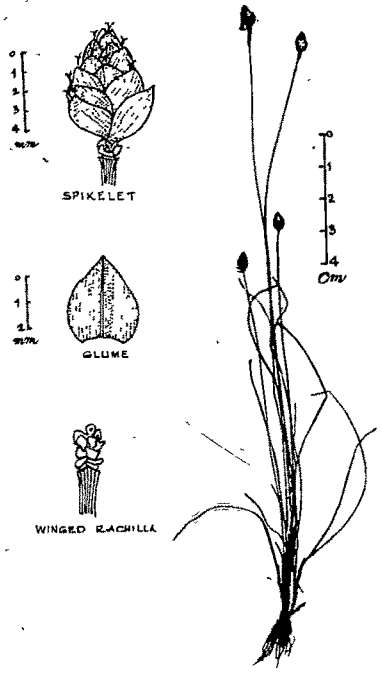
The plant was found growing abundantly in marshes.

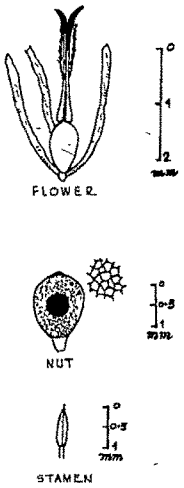
PLATE No. 45.

Throughout India.

Ceylon, China, Melaya and Australia.

Fimbristylis dichotoma (Linn.) Vahl, Enum. 2: 287, 1806; FBI. 6: 635; Kern, in Reinwardtia, 6(2): 147, 1961;





THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT

HERBARIUM

FLORA OF CORSTAL REGION (GUJARAT)
No PPB/837

Family CYPERACEAE.
Genus FIMBRISTYLIS
Species SCHOENOIDES
VAHL, ENUM.
Locality TITHAL (VALSAD DIST.)

Remarks A DENSELY TUFTED PLANT. INFLORESCENCE CONSISTS OF A SOLITARY OR 2-5 DISTANTLY ARRANGED, PALE, GLISTENING SPIKELETS. VERY COMMON IN MARSHES

Date 22-9-77 Collected by P P Bhajagavan

PLATE No. 45.

Sabnis, loc. cit. 201; Maheshwari, 359; Rao & Mukherjee, Bull. Bot. Surv. India 9(1-4): 86, 1967.

Scirpus dichotomus Linn. Sp. Pl. 50, 1753.

Fimbristylis diphylla sensu Clarke, in FBI. 6: 636; C.3: 396.

F. dichotoma (Linn.) Vahl var. diphylla (Retz.) Koyama, in Quart. Journ. Taiwan Museum 13: 229, 1960.

A tall, tufted, perennial herb, 60-70 cm. tall. Stems slender, angled, striate, smooth. Leaves with scaberulous margins. Spikelets in simple umbels; glumes mucronulate, smooth. Achenes trabeculate and ribbed. (Fl. Fr. July - December).

PPB. 110.

Common in wet sandy backshore.

Throughout India.

Ceylon and warm regions of the Old World.

Critical Note : Kern writes, "The plant on which Linnaeus based his Scirpus dichotomus is the plant called F. diphylla in FBI. and consequently F. diphylla be called F. dichotoma (L.) Vahl ".

Fimbristylis ferruginea (Linn.) Vahl, enum. 2: 291, 1806; FBI. 6: 638; C. 3: 396; Sabnis, loc. cit. 200; Sastry and Rao, Bull. Bot. Surv. India 15: 106, 1973.

Scirpus ferrugineus Linn. Sp. Pl. 50, 1753.

A densely tufted perennial. Spikelets pale brown in simple umbels, glumes broadly ovate, hoary, pubescent in the upper half. Achene pale-brown, biconvex, smooth. (Fl. Fr. July - October).

PPB. 1069.

Frequent in open dry areas along the coast.

Throughout India.

Ceylon, China, Japan, Malaya, Australia, Polynesia.

Fimbristylis cymosa R. Br. Prod. 228, 1810; Mirashi & Donde, in Bull. Bot. Soc. Nag. 3(2): 52, 1962; Rao and Aggarwal, Proc. Symp. Jodhpur, 31-42, 1964 (1971).

F. spathacea Roth, Nov. Pl. Sp. 24, 1821; FBI. 6: 640; Trim. Fl. Ceyl. 5: 54; C. 3: 396; F. 3: 1151; Blatt. & McC. in JBNHS. 37: 543.

A densely tufted, marsh-loving herb. Stems obtusely trigonous, striate. Leaves shorter than the stem, narrow, linear with scaberulous margins. Spikelets pale brown, ovoid, in usually compound umbels. Glumes loosely imbricate. Achene compressed, biconvex, black, smooth. (Fl. Fr. August - November).

PPB. 1068.

Common in marshes.

Orissa, Bombay Presidency, Coastal regions of Madras Presidency and N. Coimbatore.

Ethiopia, Arabia, China, Ceylon, Malaya, Singapore.

Fimbristylis ovata (Burm. f.) Kern, in Blumea, 15: 126, 1967.

Carex ovata Burm. f. Fl. Ind. 194, 1768.

Fimbristylis monostachya (L.) Hassk. Pl. Jav. Rar. 61, 1848; FBI. 6: 649; C. 3: 399; Sabnis, loc. cit. 200.

Cyperus monostachyus Linn. Mant. 2: 180, 1771.

Densely tufted herbs. Leaves crowded on the swollen base of the stem. Spikelet pale, straw-coloured, solitary, rarely 2, compressed, ovate, rachilla with persistent wings. Stigmas 3. Achene trigonous, tuberculate with a short pyramidal apex. (Fl. Fr. July - December).

PPB. 849.

Observed on open grassy slopes, also noted on sandy areas near the sea-shore.

Throughout warmer parts of India; Ceylon, most warm countries.

Fimbristylis tenera Roem. & Schult. Syst. Mant. 2: 57, 1824; FBI. 6: 642; Sant. 269.

F. monticola Hochst. ex Steud. sy. Pl. Cyp. 111, 1855; C. 3: 399.

F. tenera Roem. & Schult. var. oxylepis (Steud.) C. B. Clarke, in FBI. 6: 642.

A slender, annual. Stems filiform, striate, obtusely trigonous. Spikelets brown, in simple or compound umbels; glumes loosely imbricate. Achenes globose. (Fl. Fr. July - December).

PPB. 753.

Common in marshes with other species of same genus.

Gujarat, Maharashtra, S. Kanara, Mysore, Nilgiris, Anamalais, Travancore.

Ceylon, Tropical Africa.

Fimbristylis miliacea (L.) Vahl, Enum. 2: 287, 1806; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69; Sastry & Rao, Bull. Bot. Surv. India 15(1-2): 106, 1973.

F. quinquangularis Kunth, Enum. 2: 229, 1837; FBI. 6: 644; C. 3: 397; Sabnis, loc. cit. 201.

An erect, glabrous, tufted herb. Umbels decompound, spikelets not globose but acute. Achenes tuberculate, white or pale-yellow. This plant is very closely similar to F. littoralis. (Fl. Fr. August - December).

PPB. 61, 842.

Generally noted in marshy habitats.

Throughout India.

Ceylon, Malay Peninsula, China, Australia.

Fimbristylis littoralis Gaudich, in Freyc. Voy. Bot. 413, 1826; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

F. miliacea sensu Clarke, in FBI. 6: 644, 1893, non Scirpus miliaceus Linn.

An erect, glabrous sedge. Spikelets brown, globose, in decomposed umbels. Achenes white or yellow, tuberculate. This plant resembles F. miliacea (Linn.) Vahl in habit and other characters of inflorescence. (Fl. Fr. July - March).

PPB. 840, 1299.

Very common around ponds, puddles and streams.

Throughout India, upto about 2000 meters.

All warm regions.

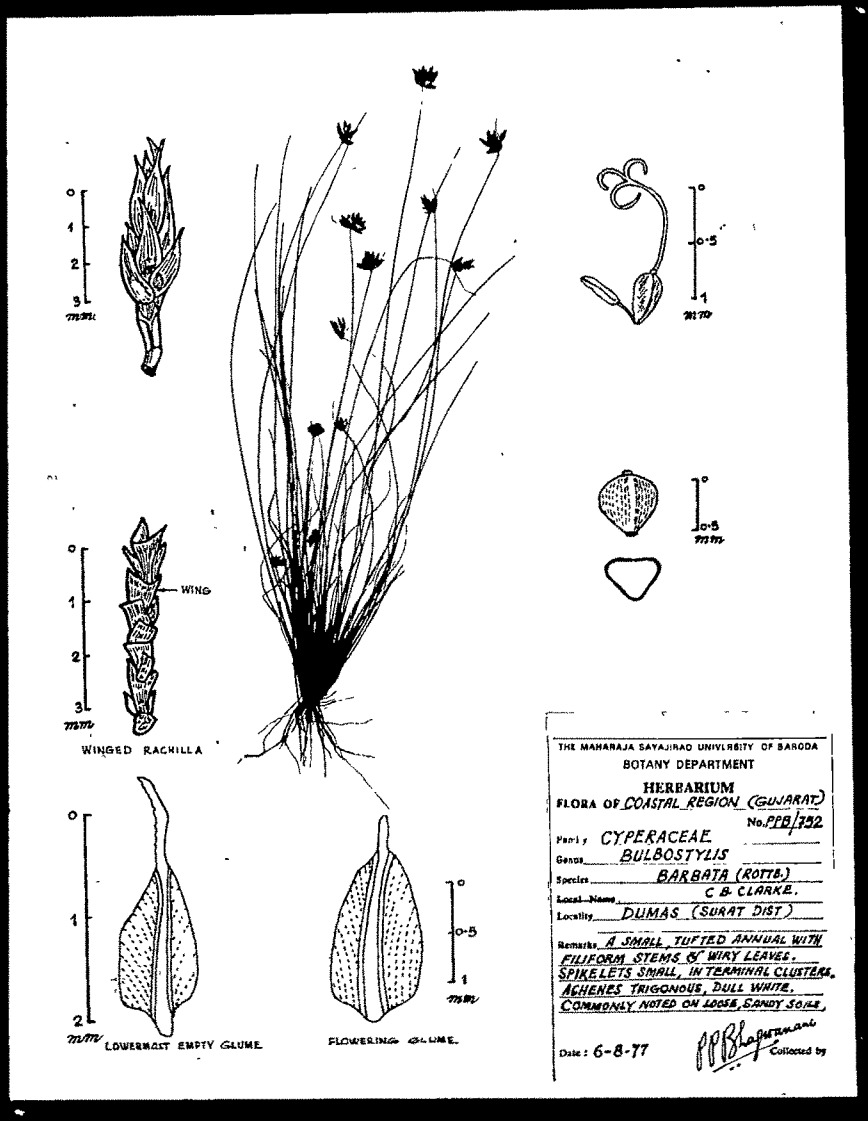
Bulbostylis Kunth.

Bulbostylis barbata (Rottb.) C. B. Clarke, in FBI. 6: 651; Trim. Fl. Ceyl. 5: 66; Kern, in Reinwardtia 6: 51, 1961; Sabnis, loc. cit. 200; Rao, Bull. Bot. Surv. India 13: 201, 1971.

Scirpus barbatus Rottb. Descr. et Icon. 52, t. 17, f. 4, 1773.

Stenophyllus barbatus (Rottb.) Cooke, 3: 401; Fl. Raj. 133.

A small, tufted annual with filiform stems and wiry leaves. Spikelets small, brown, crowded, in terminal clusters or heads. Achenes trigonous, dull white; style leaving a tumour on the



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PPB/752
Family CYPERACEAE
Genus BULBOSTYLIS
Species BARBATA (ROTTB.) C.B. CLARKE.
Local Name
Locality DUMAS (SURAT DIST.)
Remarks A SMALL TUFTED ANNUAL WITH FILIFORM STEMS & WIRY LEAVES. SPIKELETS SMALL, IN TERMINAL CLUSTERS. ACHENES TRIGONOUS, DULL WHITE. COMMONLY NOTED ON LOOSE, SANDY SOILS.
Date: 6-8-77
PPBhatt
Collected by

PLATE No. 46.

achene. (Fl. Fr. July - January).

PPB. 752.

Common, found on loose, sandy soils.

PLATE No. 46

Throughout India.

Ceylon and other warmer regions.

Scirpus Linn.

On the bases of embryo structure, Hooper while revising Cyperaceae in Flora of Hassan District, included species of the heterogenous genus Scirpus of Linnaeus. under Bulboschoenus, Hemicarpa, Isolepis, Rikliella and Schoenoplectus with a remark that further work is needed to establish satisfactory boundaries for some of these genera whose justification at present depends largely on differences in embryo structure. In this work older but widely accepted circumscription of Scirpus is followed.

1. Inflorescence umbellate :

   2. Inflorescence terminal; bristles retrosely scabrid ..... maritimus

   2. Inflorescence lateral; bristles plumose.... littoralis var. subulatus

1. Inflorescence a head :

3. Nut marked with transverse wavy lines; hypogynous bristles 0 :

4. Glumes often 5-ranked, inflated in front ..... roylei

4. Glumes not as above :

5. Stems flowering nearer to the base than the top, stout, spongy, glumes with a subcordate base, hardly keeled ..... articulatus

5. Stems flowering nearer to the top than the base, slender, obtusely trigonous, glumes with tapering (not subcordate) base; strongly keeled ..... lateriflorus

3. Nut not marked with transverse wavy lines; hypogynous bristles present ..... strobilinus

Scirpus maritimus Linn. Sp. Pl. 51, 1753; FBI. 6: 658; C. 3: 407; Fl. Raj. 134; Chavan & Padate, in Ind. For. 86(4): 216, 1960 & in JMSU. 11(3): 63-78, 1962; Sabnis, loc. cit. 200.

A tall, tough, amphibious plant, with creeping rhizome. Leaves grass-like, keeled, as long as the stem. Spikelets pale brown or reddish brown, in umbellate inflorescence; rays of the umbel unequal with 3-8 spikelets on a ray; glumes strongly keeled; hypogynous bristles retrosely scabrid. Achenes pale yellow, trigonous, smooth. (Fl. Fr. July - January).

PPB. 366, 914.

Common in marshes.

Gujarat, Maharashtra, Karnatak, Nellore, Kashgar, Moradabad, Rajasthan, Kashmir.

Old World species with varieties in Australia and America.

Scirpus littoralis Schrad. var. subulatus (Vahl) Choiv. Pl. Nov. etc. ex Aethiopia 16, 1928; Koyama, in Canad. Journ. Bot. 41(7): 1126, 1963.

S. subulatus Vahl, Enum. 2: 268, 1806.

S. littoralis sensu Clarke, in FBI. 6: 659 (non Schrad.); C. 3: 408; Chavan & Padate, in JMSU. 11(3): 63-78, 1962; Sabnis, loc. cit. 201.

A sturdy, amphibious hydrophyte with creeping rhizome. Stems 1-2 meters tall, terete below, slightly trigonous above. Inflorescence a lateral umbel with drooping rays near the top of the stem. Glumes membranous, notched at the apex with a mucro. Hypogynous bristles plumose with moniliform hairs. Achenes obovate, apiculate, dark brown, smooth. (Fl. Fr. Almost throughout the year).

PPB. 848.

Common in marshes.

Gujarat, Maharashtra, Karnatak, Central India, Punjab, Madras, Travancore upto 600 meters.

Persia, Ceylon, Central Asia, Africa, Mediterranean region, Australia, Malaysia.

Scirpus roylei (Nees) Parker in Fl. Upp. Gang. Plains 3: 361, 1929.

Isolepis roylei Nees in Wight, Contrib. 107, 1834.

Scirpus quinquefarius Buch.-Ham. ex Boeck. in Linnaea 36: 701, 1870; FBI. 6: 657; Blatt. & McC. in JBNHS. 37: 768.

Plants with slender, terete stems, upto 60 cm. high. Spikelets golden yellow, flaccid with conspicuously loose glumes. Inflorescence borne above the middle of the stem. Achene black, nearly triquetrous with transverse wavy lines. (Fl. Fr. September - October).

PPB. 836.

Generally found in moist situations.

N. W. India, Central India, West Bengal, Sind, Cutch, Gujarat, Deccan.

Afghanistan, Baluchistan, Africa.

Scirpus articulatus Linn. Sp. Pl. 47, 1753; FBI. 6: 656; C. 3: 406; Trim. Fl. Ceyl. 5: 75; Chavan & Padate, in Ind. For. 86(4): 216, 1960 & in JMSU. 11(3): 63-78, 1962; Sabnis, loc. cit. 201.

An amphibious sedge with erect, hollow, cylindrical culms

and fibrous roots. Spikelets pale-brown, in lateral head, often near the base; hypogynous bristles absent. Achenes obovoid, triquetrous, black, apiculate. (Fl. Fr. September - April).

PPB. 1292, 1295.

Common in marshes and by the margins of ponds.

Throughout India.

China, Africa, Indochina, Malaysia and northern Australia.

Scirous lateriflorus Gmel. Syst. Veg. 1: 127, 1791; Kern, 134.

S. supinus Roxb. (non Linn.) Fl. Ind. 1: 219, 1820; FBI. 6: 655; C. 3: 406; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

S. supinus var. uninodis Clarke in FBI. 6: 656; Sedgwick, in JBNHS. 26 : 201.

A densely tufted glabrous annual. Stems slender, obtusely trigonous, striate. Spikelets pale green or straw-coloured, in lateral inflorescence. Inflorescence in either a compact head or is broken up into clustered spikelets on the rays of an umbel. Achenes obovoid or orbicular, trigonous, black. (Fl. Fr. July - November).

PPB. 845.

In marshes almost throughout the year.

More or less throughout India.

Old World in general and also in America.

Critical notes : Clarke (loc. cit.) on the basis of the inflorescence character, erects variety uninodis. Sedgwick (loc. cit.) remarks " Commoner than S. supinus Linn. - This variety is of very doubtful validity. All intermediate stages occur". I am inclined to give weightage to these remarks and merge the variety with the species, thereby reducing the former to synonymy.

Scirpus strobilinus Roxb. Hort. Beng. 6, 1814 & Fl. Ind. 1: 222, 1820; Koyama, in Acta Phytotax. Geobot. 17(2): 50, 1957.

S. maritimus Linn. var. affinis C. B. Clarke, in FBI. 6: 659; C. 3: 408; Sabnis, loc. cit. 200.

An erect, sedge with smooth, creeping rhizome. Stems sharply trigonous. Spikelets 3-1, straw-coloured, sessile, crowded in terminal heads; glumes sparingly hairy. Achenes lenticular, dark brown, ovate, apiculate. (Fl. Fr. April -November).

PPB. 117.

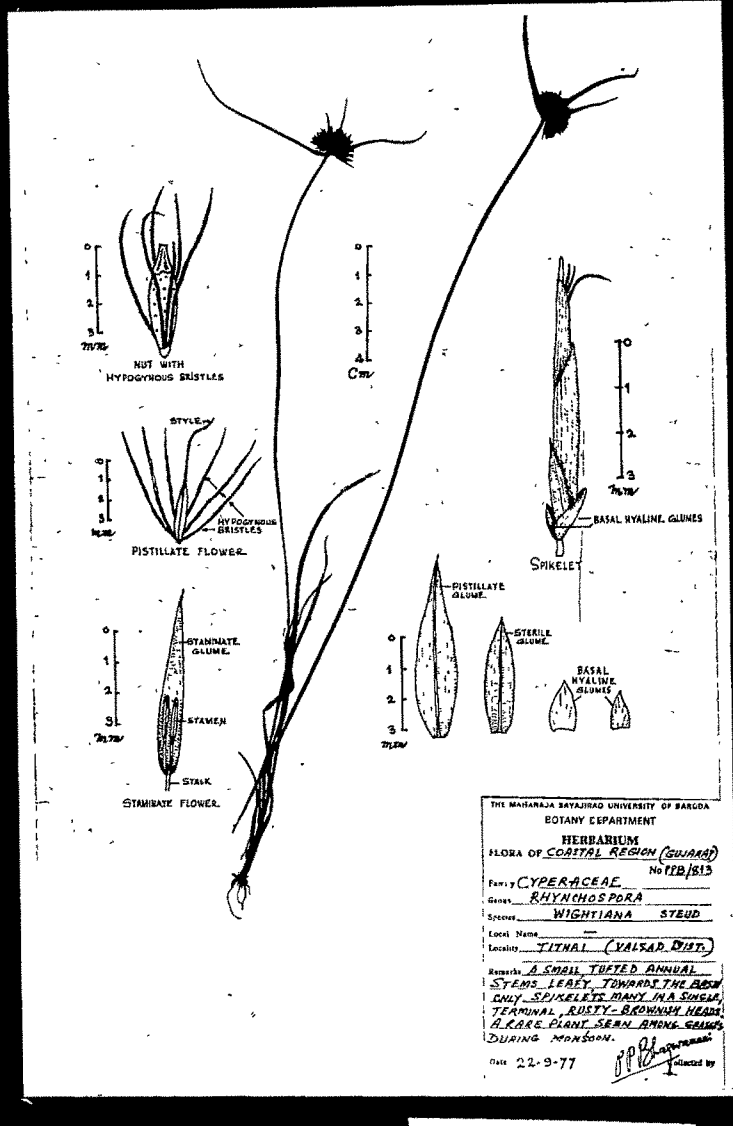
Common on sandy or muddy banks.

Throughout N. India, in the plains from Punjab and Bombay to Assam.

N. Asia, Turkestan, N. China.

Rhynchospora Vahl. Corr. Willd.

Rhynchospora wightiana Steud. Cyp. (1855) p. 148; FBI. 6: 669;



THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No FEB/813
Family CYPERACEAE
Genus RHYNCHOSPORA
Species WIGHTIANA STEUD
Local Name —
Locality TITHAL (VALSAD DIST.)
Remarks A SMALL TUFTED ANNUAL. STEMS LEAFY TOWARDS THE BASE ONLY SPIKELETS MANY IN A SINGLE TERMINAL, RUSTY-BROWNISH HEADS. A RARE PLANT SEEN AMONG GRASSES DURING MONSOON.
Date 22-9-77 Collected by

PLATE No. 47.

Woodr. in JBNHS. 13(1901): 432; C. 3: 415; Blatt. & McC. in JBNHS. 37: 774; Shah & Suryanarayan, in 54th Ind. Sc. Congr. Abstr. 321.

Usually tall herbs varying much in size and habit with slender, simple, glabrous, trigonous stems, leafy towards the base only; stolons 0. Leaves many, at the base of the stem only, linear, acuminate. Spikelets numerous, in reddish-brown terminal heads. Glumes 6-9, elliptic-lanceolate, the 3 or 4 lowest empty, the next 2-sexual and larger than the lower ones, the upper male or rudimentary, hypogynous bristles 6, unequal. Nut compressed, rounded at the apex below the beak, oblong, dark brown, with pale papillae. (Fl. Fr. August - September).

PPB. 813.

Rare; noted in moist places.

PLATE No. 47

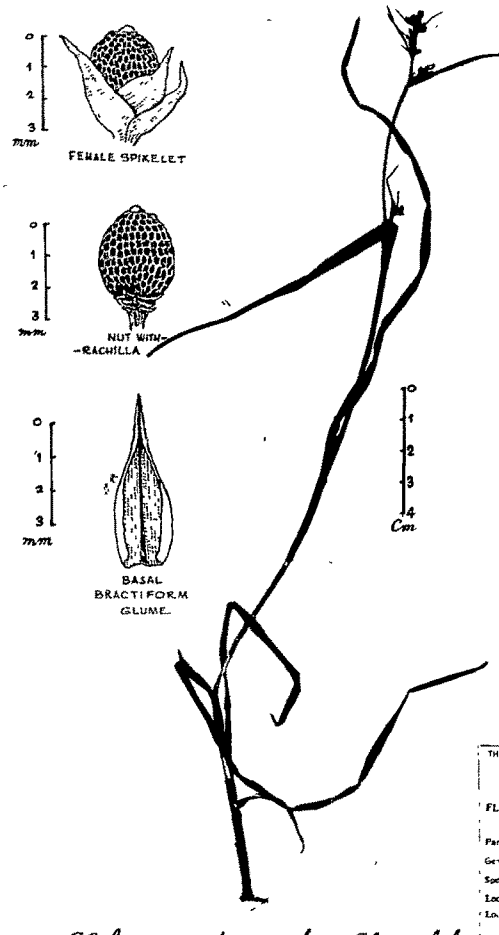
India (W. Peninsula); Cochinchina.

Scleria Berg.

Scleria parvula Steudel. synop. Pl. Glumac. 2: 174, 1855; Nelmes in Kew Bull. 105, 1956; Koyama, 136.

S. tessellata Willd. Sp. Pl. 4: 315, 1805; FBI. 6: 686; C. 3: 418; F. 3: 1163; Blatt. & McC. in JBNHS. 37: 776.

S. mikawana sensu Shah C. K. in Journ. Guj. Univ.Vidya. 6: 184 1963 (non Makino).



Scleria parvula Steudel.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF CORASTAL REGION (GUJARAT)
No. PPB/812
Family CYPERACEAE
Genus SCLERIA
Species PARVULA STEUDEL.
Local Name —
Locality TITHAL (BULSAR DIST.)
Remarks A TUFTED SLENDER LEAFY PLANT. SPIKELETS IN PANICLED INFLORESCENCE. ACHENE BONY WHITE CANCELLATELY TESSELLATE. VERY RARE PLANT GROWING AMONG GRASSES.
Date : 22-9-77
Collected by P P Bhagwanani

PLATE No. 48.

Perennial, tufted, slender, leafy herbs. Stem reaching a meter in height, triquetrous. Leaves long, linear with scaberulous margins. Spikelets in panicled inflorescence. Achene bony, white, exserted, concellately tessellate with square depressions, sometimes puberulous with reddish hairs on the ridges. (Fl. Fr. September).

PPB. 812.

Rare, in dry sandy open situations.

PLATE No. 48.

Throughout India, except the arid areas.

Ceylon, Malaya, China, Japan, Australia.

POACEAE (GRAMINEAE)

(Key to the groups, genera and species have been adapted and prepared following Bor - The Grasses of Burma, Ceylon, India and Pakistan, 1960).

Key to the groups of Poaceae

1. Spikelets 2-flowered, falling entire at maturity, usually with the upper floret hermaphrodite and the lower male or barren and if the latter, often reduced to the lemma or rarely the lemma entirely absent, all alike or more often differing in size, shape and structure, frequently dorsally compressed. Penicoideae

1. Spikelets 1-many-flowered, breaking up at maturity above the more or less persistent glumes, or if falling entire, then not 2-flowered with the lower florets male or barren and the upper hermaphrodite, usually more or less laterally compressed or terete or if 2-flowered and falling entire, the glumes and lemmas all membranous and with a globose wrinkled seed which splits the palea when mature ..... Pooideae

Key to the genera of Panicoideae

1. Male and female spikelets in separate inflorescences or in different parts of the same inflorescence :

   2. Female spikelets enclosed in a osseous or ivory bead-like structure ..... Coix

   2. Female spikelets not enclosed as above but are crowded in vertical rows on a very thin axis..Zea

1. Spikelets all hermaphrodite, or with male or barren and hermaphrodite spikelets mixed in the same inflorescence :

   3. Spikelets often paired, with one sessile and the other stalked, those of each pair similar or more often dissimilar, rarely solitary and all alike; upper lemma usually awned :

4. Spikelets of each pair similar, the sessile and the pedicelled hermaphrodite; joints of the panicle thin, linear or somewhat expanded at the top ..... Saccharum

4. Spikelets in each pair dissimilar, the sessile hermaphrodite, the pedicelled male or sterile; or completely absent or if more or less similar then the joints of the raceme and the pedicel thick and swollen :

5. Joints of the rachis and pedicel of the stalked spikelet swollen, 3-angled, rounded or flattened :

6. Sessile spikelets with a male and a hermaphrodite floret; upper lemma awned :

7. Racemes many-noded; not contained in a spathe-like sheath ..... Ischaemum

7. Racemes - 1-noded, enclosed in a boat-shaped spathe ..... Apluda

6. Sessile spikelet with a hermaphrodite floret only or occasionally with a male floret below; upper lemma unawned :

8. Sessile spikelet spherical; lower

glume pitted all over; pedicelled spikelet reduced ..... Hackelochloa

8. Sessile spikelets not spherical in shape.. Ophiuros

5. Joints of the rachis and the pedicel narrow, seldom thickened upwards, occasionally with a translucent longitudinal groove :

9. Margins of the lower glume of the sessile spikelets sharply unfolded, 2-keeled, awn glabrous :

10. Upper lemma of the sessile spikelets not cleft, often stipitate and passing into the awn :

11. Pedicels with a median translucent furrow ..... Capillipedium

11. Pedicels without a median translucent furrow ..... Dichanthium

10. Upper lemma of the sessile spikelets 2-lobed or 2-cleft, awned in the sinus.. Cymbopogon

9. Margins of the lower glumes in turned, rounded at the sides, at the most, keeled upwards; awns usually hairy :

12. Racemes solitary at the ends of the branches, surrounded at the base by an involucre of homogenous spikelets :

13. Involucral spikelets pedicellate; deciduous; callus of fertile spikelets very short, truncate or obtuse ..... Iseilema

13. Involucral spikelets sessile, not deciduous; callus of spikelets pointed ..... Themeda

12. Racemes without an involucre ..... Heteropogon

3. Spikelets solitary or paired, more or less similar; upper lemma usually awnless :

14. Spikelets falling singly, not subtended by bristles, or if so then the bristles persisting after the spikelets have fallen :

15. Spikelets arranged in more or less open panicles, or with the panicles contracted and spike-like :

16. Spikelets mostly unisexual .....Spinifex

16. Spikelets all similar in shape and sex .....Setaria

15. Spikelets arranged in one-sided spikes or spike-like racemes; spikes or racemes digitate or scattered, rarely solitary :

17. Lemma of the upper floret crustaceous or coriaceous, usually with narrow in rolled margins, exposing much of the palea :

    18. Spikelets abaxial :

        19. Lower glume developed, although sometimes small :

            20. Glumes acuminate or awned, rarely only acute; upper lemma not mucronate:

                21. Leaf-blades linear; racemes dense..Echinochloa

                21. Leaf-blades lanceolate to ovate; racemes loose to moderately dense..Oplismenus

            20. Glumes awnless, if acuminate then with upper lemma mucronate :

                22. Upper lemma acute, not mucronate...Paspalidium

                22. Upper lemma obtuse, mucronate or very short-awned .....Urochloa

        19. Lower glume usually absent, spikelets plano-convex .....Paspalum

    18. Spikelets adaxial .....Brachiaria

17. Lemma of the upper floret thinly cartileginous, usually with flat, hyaline margins :

23. Spikelets awnless ..... Digitaria

23. Spikelets awned ..... Alloteropsis

14. Spikelets with an involucre of bristles or subtended by a solitary bristle and falling with or without bristle at maturity :

24. Upper lemma smooth; bristles caducous :

25. Involucre of free, naked or plumose bristles ..... Pennisetum

25. Involucre of spines or rigid bristles united at the base into a hard cup .... Cenchrus

24. Upper lemma transversely rugose; bristles persistent ..... Setaria

Coix Linn.

Coix lacryma-jobi Linn. Sp. Pl. 972, 1753; FBI. 7: 100; C. 3: 517; Bor, 264; Chavan & Padate, in JMSU. 11(3): 63-78, 1962; Patel, in Ind. For. 91(5): 321, 1965.

A tall, annual or perennial grass. Leaves long; flat. Inflorescence a drooping raceme with unisexual florets. Male florets are terminal, drooping and each subtended by a bract. Female florets at the base, enveloped by hard, polished bluish grey bracts. (Fl. Fr. October - March).

PPB. 816.

Commonly noted along ditches in association with Typha.

A native of Tropical Africa, now widely distributed in the tropics. Cultivated in Africa and America.

Zea Linn.

Zea mays Linn. Sp. Pl. 971, 1753; FBI. 7: 102; C. 3: 574; Gr. 240; Bor, 270; Patel, in Ind. For. 91(5): 321, 1965; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69.

A stout, tall annual. Male spikelets are produced terminally and female ones axillary lower down on the stem. (Fl. Fr. July - October).

PPB. 127.

Cultivated as a stapple crop.

Local name : Makai.

Almost throughout India.

A native of America, cultivated in all warmer countries.

Saccharum Linn.

Stems glabrous below the panicle ..... officinarum

Stems silky below the panicle ..... sponteneum

Saccharum officinarum Linn. Sp. Pl. 54, 1753; FBI. 7: 118;

C. 3: 566; Bor, 212; Maheshwari, 371; Patel, loc. cit. 318.

An erect, tall, many-noded grass, commonly cultivated for juicy culms. Inflorescence pyramidal panicles with spreading branches.

PPB. 1360.

Cultivated on small scale.

Cultivated in many parts of India.

Cultivated in many parts of the tropics.

Saccharum spontaneum Linn. Mant. Ait. 183, 1771; FBI. 7: 118; C. 3: 465; D. & G. 304; Bor, 214; Patel, loc. cit. 318.

An erect, perennial grass, about 4-5 meters tall. Leaves linear, acuminate. Panicles silvery white with slender rachis, giving elegant appearance to the plant. (Fl. Fr. August-January).

PPB. 1354.
Cultivated.
Throughout India.

Ceylon, S. Europe and warmer regions of the Old World.

Ischaemum Linn.

Racemes usually 2, erect, pale yellow, glabrous... rugosum

Racemes 2-6, fascicled, yellow or brownish, pilose..pilosum

Ischaemum rugosum Salisb. Icon. Strip. Rar. 1, t. 1, 1791; FBI. 7: 127; C. 3: 477; Bor, 184.

An annual. Leaves linear, with scabrid margins. Racemes 2, pale yellow at first, protected by leafy sheath, spikelets up to 6 mm. long, sessile, and pedicellate, closely pressed together. (Fl. Fr. September - November).

PPB. 829.

A variable plant of marshy places.

All over the plains and low hills of India, Burma, Malaya, Siam to China, etc.

Ischaemum pilosum Hack. Monog. Andropog. in DC. Mon. Phan. v. 6 (1889) P. 240; FBI. 7: 130; Grah. Cat. : 239; D. & G. : 305; Woodr. in JBNHS. 13 : 436, 1901; Watt, Dict. Econ. Prod. 4: 531; C. 3: 479; Bor, 183.

An annual. Leaves linear, finely acuminate, glabrous, ligule rounded, membranous, glabrous. Racemes 2-6, fascicled, rachis hairy. Sessile spikelets narrowly lanceolate, glumes 4. (Fl. Fr. October - April).

PPB. 828.

In wet muddy areas at Tithal, Meh Dungri.

Bombay, Madras, Madhya Pradesh.

Apluda Linn.

Apluda mutica Linn. Sp. Pl. 82, 1753; Bor, 93; Patel, loc. cit. 311; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69; Rao et al. Bull. Bot. Surv. India 5(3-4): 317, 1963; 5(2): 146, 1963;

8(1): 65, 1966.

Apluda aristata Linn. Amoen. Acad. 4: 303, 1756; Bor, Fl. As. 5: 431; D. & G. 303; Sant. 303; Rao et al. in Ind. For. 101 (8): 473, 1975.

A. varia Hack. in DC. Monogr. Phan. 6: 196, 1889; FBI. 7: 150; C. 3: 474; Blatt. & McC. 29, t. 20.

An erect, slender, leafy, annual herb with branches spreading among the hedges and bushes. Inflorescence a panicle, each one enclosed in a spathe. Spikelets sessile and pedicellate. (Fl. Fr. September - December).

PPB. 169.

Common grass along Mahi estuary.

Throughout India.

Ceylon, S. E. Tropical Asia and as far as Australia.

Hackelochloa O. Kuntze

Hackelochloa granularis (Linn.) O. Kuntze, Rev. Gen. Pl. 776, 1891; Bor, 159; Patel, loc. cit. 315.

Cenchrus granularis Linn. Mant. 2: 575, 1771.

Manisuris granularis Linn. f. Nov. Gram. Gen. 40, 1779; FBI. 7: 159; C. 3: 473.

An erect, leafy annual. Inflorescence consisting of a solitary, axillary raceme resembling a string of minute beads.

Spikelets sessile and pedicellate. (Fl. Fr. September - January).

PPB. 822.

Commonly observed in moist places along with grasses.

Throughout the tropics.

Ophiuros Gaertn. f.

Ophiuros exaltatus (Linn.) O. Kuntze, Rev. Gen. Pl. 2: 780, 1891; Bor, 199; Patel, loc. cit. 318.

O. corymbosus Hook. f. FBI. 7: 160, pro parte; C. 3: 468.

Perennial grass. Leaves linear, lanceolate, hairy above, glabrous beneath, margins spinulose. Spikes slender, long, often in dense, corymbose fascicles. (Fl. Fr. September-December).

PPB. 795.

Commonly found on sandy sea shore.

Gujarat, Maharashtra, Karnatak, Andhra, Madras, Khasia Hills, N. Bengal, W. Peninsula.

Tonkin, Australia.

Capillipedium Stapf

Capillipedium assimile (Steud.) A. Camus. in Lecomte, Fl. Gen. de l' Indo_Chine 7, 314 (1922); Bor, 110.

Andropogon assimilis Steud. in Zoll., Syst. Verz. 58(1854) and in Syn. Pl. Glum. 1, 397 (1854); FBI. 7: 179; C. 3: 501.

A. montanus Hack. in DC., Monogr. Phan. 6, 490 (1889) non Roxb. (1820).

Capillipedium glaucopsis (Steud.) Stapf, in Hook., Ic. Pl. sub tab. 3085 (1922).

Perennial grass of very varied habit. Suffruticose, fastigiately branched from a decumbent base, stems 1-2 ft. long, hard, smooth and polished. Leaves linear-lanceolate, finely acuminate, glabrous, with a strong, white midnerve; ligule membranous, ciliate. Inflorescence in lax panicles; branches slender. Spikelets few, pale-green. (Fl. Fr. December-January).

PPB. 279.

Common in gravelly soil at Kavi, Dhuvaran, Chokari, Ganguva along the coast.

A very common grass in India (Temperate Himalaya, Khasia, Behar, N. W Bengal and W. Peninsula), and Burma ascending in the hills to 2000 m.) extending to Siam, China and Japan.

Dichanthium Willemet.

Dichanthium annulatum (Forssk.)Stapf, in Prain, Fl. Trop. Afr. 9: 178, 1917; Blatt. & McC. 94, t. 62; Bor, 133; Patel, loc. cit. 314; Rao & Aggarwal, Bull. Bot. Surv. India 8(1): 23, 1966.

Andropogon annulatum Forssk. Fl. Aeg.-Arab. 173, 1775; FBI. 7: 196; C. 3: 508.

A closely tufted, perennial grass. Leaves linear, finely acuminate. Racemes subdigitately fascicled, nearly white. (Fl. Fr. August - January).

PPB. 826.

Commonly noted in cultivated fields.

Gujarat, Maharashtra, Manipur, Himalaya; widely distributed in India.

Burma, Tropical and North Africa, China, Australia, Pakistan.

Cymbopogon Spreng.

Cymbopogon jwarancusa (Jones) Schult. Syst. Veg. 2, Mant. 458, 1824; Blatt. & McC. 102; Bor, 128; Patel, loc. cit. 313.

Andropogon iwarancusa ssp. iwarancusa Proper. Hook. f. FBI. 7: 203; C. 3: 495.

A pale, often glaucous green, tall perennial. Panicle very variable; proper spathes longer than the peduncles of the racemes. (Fl. Fr. August - January).

PPB. 1353.

Common along the coast at Nargol, Umrat and Umargam.

Gujarat, Common all over India, except in Madhya Pradesh, Madras.

Pakistan.

Iseilema Anders.

Lower glumes of hermaphrodite spikelet convexly humped, appressed hairy at the base and ciliate on the margins in the basal quarter ..... anthephoroides

Lower glume of hermaphrodite spikelet flat or depressed longitudinally, glabrous and echinate in the lower quarter ..... prostratum

Iseilema anthephoroides Hack. Mon. Phan. 6: 683, 1889; FBI. 7: 219; Blatt. & McC. 112; Bor, 187; Patel, loc. cit. 317;

A small, tufted, leafy, perennial grass. Involucral spikelets broadly oblong, ciliate on the margins. (Fl. Fr. September - November).

PPB. 478.

Common in wet muddy areas.

South India, Bombay State.

Iseilema prostratum (Linn.) Anderss. in Nov.Act. Soc. Sci. Upsal. (S. 3) 2: 251, 1856; Bor, 188; Patel, loc. cit. 317.

Andropogon prostratus Linn. Mant. Alt. 304, 1771.

Iseilema wightii Anderss. loc. cit. 251; FBI. 7: 218; C. 3: 516; Blatt. & McC. 113.

A small, prostrate, perennial grass. Leaves linear, acute. Panicle occupying half the stem or more; spikelets not in dense fascicles. (Fl. Fr. August - October).

PPB. 612.

Common in wet muddy areas.

Throughout India, Burma.

Themeda Forssk.

Annuals ..... quadrivalvis var.quadrivalvis

Perennials ..... triandra

Themeda quadrivalvis (Linn.) O. Kuntze Rev. Gen. Pl. 2: 794, 1891 var. quadrivalvis; Blatt. & McC. 118; Bor, 252; Patel, loc. cit. 320.

Andropogon quadrivalvis Linn. in Murr. Syst. Veg. ed. 13, 758, 1774.

Anthistria ciliata Linn. f. Suppl. 113, 1781; FBI. 7: 213.

Themeda ciliata (Linn. f.) Hack. in DC. Monogr. Phan. 6: 664, 1889; C. 3: 514.

A stout annual. Stems suberect, terete, glabrous. Panicles suberect, bearing at equal distances, shortly pedunculate clusters of racemes; spikelets brown-red. (Fl. Fr. August - December).

PPB. 832.

Frequent in sandy backshore.

Throughout India.

South Africa.

Themeda triandra Forssk. Fl. Aegypt.-Arab. 123 et 178, 1775; Blatt. & McC. 115; Bor, 254; Patel, loc. cit. 320; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69.

I. imberbis (Retz.) Cooke, Fl. Bomb. 3: 513.

A tall perennial. Panicles branched, branches bearing capituliform, dense, distant fascicles of racemes; spathe lanceolate, bearded at the base, greenish or with red tinge. (Fl. Fr. September - April).

PPB. 996.

Commonly found in disturbed grasslands.

All warm and tropical regions of the Old World.

Heteropogon Pers.

Heteropogon contortus (Linn.) Beauv. ex Roem. et Schult. Syst. 2: 836, 1817; Blatt. & McC. 109, t. 71; Bor, 163, f. 6; Sant. 355; Raizada, 488; Patel, loc. cit. 315; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69; Rao et al. Bull. Bot. Surv. India 15(1-2): 106, 1973.

Andropogon contortus Linn. Sp. Pl. 1045, 1753; FBI. 7: 199; C. 3: 510.

A densely tufted, erect, perennial grass. Raceme with short internodes. Spikelets closely appressed, the lower 2-6 or more sessile, awnless, male or neuter, the upper sessile spikelets narrow, long-awned, female. (Fl. Fr. August - January).

PPB. 827.

Forms tussocks on slightly sandy soil. Not very common. Considerably drought resistent.

Gujarat, Maharashtra, Karnatak, Madras, Madhya Pradesh, Himalaya.

Burma, and in the tropics.

Spinifex Linn.

Spinifex littoreus(Burm. f.) Merr. in Philip. J. Sci. Bot. 7: 229, 1912; Bor, 366; Rao, Bull. Bot. Surv. India 13(3-4): 201, 1971.

S. squarrosus Linn. Linn. Mant. 300, 1771; FBI. 7: 63; Gr. 240; Trim. Fl. Ceyl. 5: 174; Prain, Beng. Pl. 1168; Watt, Dict. Econ. Prod. 6(3): 331; C. 3: 429.

A pale grey or glaucous squarrose shrub, several feet high and broad, forming an impenetrable thicket. Leaves spreading and recurved. Male inflorescence reaching 6-8 in. in diameter. Female inflorescence reaching 10 in. in diameter. (Fl. November).

PPB. 1336.

Noted on sandy shores near Dumas.

Sandy shores of India; Ceylon, Java, China.

Setaria Beauv.

Inflorescence a cylindric spike-like raceme;
bristles of involucel 6-12 ..... glauca

Inflorescence a narrowly pyramidal panicle;
bristles of involucel 3-6 ..... tomentosa

Setaria glauca (Linn.) Beauv. Agrost. 51, 1812; FBI. 7: 78; C. 3: 435; Blatt. & McC. 172; Bor, 360; Patel, loc. cit. 327; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69.

Panicum glaucum Linn. Sp. Pl. 56, 1753.

A tall, tufted grass with erect or ascending, glabrous culms. Leaves linear, scabrid at the margins. Inflorescence a panicle of cylindric, spike-like racemes; spikelets closely set on rachis. (Fl. Fr. August - December).

PPB. 794.

A common grass along the coast.

Gujarat, Maharashtra, Karnatak, more or less throughout India.

Native of warm temperate zone of the Old World, introduced into America, Australia and other countries.

Setaria tomentosa (Roxb.) Kunth, Rev. Gram. 1: 47, 1829; Bor, 365; Maheshwari, 379; Patel, loc. cit. 327; Fl. Pavagadh,251.

S. intermedia Roth, R. & S. Syst. 2: 489, 1817; FBI. 7: 79; C. 3: 436; Blatt. & McC. 174.

A weak, annual grass. Leaves linear-lanceolate, thin, flat, acuminate. Panicle narrowly pyramidal. (Fl. Fr. August-September).

PPB. 312.

Usually found in damp, shady places.

Plains and hills of India, Burma and Ceylon, extending to Malaysia and Polynesia.

Echinochloa P. Beauv.

Echinochloa colonum (Linn.) Link. Hort. Berol. 2: 209, 1833; Blatt. & McC. 148, t. 94; Bor, 308; Maheshwari, 393; Patel, loc. cit. 323; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

Panicum colonum Linn. Syst. (ed. 10) 870, 1759; FBI. 7: 32; C. 3: 447.

A slender, erect to ascending annual. Spikes 8-15, sessile, simple, distant, generally appressed to the axis. Rachis stout, angular. Spikelets globosely ovoid. (Fl. Fr. Generally throughout the year but commonly from September - to February).

PPB. 479, 800.

Very common in moist places along the coast at Cambay, Chokari, Dhuvaran, Dumas.

Local name : Sämo.

Gujarat, Maharashtra, Karnatak, Madras, Assam.

Trop. Asia and Africa, Pakistan (Sind).

Oplismenus Beauv.

Oplismenus burmannii (Retz.) Beauv. Agrost. 54, 1812; FBI. 7: 68;

C. 3: 443; Blatt. & McC. 154; Bor, 317; Patel, loc. cit. 324; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

Panicum burmannii Retz. Obs. Bot. 3: 10, 1783.

A prostrate, slender, annual grass. Leaves ovate-lanceolate, acuminate with scattered hairs on both surfaces. Spikes secund, close in short panicles; spikelets 1-2 nate, shortly pedicellate; involucre and lower floral glumes awned. (Fl. Fr. August-January).

PPB. 820.

Very common and abundant throughout the area.

More or less throughout India.

Ceylon, Malay Islands, China, Japan, Tropical Africa.

Paspalidium Stapf

Paspalidium flavidum (Retz.) A. Camus, in Lecomte, Fl. Gen. del' Indo-Chine 7: 419, 1922; Blatt. & McC. 141; Bor, 333; Rao et al. Bull. Bot. Surv. India 5(3-4): 317, 1963.

Panicum flavidum Retz. Obs. Bot. 4: 15, 1786; FBI. 7: 28; C. 3: 445.

A tall, tufted annual grass. Culms geniculately ascending or erect, branched. Leaves narrowly linear, acuminate, thinly coriaceous; sheath compressed. Panicle of a few distant spikes, spikes shorter than internodes; spikelets ovate or elliptic. (Fl. Fr. August - April).

PPB. 799.

Common on moist, muddy banks of canals at Dumas, Tithal, Meh Dungri along the coast.

Throughout Plains of India.

Ceylon, Trop. Asia and Africa.

Urochloa P. Beauv.

Urochloa panicoides P. Beauv.; Ess. Agrost. 53(1812), t. 11, f. 1 var. panicoides.

Panicum controversum Steud.; Syn. Pl. Glum. 1, 60 (1854).

P. urochloa Desv.; Opusc. 82 (1831).

Setaria pilifera Spreng., Syst. Veg. 4, Cur. Post. 33 (1827).

Panicum javanicum, Poir. Encycl. Suppl. v. 4(1816) p. 274; FBI. 7: 35; C. 3: 450.

P. panicoides (P. Beauv.) Hitch. in J. Acad. Sci. Wash. 9: 551 (1919).

An annual; Stem 1-2 ft. long, decumbent and rooting below, geniculately ascending, branching upwards; nodes pubescent. Leaves ovate-lanceolate, ligule a beard. Panicle erect; branches 6-12, rather distant; rachis of racemes compressed. Spikelets secund, 2-seriate, loosely imbricate. (Fl. Fr. August-December).

PPB. 796.

Common on sandy sea shore.

Local name : Phadya, Kuri.

India, Tropical East Africa, extending to South Africa.

Paspalum Linn.

Paspalum scrobiculatum Linn. Mant. Pl. 1: 29, 1767; FBI. 7: 10; C. 3: 460; Blatt. & McC. 136; Bor, 340; Patel, loc. cit. 326; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69.

An erect, glabrous, tufted annual. Leaves glabrous or softly hairy, lanceolate, acuminate. Spikelets in spike, sessile, broadly elliptic or suborbicular. (Fl. Fr. September - December).

Local name : Kodra.

PPB. 825.

Commonly on wet muddy areas in estuarine regions.

Cultivated for the grains, usually grown as fodder grass.

Cultivated throughout the Bombay Presidency.

Tropics of the Old World.

Brachiaria Griseb.

Brachiaria ramosa (Linn.) Stapf, in Prain, Fl. Trop. Africa 9: 542, 1919; Blatt. & McC. 134, t. 86; Bor, 284; Maheshwari, 397; Patel, loc. cit. 322; Rao et al. Bull. Bot. Surv. India : 9(1-4): 244, 1967; 15 (1-2): 106, 1973; Proc. Symp. 36, 1971.

Panicum ramosum Linn. Mant. Pl. 29, 1767; FBI. 7: 36, pro parte; C. 3: 449.

An annual herb, branching from the base. Leaves linear-lanceolate with scaberulous margins and acuminate apex. Spikelets alternate or in pairs, ovoid, glabrous or pubescent, loosely arranged on spikes. (Fl. Fr. July - October).

PPB. 798.

Frequent in sandy backshore at Dumas.

Gujarat, Maharashtra, Karnatak, Madras, throughout India.

Ceylon, Afghanistan, Tropics of the Old World.

Digitaria Heister ex Fabricius

Digitaria ciliaris (Retz.) Koeler, Descr. Gram. Gallia et Germania 27, 1802; Blake, Proc. Roy. Soc. Queensland Ser. 2, 81: 14, 1969; Saldanha & Nicolson, 723.

D. adscendens (H.B.K.) Henrard, in Blumea 1: 92, 1934; Bor, 298; Chavan & Padate, in Ind. For. 86(4): 216, 1960; Patel loc. cit. 322; Rao et al. Bull. Bot. Surv. India 5(3-4): 317, 1963; 9(1-4): 87, 1967.

Panicum adscendens H.B.K. Nov. Gen. & Sp. 1: 97, 1815.

A tall, erect, annual grass. Spikes 2 or more; spikelets oblong, acute, appressed to the rachis; glumes bearded with spreading hairs which turn brown when mature. (Fl. Fr. August - January).

PPB. 361.

Common grass, found in most of the habitats.

Tropics of the Old World.

Alloteropsis Stapf

Alloteropsis cimicina (Linn.) Stapf, in Prain, Fl. Trop. Afr. 9: 487, 1919; Blatt. & McC. 129; Bor, 276; Patel, loc. cit. 321; Fl. Pavagadh, 254; Rao et al. Bull. Bot. Surv. India 15(1-2): 106, 1973.

Axonopus cimicinus Beauv. Agrost. 12, 1812; FBI. 7: 64; C. 3: 441.

A perennial grass. Leaves biserious, acuminate, linear. Spikelets solitary or 2-nate, erect; upper lemma shortly aristate. (Fl. Fr. July - October).

PPB. 578.

Common in the backshore area.

Throughout India and in the plains and lower forthills, Burma, Ceylon, Tropical Africa and Australia.

Pennisetum Rich.

Pennisetum typhoides (Burm.) Stapf & Hubbard, in Kew Bull. 271, 1933; Bor, 350; Patel, loc. cit. 327; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69; Rao et al., Bull. Bot. Surv. India 8(1): 23, 1966; 8(1): 67, 1966.

Alopecurus typhoides Burm. Fl. Ind. 27, 1768.

Pennisetum typhoideum Rich. in Pers. Syn. 1: 72, 1805; FBI. 7: 82; C. 3: 432.

A tall, erect, stout annual. Leaves broad, linear-lanceolate. Panicles terminal, spike-like, dense, cylindric. (Fl. Fr. July - October, also from February to May).

PPB. 137.

Commonly cultivated on large scale throughout the area, a good crop, tolerates salinity to a great extent.

Local name : Bajari.

Local uses : Grain is used as cereals.

Cultivated in many parts of India and in Trop. Africa.

Cenchrus Linn.

Bristles of involucel retrorsely scabrid, short and hooked ..... biflorus

Bristles of involucel antrorsely scabrid ..... ciliaris

Cenchrus biflorus Roxb. Fl. Ind. 1: 238, 1820; FBI. 7: 89; C. 3: 433; Achariyar, S. Ind. Gr. 121; Blatt. & McC. 185, t. 118; Bor, 287; Maheshwari, 377; Patel, loc. cit. 322; Rao et al., Bull. Bot. Surv. India 8(1): 23, 1966, 8(1): 65, 1966, 9(1-4): 87, 1967, and Ind. For. 100(7): 445, 1974.

Cenchrus catharticus Delile, Cat. Hort. Monsp. 1838, 4, 1839 & in Linnaea 13: Litt. 103, 1839; FBI. 7: 90; C. 3: 433.

An erect or ascending grass. Stems tufted, geniculate, branching from the base. Spike cylindric, solitary; bristles retrosely scabrid or spiny. (Fl. Fr. September - April).

PPB. 609.

Common in the backshore area.

Gujarat, W. Peninsula, Upper Gangetic Plains.

Arabia, Tropical Africa.

Cenchrus ciliaris Linn. Mant. Alt. 302, 1771; Raizada, in Ind. For. 80: 40, 1954; Bor, 287, f. 33; Maheshwari, 377; Patel, loc. cit. 322; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

Pennisetum cenchroides Rich. in Pers. Syn. 1: 72, 1805; C. 3: 432; Acharlyar, S. Ind. Gr. 118, f. 116.

An annual, tufted grass. Spikes cylindric, pale purplish; spikelets shortly pedicellate. (Fl. Fr. August - April).

PPB. 223.

A common grass along the Mahi estuary.

Hotter and drier parts of India.

Mediterranean region, Trop. and S. Africa; introduced into Australia and America.

Key to the genera of Pooideae

1. Shrubs or trees with tall, woody stems; leaves usually with a petiole-like base, articulated with the sheaths ..... Dendrocalamus

1. Herbs or shrubs; leaves usually sessile, not articulated with the sheaths :

   2. Spikelets borne in open or contracted or spike-like panicles, less often in racemes or spikes :

      3. Spikelets usually with two or more fertile florets, or if with one fertile floret then with sterile reduced florets above it :

         4. Lemmas usually 5-6 to many-nerved, awnless or awned; awn usually simple, not kneeled or twisted below the knee...Aeluropus

         4. Lemmas 1-3-nerved; inflorescence of panicles or racemes :

            5. Inflorescence of panicles; if racemes or spikes the spikelets not secund :

               6. Glumes aristate or aristate-acuminate; spikelets sessile on

the flattened branches of a narrow panicle ..... Dinebra

6. Glumes obtuse, acute or acuminate, not aristate :

7. Spikelets in open, contracted or spike-like panicles, rarely in solitary secund spikes :

8. Spikelets awnless ..... Eragrostis

8. Spikelets awned, in dense globose clusters ..... Elytrophorus

7. Spikelets sessile or shortly pedicelled, loosely to densely imbricate in digitate or racemosely arranged spikes or spike-like racemes, very rarely in solitary spikes .....Dactyloctenium

5. Inflorescence of racemes or panicles of racemes, the spikelets secund :

9. Inflorescence terminal, spicate, not of digitate or racemose spikes; lemmas not obovate .....Melanocenchris

9. Inflorescence of digitate spikes or spikes racemose very rarely solitary, but if so the lemmas obovate :

10. Spikelets with one or more fertile florets and one or more imperfect florets above them ..Chloris

10. Spikelets with one fertile floret and no imperfect florets .....Cynodon

3. Spikelets with one fertile floret, with or without one or two male or barren florets below it, the latter often much reduced :

11. Glumes minute or suppressed; fertile lemma and palea very similar in shape and texture .....Oryza

11. Glumes well-developed; fertile lemma and palea not similar :

12. Spikelets very rarely falling entire and then firmly membranous to coriaceous, awned or 5-nerved lemmas :

13. Lemmas hyaline or membranous at maturity, rarely indurated and then laterally compressed :

14. Inflorescence elongate, spike-like; fruit with a conspicuous beak ....Urochondra

14. Inflorescence a panicle; fruit without a beak .....Sporobolus

13. Lemmas indurated or rigid at maturity, terete or dorsally compressed ..... Aristida

12. Spikelets falling entire at maturity; lemma delicate, 1-3-nerved; spikelets in spike-like purplish-violet raceme ;

15. Spikelets fascicled or solitary; glumes not awned ..... Zoysia

15. Spikelets solitary; glumes awned ..... Perotis

2. Spikelets borne in spikes; spikes long, more or less loose, somewhat dorsally compressed ..... Triticum

Dendrocalamus Nees

Dendrocalamus strictus Nees, in Linnaea 9: 476, 1834; FBI. 7: 404; C. 3: 572; Blatt. & McC. 285; Patel, loc. cit. 330; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

A tall, deciduous, densely tufted bamboo with strong erect stem. Inflorescence a large branching panicle of dense globular heads. (Fl. Fr. July - February).

PPB. 1363.

Cultivated in many places throughout the area.

Throughout India.

Java.

Aeluropus

Aeluropus lagopoides (Linn.) Trin. ex Thw. Pl. Zeyls 374 (1864) Bor, 380, 1960; Patel in Ind. For. 91(5): 328, 1965; Rao et al. Bull. Bot. Surv. India (3-4): 317, 1963, Sci. & Cult. 33: 125, 1967; Ind. For. 96(9): 676, 1970; Rao, Bull. Bot. Surv. India 13(3 & 4): 195, 1971, Proc. Symp. 34, 1971; Bull. Bot. Surv. India 15(1-2): 106, 1973; Ind. For. 101(8): 473, 1975.

Dactylis lagopoides Linn.; Mant. 33: (1767).

Aeluropus villosus Trin. ex C.A. Mey.; Verz. Pfl. Cauc. 18 (1831); Hook. f. 7: 334, 1897; C. 3: 567.

A perennial, leafy, rigid, tufted herb; spreads by stolons which radiate in all directions. Leaf-blades coriaceous, pungent, convolute, spikelets collected into dense heads. Spikelets all alike, hermaphrodite, laterally compressed, 6- to many-flowered. Glumes unequal, persistent. Ligule a ridge of short hairs. (Fl. Fr. November - January).

PPB. 378, 1026.

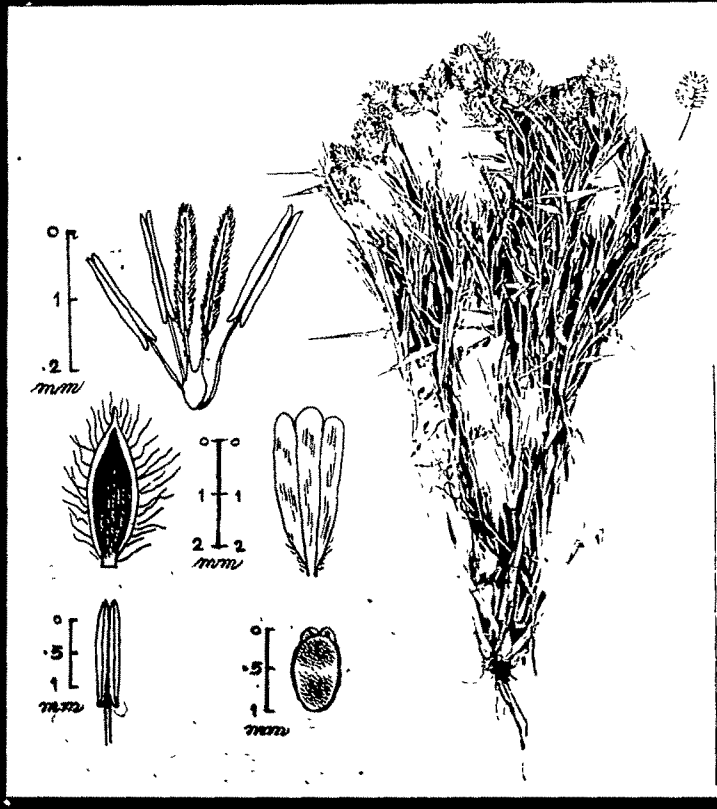
Common creeping grass on saline soils, at places gregarious.

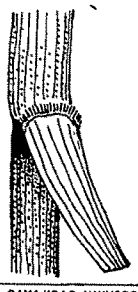
PLATE No. 49

India (Punjab, W. Peninsula, in salt ground); Ceylon, Mediterranean region, Arabia, Persia, Afghanistan, Caspian regions.

Dinebra Jacq.

Dinebra retroflexa (Vahl) Panz. in Denkschr. Acad. Munch. 270,





THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

BOTANY DEPARTMENT

HERBARIUM

FLORA OF COASTAL REGION (GUJARAT) No. PPB/675

Family POACEAE

Genus AELUROPUS

Species LAGOPOIDES (LINN.) TRIN. EX THW., ENUM.

Local Name —

Locality DAHEJ

Remarks PERENNIAL HERBS WITH TUFTED STEMS & INFLORESCENCE OF GLOBOSE ELLIPTIC HEADS OF CLOSELY CROWDED SPIKELETS. COMMON ON THE SALT GROUND NEAR THE SEA.

Date : 3-3-77 P P Bhajwaneni Collected by

PLATE No. 49.

1814; Blatt. & McC. 264; Bor, 491; Patel, loc. cit. 332; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

Cynosurus retroflexus Vahl, Symb. Bot. 2: 20, 1791.

Dinebra arabica Jacq. Fragm. 77, t. 121, f. 1, 1807; FBI. 7: 297; C. 3: 562.

An annual, tufted, slender grass with ascending stems. Leaves linear, finely acuminate, contracted at the insertion. Inflorescence a panicle of spikes; spikes 3-5 cm. long, sessile, racemosely arranged on the axis; spikelets sessile, alternately arranged on flattened branches; involucral glumes lanceolate, hyaline, keeled, with recurved, scaberulous awns. (Fl. Fr. July - October).

PPB. 65.

Noted on open, marshy places.

Western India westward to E. Africa.

Eragrostis P. Beauv.

1. Spikelets breaking up from above downwards :

2. Keels of the palea more or less ciliate :

3. Panicles spiciform, or compact and dense....ciliaris

3. Panicles effuse :

4. Culms and leaves more or less viscous....Viscosa

4. Culms and leaves not viscous .....tenella

2. Keels of the palea scabrid or smooth, not ciliate ..... japonica

1. Spikelets breaking up from below upwards ..... unioloides

Eragrostis ciliaris (Linn.) R. Br. in Tuckey, Narr. Exp. Congo, App. 478, 1818; FBI. 7: 314; Blatt. & McC. in JBNHS. 33: 488, 1929; Bor, 506; Patel, loc. cit. 334; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69; Rao et al. Bull. Bot. Surv. India 6(2-4): 193, 1964; 8(1): 23, 1966.

Poa ciliaris Linn. Syst. Nat. ed. 10, 2: 875, 1759.

Eragrostis ciliaris var. ciliaris (Linn.) Stapf, in Hook. f. FBI. 7: 314, 1896.

A slender, erect annual grass with cylindrical panicles having spikelets crowded in a spike-like manner. (Fl. Fr. August - April).

PPB. 819.

Common on sandy or clayey soils near moist places.

More or less throughout India.

Tropics and sub-tropics of the Old and New Worlds.

Eragrostis viscosa (Retz.) Trin.in Mem. Acad. Sc. Petersb. (Ser. 6) 1: 397, 1831; Blatt. & McC. 233; Bor, 515; Chavan & Padate, in Ind. For. 86(4): 216, 1960; Patel, loc. cit. 334; Rao et al. Bull. Bot. Surv. India 5(2): 146, 1963; Ind. For. 101(8): 474, 1975.

Poa viscosa Retz. Obs. 4: 20, 1786.

Eragrostis tenella var. viscosa (Retz.) Stapf, in FBI. 7: 315; C. 3: 546.

A tufted, viscid, erect annual. Stems and rachis more or less viscid. Inflorescence a compound panicle with slender, filiform, spreading branches; spikelets 7-10-flowered. Grains pale-brown, ovoid, polished. (Fl. Fr. October - April).

PPB. 363.

Common in open, dry, sandy soils at Cambay.

Throughout India.

Trop. and S. Africa.

Eragrostis tenella (Linn.) Beauv. ex Roem. & Schult. Syst. Veg. 2: 576, 1817; Raizada, 485; Bor, 513; Maheshwari, 386; Patel, loc. cit. 335; Fl. Pavagadh, 257; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69; Rao et al. Ind. For. 96(9): 677, 1970, 100(2): 103, 1974; Bull. Bot. Surv. India 15(1-2): 106, 1973.

Poa tenella Linn. Sp. Pl. 69, 1753.

P. amabilis Linn. Sp. Pl. 68, 1753.

P. plumosa Retz. Obs. Bot. 4: 20, 1786.

Eragrostis tenella var. plumosa (Retz.) Stapf, in Hk. f. FBI. 7: 315, 1896; C. 3: 545.

An erect or ascending, loosely tufted grass. Panicles

dense or loose but contracted, purple, green or purplish brown. (Fl. Fr. August - January).

PPB. 475.

Common grass in estuarine regions.

Widespread in Old World tropics; introduced into America.

Eragrostis japonica (Thunb.) Trin. in Mem. Acad. Sc. Petersb. (Ser. 6) 1: 405, 1831; Bor, 509; Chavan & Padate, in Ind. For. 86(4): 216, 1960; Patel, loc. cit. 324.

Poa japonica Thunb. Fl. Jap. 51, 1784.

Eragrostis interrupta var. tenuissima Stapf, in FBI. 7: 316; NG. 319.

A tufted grass, very variable in size. Panicles long, linear; branches usually whorled; spikelets small. Grains sub-globose. (Fl. Fr. September - January).

PPB. 610.
Common on muddy flats.
Gujarat, Maharashtra, Madras, Utter Pradesh, Naga Hills.

Tropical Asia.

Eragrostis unioloides (Retz.) Nees ex Steud. Syn. Pl. Glum. 1: 264, 1854; Blatt. & McC. 235, t. 156; Bor, 515; Patel, loc. cit. 353; Fl. Pavagadh, 258.

Poa unioloides Retz. Obs. Bot. 5: 19, 1789.

Eragrostis amabilis FBI. 7: 317, 1896; C. 3: 546.

A small, glabrous, annual grass, leafy at the base. Panicles not much branched; spikelets compressed, pedicellate, green to reddish-purple; glumes distichous, keeled. (Fl. Fr. September - December).

PPB. 817.

Commonly noted in marshy places.

Throughout India.

Ceylon, Burma, South-east Asia generally.

Elytrophorus Beauv.

Elytrophorus spicatus (Willd.) A. Camus, in Lecomte, Fl. Gen. de l' Indo-Chine 7: 547, 1923; Bor, 493; Patel, loc. cit. 333; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

E. articulatus Beauv. Agrost. 67, t. 14, f. 2, 1812; FBI. 7: 306; C. 3: 567.

An erect, annual with densely fibrous roots. Inflorescence paniculate often longer than the rest of the plants. Spikes globose or oblong. (Fl. Fr. September - January).

PPB. 1364.

A common weed in rice fields and in other moist situations throughout the area.

Gujarat, Maharashtra, Karnatak, more or less throughout India.

Persia, Arabia, N. Africa to Trop. Africa.

Dactyloctenium Willd.

Dactyloctenium aegyptium (Linn.) Beauv. Agrost. Expl. Pl. 72, 1812; Blatt. & McC. 262, t. 176; Fisher, 1273; Sant. 308; Bor, 489; Patel, loc. cit. 332; Rao et al. Bull. Bot. Surv. India 5(3-4): 317, 1963; 6(2-4): 182, 1964; Ind. For. 96(9): 676, 1970; Proc. Sym.: 33: 1971.

Cynosurus aegyptius Linn. Sp. Pl. 72, 1753.

Dactyloctenium aegyptiacum Willd. Enum. 1029; Gr. 235; D. & G. 297.

Eleusine aegyptia (Linn.) Desf. Fl. Allant. 1: 85, 1798; FBI. 7: 295; C. 3: 560.

An erect annual with stoloniferous branches. Spikes 2-6, digitately radiating; spikelets 3-5-flowered, spreading at right angles to the rachis. (Fl. Fr. August - April).

PPB. 997.

Common in sandy backshore.

Gujarat, Maharashtra, Karnatak, Madras.

Tropics of the Old World; introduced into America.

Melanocenchris Nees

Melanocenchris jacquemontii Jaub. et Spach, Ill. Pl. Or. 4: 36, 1851; Bor, 473; Patel, loc. cit. 331; Sastry & Rao Bull. Bot. Surv. India 15(1-2): 106, 1973.

Gracilea royleana Hk. f. FBI. 7: 284; C. 3: 553; Blatt. & McC. 248.

A small, slender, tufted annual. Leaves very narrow, linear. Inflorescence consisting of clusters of cottony spikelets on a flexuous, zigzag rachis. (Fl. Fr. July - October).

PPB. 1173.

Noted on dry, sandy places at Nargol, Umargam along the coast; rare.

Gujarat, Maharashtra, Karnatak, Madras, Bengal, N.W. India. Pakistan (Sind).

Chloris Sw.

Chloris virgata Sw. Fl. Ind. Occ. 1: 203, 1797; FBI. 7: 291; Achariyar, 260, f. 198; Blatt. & McC. 225, t. 170; Bor, 468; Patel, loc. cit. 331; Rao et al. Bull. Bot. Surv. India 5(3-4): 317, 1963.

A tufted, leafy, annual grass; branches creeping and rooting at the nodes. Spikes 6-15, erect, digitate; spikelets 2-rowed. Fruit trigonous, polished. (Fl. Fr. July - April).

PPB. 282.

Abundant in backshore areas.

Widely distributed throughout the tropics of both hemispheres.

Cynodon Rich. ex Pers. (nom. cons.)

Cynodon dactylon (Linn.) Pers. Syn. 1: 85, 1805; FBI. 7: 288; C. 3: 554; Blatt. & McC. 250, t. 166; Bor, 469, f. 52; Chavan & Padate, in Indi For. 86 (4): 216, 1960; Patel, loc. cit. 331; Rao et al. Bull. Bot. Surv. India 8(1): 67, 1966.

Panicum dactylon Linn. Sp. Pl. 58, 1753.

A perennial, creeping grass, with erect or ascending flowering branches. (Fl. Fr. July - February).

PPB. 31.

Common throughout the area, at places gregarious.

Local name : Daro.

Local uses : Used as fodder.

Throughout India.

This is a grass with an extremely wide distribution, being found in all warm countries and even persisting in Cold climates.

Oryza Linn.

Ligule of the lower leaves very long, 15-45 mm. long :

Spikelets persistent ..... sativa

Spikelets caducous ..... rufipogon

Ligule of the lower leaves much shorter, not more than 6 mm. long ..... coarctata

Oryza sativa Linn. Sp. Pl. 333, 1753; FBI. 7: 92; C. 3: 565; Blatt. & McC. 274, t. 187; Bor, 605; Patel, loc. cit. 336; Padate, in JMSU. 17 & 18(3): 111, 1968 & 69.

An annual. Leaves striate, scaberulous. Spikelets persistent, in drooping panicles. (Fl. Fr. July - October).

Local name : Dangar, Chokha.

PPB. 865.

The rice plant is cultivated in many parts of the area in monsoon.

Throughout India.

Ceylon, Burma, Sikkim, Malaya, China, Japan.

Oryza rufipogon Griff. Notul. 3: 5, 1851; Bor, 605.

O. fatua Koen. ex Trin. in Mem. Acad. Sc. Petersb. (Ser. 6) 2: 177, 1839, nom. nud.

O. sativa vars. rufipogon, coarctata, bengalensis and abuensis Watt, in Dict. Econ. Prod. India 5: 504-5, 1851.

The plant closely resembles the cultivated rice. It is abundantly found encircling small pools along with other hydrophytes; also noted as a weed in rice fields; not common. (Fl. Fr. August - January).

PPB. 866.

Local uses : The grain is eaten by the poorer section of local inhabitants.

Abundantly found encircling small pools along with other hydrophytes, also noted as a weed in rice fields.

Common in East India and Madras.

Oryza coarctata Roxb. Fl. Ind. 2: 206, 1832; FBI. 7: 93; Woodr. in JBNHS. 13: 435, 1901; Prain, Beng. Pl. 1184; C. 3: 565; Bor, 601.

A very robust, coarse species, which grows in brackish water. Panicles 4-8 in. long, spike-like.

PPB. 1361.

Observed near sea coast at Meh Dungri and Nargol. This is recorded for the first time from Gujarat.

India (Sunderbans), W. Peninsula).

Burma, Malaysia.

Urochondra

Urochondra setulosa (Trin.) C.E. Hubbard in Hook. Ic. Pl. Sub tab. 3457 (1947); Bor, 634 (1960); Patel, in Ind. For. 91(5): 338, 1965; Rao et al. Bull. Bot. Surv. India 6(2-4): 182, 1964; 9(1-4): 244, 1967; Rao et al. Proc. Symp.: 36, 1971; Ind. For. 100(7): 445, 1974.

Vilfa setulosa Trin. in Mem. Acad. Sci. Petersb. Ser. 6: 6, Sci. Nat. 55 (1840).

Sporobolus setulosus (Trin.) Terracc. in Ann. Ist. Bot. Roma 5, 95 (1893).

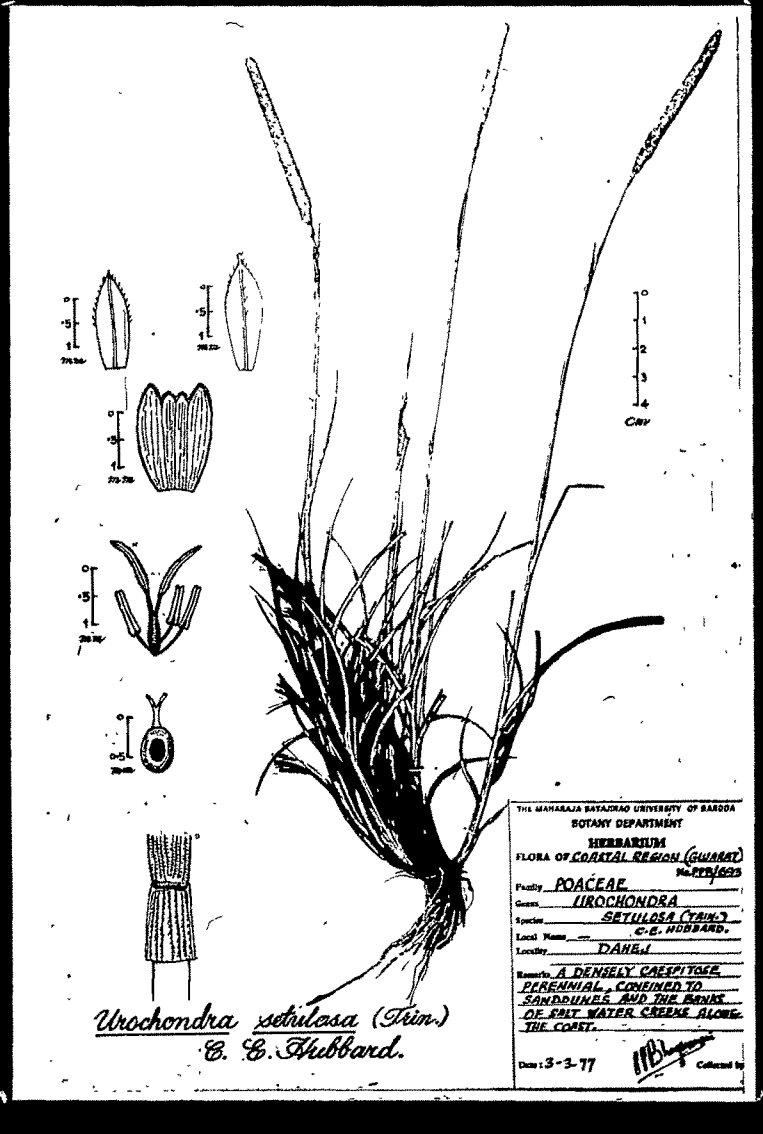

Urochondra setulosa (Trin.)
C. E. Hubbard.
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BOTANY DEPARTMENT
HERBARIUM
FLORA OF COASTAL REGION (GUJARAT)
No. PPB/6075
Family POACEAE
Genus UROCHONDRA
Species SETULOSA (TRIN.) C.E. HUBBARD.
Local Name
Locality DAHEJ
Remarks A DENSELY CAESPITOSE PERENNIAL, CONFINED TO SANDDUNES AND THE BANKS OF SALT WATER CREEKS ALONG THE COAST.
Date: 3-3-77
Collected by

PLATE No. 50.

Heleochloa dura (Boiss.) I.B.Balfour in Forbes, Nat. Hist. Sokotra, 531 (1903); FBI. : 236; C. 3: 532.

H. setulosa (Trin.) Blatt. & McCann, Bomb. Grasses, 205 (1935).

A rigid densely caespitose perennial grass; stems stout, ascending, 6-10 in. long, densely fastigiate from a woody inclined base which is clothed with leaf-sheaths. Leaves 3-6 in. long, involute, terete, rigid, pungent; glabrous; ligule a narrow line of hairs. Inflorescence, elongate spike-like panicle; solitary at the top of the stem. Spikelets densely imbricate. Glumes 3, all 1-nerved and with ciliate keels. Fruit with a conspicuous beak. (Fl. Fr. December - February).

PPB. 1022.

Grows in salt water creeks and on sand dunes along the sea coast at Dahej, Hajira.

PLATE No. 50

Coastal regions of the Sudan, Eritrea, Somaliland, Socotra, Arabia and Sind.

Sporobolus R. Br.

Upper glume distinctly shorter than the lemma; lowest branches not truly whorled :

Stamens 2 ..... diander

Stamens 3 ..... helvolus

Upper glume as long as or longer than the lemma; lowest branches whorled or not ..... marginatus

Sporobolus diander (Retz.) Beauv. Agrost. 26, 1812; FBI. 7: 247; C. 3: 539; Blatt. & McC. 221; Bor, 129; Patel, loc. cit. 337; Rao et al. Bull. Bot. Surv. India 8(1): 23, 1966; Padate, in JMSU. 17 & 18(3): 112, 1968 & 69; Rao et al. Bull. Bot. Surv. India 15(1-2): 107, 1973.

Agrostis diandra Retz. Obs. Bot. 5, 19, 1789.

An erect, slender annual. Panicles narrow, pyramidal; spikelets small, very shortly pedicelled. (Fl. Fr. July - December).

PPB. 994.

A slender grass, found in abundance in and around ponds in coastal areas.

Throughout India.

Ceylon, Burma, extending to Australia.

Sporobolus helvolus (Trin.) Th. Dur. et Schinz, Consp. Fl. Afr. 5, 820 (1895); Bor, 629.

Vilfa helvola Trin. in Mem. Acad. Sci. Petersb. Ser. 6, 5, 2, 52 (1839).

Sporobolus glaucifolius Hochst. ex Steud.; Syn. Pl. Glum. 154 (1854); FBI. 7: 250; C. 3: 540.

Perennial glabrous grass; stems 12-18 in. long, densely tufted, leafy; nodes glabrous. Leaves glaucous, not pungent; sheaths ribbed, glabrous; ligule a line of hairs. Panicle 3-5 in. long, contracted, interrupted, pale yellowish white; branches short, erect. Spikelets crowded. (Fl. Fr. November - January).

PPB. 473.

Commonly noted in dry areas.

North-west India and Tropical Africa.

Sporobolus marginatus Hochst. ex A. Rich. Tent. Fl. Abyss. 2: 397, 1851; Bor, 632; Patel, loc. cit. 338; Rao et al. Bull. Bot. Surv. India 9(1-4): 244, 1967; Rao et al. Proc. Symp. 36, 1971.

S. pallidus Boiss. Fl. Orient. 5: 512, 1884; Chavan & Mehta, in JMSU. 7(2): 78, 1958.

S. arabicus Boiss. Diagn. (Ser. 1) 13: 47, 1853; FBI. 7: 252; C. 3: 541.

A tufted, perennial grass with stoloniferous base. Panicle pyramidal; slender branches bearing small spikelets at the tips. (Fl. Fr. September - January).

PPB. 275.

Observed growing in plenty in and around saline soils.

Western Peninsula, Gangetic Plain, Madhya Pradesh, Punjab.

Pakistan, Arabia, Tropical E. Africa.

Aristida Linn.

Awns not articulate on the floral glume, tripartite from the base without a column :

Involucral glumes not awned ..... adscencionis

Involucral glumes awned ..... setacea

Awns with a twisted column ..... funiculata

Aristida adscensionis Linn. Sp. Pl. 82, 1753; FBI. 7: 224; C. 3: 529; Blatt. & McC. 209, t. 138; Bor, 407; Chavan & Padate, in Ind. For. 86(4): 216, 1960; Maheshwari, 398; Patel, loc. cit. 328; Rao et al. Bull. Bot. Surv. India 15(1-2): 106, 1973.

A slender, erect or ascending grass. Panicles with filiform, hair-like branches; involucral glumes awned; spikelets purplish-violet. (Fl. Fr. July - January or even upto May).

PPB. 476.

Observed growing on dry, sandy soils.

Gujarat, Maharashtra, throughout the plains and low hills of India.

Ceylon, wide-spread in Old and New Worlds.

Aristida setacea Retz., Obs. Bot. 4, 22 (1786), Bor, 412; C. 3: 529.

Chaetaria setacea (Retz.) P. Beauv., Ess. Agrost. 30, 158 (1812).

Aristida quinqueseta Steud., Syn. Pl. Glum. 1, 429 (1855).

A perennial tufted grass. Leaves convolute, coriaceous, smooth; sheaths long; ligule of short hairs. Panicle inclined, rachis slender, branches usually fascicled and erect. Spikelets erect, pedicels capillary.(Fl. Fr. September - May).

PPB. 1084.

Noted on sandy soils.

W. Peninsula, Bihar.

Burma, Ceylon, Mascarene Islands.

Aristida funiculata Trin. et Rupr. Mem. Acad. Sc. Petersb. (Ser. 6) 7: 159, 1843; FBI. 7; 226; C. 3: 531; Blatt. & McC. 214; Bor, 410; Patel, loc. cit. 328.

A very slender, annual grass. Leaves convolute or flat, ciliate at the base; sheaths glabrous; ligule a small, ciliate membranous. Panicle lax, narrow; rachis angular, erect, capillary. Spikelets variable in length. (Fl. Fr. September - May).

PPB. 1083.

Noted on sandy soils and dry areas; rare.

Gujarat, Maharashtra, Karnatak, Madras, Punjab, Rajasthan, W. Peninsula.

Pakistan, Arabia, Tropical Africa.

Zoysia Willd.

Zoysia matrella (Linn.) Merr. in Philipp. Jour. Sci. Bot. 7: 230,

1912; Bor, 684; Rao, R.S. Proc. Ind. Sci. Cong. 51 & 52 402-405, 1965; Rao, Bull. Bot. Surv. India 13(3-4): 201, 1971.

Agrostis matrella Linn., Mant. Pl. 2: 185, 1771.

Zoysia pungens Willd. in Ges. Naturf. Fr. Neue Schrift. 3: 441, 1801; C. 3: 537; FBI. 7: 99; Trim. Fl. Ceyl. 5: 188.

A small rigid, glabrous grass with a long wiry root-stock giving off short erect leafy branches terminating in solitary pedunculate spike-like racemes.

Included on the authority of R.S.Rao loc. cit. who collected it from Daman. I could not collect this plant from the area.

Common on the sea shores of India.

Widely distributed in tropics of Asia, introduced into America.

Perotis Ait.

Perotis indica (Linn.) Kuntze, Rev. Gen. 2: 787, 1891; Blatt. & McC. 220, t. 147; Bor, 611; Patel, loc. cit. 337; Rao, Bull. Bot. Surv. India 13(3-4): 201, 1971.

Anthoxanthum indicum Linn. Sp. Pl. 28, 1753.

Perotis latifolia Ait. Hort. Kew 1: 85, 1789; FBI. 7: 98; C. 3: 538.

A slender, tufted annual. Leaves linear-lanceolate. Racemes

slender, dense, spike-like, purplish-violet; spikelets narrow, involucral glume long-awned. (Fl. Fr. September - January).

PPB. 1368.

A common grass in open waste places and dry sandy coast.

Gujarat, Maharashtra, Madras, Bengal, more or less throughout India.

Burma, Ceylon, Malaya and S.E.Asia.

Triticum Linn.

Triticum aestivum Linn. Sp. Pl. 85, 1753; Blatt. & McC. 279; Bor, 679; Patel, loc. cit. 338.

T. sativum Lamk. Fl. Franc. 3: 625, 1778; C. 3: 574.

T. vulgare Villars, Hist. Pl. Dauph. 2: 153, 1787; FBI. 7: 367.

An annual tall, tufted grass. Commonly cultivated. Cereal of the area, grown as a rabi crop. (Fl. Fr. January - April).

PPB. 634.

Local name : Gahun.

Extensively cultivated in the hinter land.

Gujarat, part of Maharashtra and Karnatak, Madhya Pradesh and N. India.

Widely cultivated in all parts of the world.

*****