

# RANUNCULACEAE

## Ranunculus Linn.

Ranunculus sceleratus Linn. Sp. Pl. 551, 1753; FBI. 1: 19;

C. 1: 5; Thaker & Sabnis, in JMSUB. 19 & 20 (3 & 4):  
36, 1970-1971.

An erect, glabrous annual with ribbed, fistular stem.  
Flowers yellow, in terminal panicle, not white as mentioned by  
Cooke. Achenes many, obliquely obovate. ( Fl. Fr. February -  
March). DNT. 897, 1553.

## PLATE No. 27

Rare; noted in sandy, clayey or silty moist soils of  
Narmada river banks at Hampheshwar.

# ANNONACEAE

Fruit fleshy; composite .....Annona

Fruit an aggregate :

Flowers yellowish-green; petals glabrous,  
spreading from the base .....Polyalthia

Flowers purple-coloured; petals  
pubescent, saccate at the base .....Miliusa

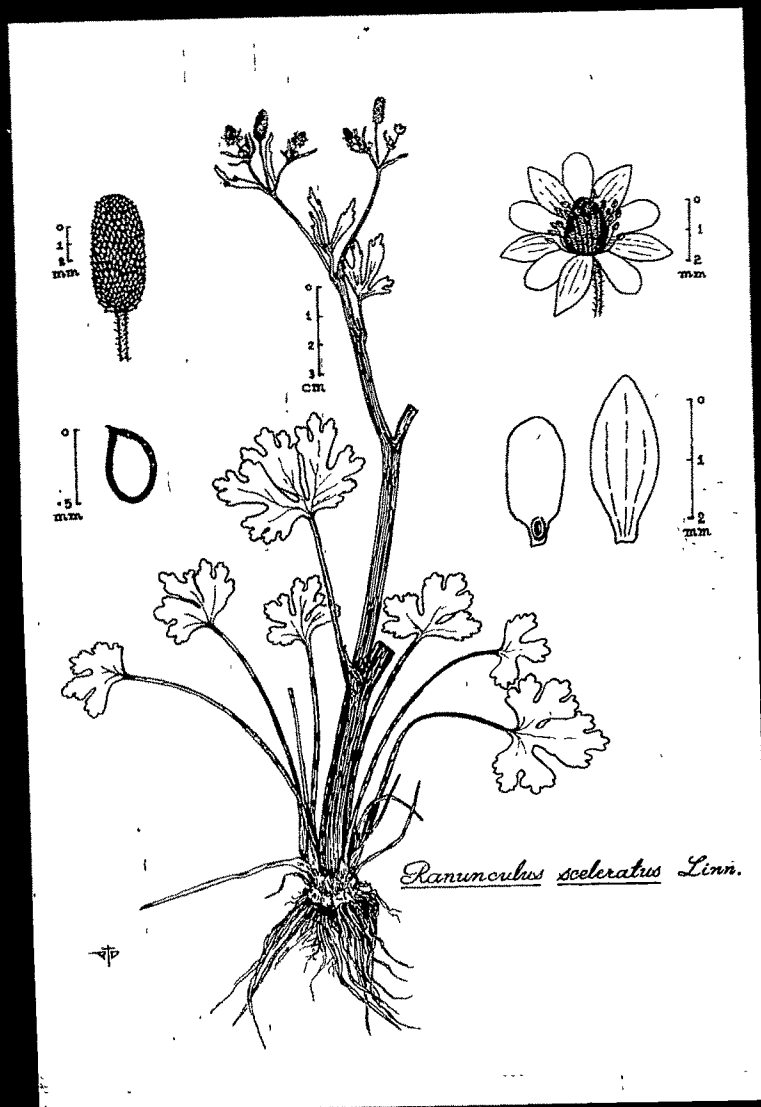


PLATE No. 27.

Annona Linn.

Annona squamosa Linn. Sp. Pl. 537, 1753; FBI. 1: 78; C. 1: 15;  
Benthall, Trees Calc. 12; Fl. Dang, 13; Fl. Delhi, 51;  
Fl. Pavagadh, 29.

A small tree, about 3.5 to 4 meters in height. Leaves oblong, lanceolate, sub-acute. Flowers solitary, leaf opposed on short extra-axillary branchlets. (Fl. Fr. May - July).  
DNT. 42, 915.

Fairly common; observed near habitation, on the slopes of hillock and abundant at Mohangadh.

Polyalthia Blume

Polyalthia longifolia (Sonner.) Thw. Enum. 398, 1864; Hook. f. et Thoms. FBI. 1: 62, 1872; C. 1: 12; Benthall, Trees Calc. 9; Fl. Dang, 13; Saur. 1: 3; Santapau & Wagh, in BBSI. 5: 108, 1963; Fl. Delhi, 52; Fl. Pavagadh, 29.

Uvaria longifolia Sonner. Voy. Ind. 2: 233, t. 131, 1782.

Gutteria longifolia Wall. (Cat. 6442 (nom. nud.)) ex Wt. & Arn. Prodr. 10, 1834.

A tall evergreen tree. Leaves lanceolate with wavy margin. Flowers yellowish-green, in fascicles. (Fl. April - May).  
DNT. 938.

Cultivated as an ornamental or roadside tree.

The nomenclature of the plant has been a much debated topic. For more information refer to Santapau, in Ind. For. 79: 611-613, 1953 and Santapau and Wagh, loc. cit.

Miliusa Lesch.

Miliusa tomentosa (Roxb.) Sinclair, in Gardn. 14: 378, 1955;  
Sant. 2; Saur. 1: 4.

Uvaria tomentosa Roxb. Pl. Cor. 1: 31, t. 35, 1795.

Saccopetalum tomentosum Hook. f. & Thom. Fl. Ind. 152,  
1655; FBI. 1: 88; C. 1: 17.

A medium sized tree. Flowers purple, axillary, solitary, peduncle leaf-opposed. (Fl. April ). DNT. 889, 916, 1707.

PLATE No. 28

Fairly common; noted on plains and on slopes of hillock in forest areas.

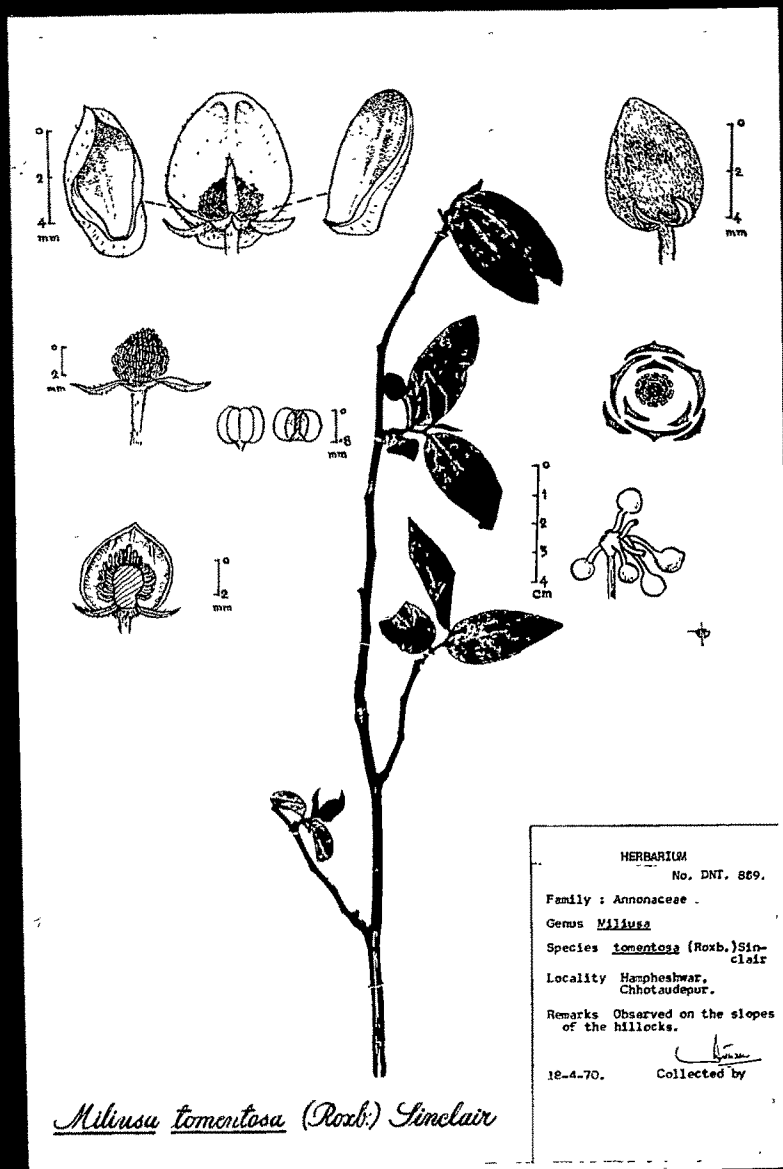
#### MENISPERMACEAE

Ovary solitary ..... Cissampelos

Ovaries 3 or more :

Leaves subcordate, softly villous





on both the surfaces .....Cocculus

Leaves deeply cordate, glabrous .....Tinospora

Cissampelos Linn.

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

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

A common climber. Leaves triangularly broad, cordate, mucronate, emarginate, long-petioled. Sepals densely hairy outside. Flowers minute, axillary, female flowers in elongate, solitary or twin, axillary racemes. (Fl. July - September).  
DNT. 141.

Noted as a climber on hedges.

Cocculus DC.

Cocculus hirsutus (Linn.) Diels, in Pfreich. 46: 236, 1910;  
Sant. 4; Fl. Dang, 14; Fl. Delhi, 52; Fl. Pavagadh, 31.

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

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

A twining, perennial shrub with wiry branches. Leaves

triangularly broad, cordate, usually peltate, softly villous on both the surfaces. Flowers pale-green, minute; female flowers in the axils of conspicuous bracts. (Fl. Fr. September - October). DNT. 587, 638, 730, 1448.

Commonly noted on hedges and on the outskirts of forest.

Tinospora Miers

Tinospora cordifolia (Willd.) Miers, in Ann. & Mag. Nat. Hist.

Ser. 2, 7: 38, 1851; FBI. 1: 97; C. 1: 20; Sant. 3;

Fl. Dang, 14; Fl. Delhi, 53; Fl. Pavagadh, 31.

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

Cocculus cordifolius DC. Syst. 1: 518, 1818 & Prodr. 1:

97; Gr. 4: Wt. Ic. tt. 485, 486.

An extensive climber; bark corky, grooved. Leaves cordate with a broad sinus, glabrous, membranous. Plant flowers, when there are no leaves on it. Flowers yellow, male fascicled. (Fl. April). DNT. 597, 1748.

Noted on hedges and in the forest.

PAPAVERACEAE

Argemone Linn.

Argemone mexicana Linn. Sp. Pl. 508, 1753; FBI. 1: 117; C. 1: 27;

Sant. 6; Fl. Dang, 14; Fl. Pavagadh, 32.

A prickly herb, about 30-60 cm. high. Leaves semi-amplexicaul, sinuate-pinnatifid, sessile. Flowers yellow, not white as mentioned by Cooke. Fruit a many-seeded oblong capsule. (Fl. Fr. Throughout the year, rare during the rains). DNT. 839,1710.

A common plant, sometimes gregarious and fairly abundant in waste lands and along roadsides.

#### BRASSICACEAE

1. Pods dehiscent, long or short :

2. Pods terete, many-seeded :

3. Pods long and narrow; seeds 2-seriate...Rorippa

3. Pods short and broad, beaked;

seeds 1-seriate .....Brassica

2. Pods short, compressed :

4. Pods dorsally compressed; many-seeded...Cochlearia

4. Pods laterally compressed; 2-seeded.....Lepidium

1. Pods indehiscent, long, beaked .....Raphanus

Rorippa Scop.

Rorippa indica (Linn.) Hiern, in Cat. Afr. Pl. Welw. 1: 26,

add. & Corr. 1896; Sant. 7; Fl. Dang, 15; Fl. Delhi,  
58; Santapau & Wagh, in BBSI. 5: 108, 1963.

Sisymbrium indicum Linn. Mant. 1: 93, 1767.

Nasturtium indicum DC. Prodr. 1: 139, 1824; FBI. 1: 134;  
C. 1: 31.

An erect, glabrous or hairy annual; stem branched from the base, slender. Radical leaves pinnatifid, lobes toothed, upper leaves sub-sessile, lyrate. Flowers yellow, small, in long terminal racemes. Pods narrow, cylindrical. (Fl. Fr. February - July). DNT. 1562, 1895.

Observed in moist places on the river bank in sandy soil.

Brassica Linn.

An erect, tall herb with narrow leaves .....junce

Stout herb with broad leaves :

Terminal bud ball like .....oleracea  
var. capitata

Terminal bud not as above .....oleracea  
var. botrytis

Brassica juncea (Linn.) Czern. & Coss.; Czern. Consp. Pl.

Chark. 8, n. 5, 1859; Coss. in Bull. Soc. Bot.

France 6: 609, 1859; Hook. f. & T. Anders. in FBI.  
1: 157, in part; C. 1: 37.

Sinapis 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 narrow, torulose, beak narrowly conical. (Fl. Fr. October - February). DNT. 572, 1432, 1497.

Cultivated for its seeds.

Brassica oleracea var. capitata Linn. Sp. Pl. 667, 1753;

Blatter, in JBNHS. 34: 297, 1930; Saur. 1: 12; Fl.  
Delhi, 60.

A small herb. Lower leaves lyrate, stalked, upper sessile, fleshy, crumple and form a big ball-like bud. Flowers yellow. Siliqua long. (Fl. Fr. January - February). DNT. 1495.

Cultivated.

Brassica oleracea var. botrytis Linn. Sp. Pl. 667, 1753;

Bailey, Man. Cult. Pl. 436; Saur. 1: 12; Fl. Delhi, 60.

A small herb. Leaves long-oblong or elliptic. A stalk bearing a dense terminal teratological head, overtopped by leaves comprised of the transformed and consolidated mass of short thick peduncle, pedicels, undeveloped flowers and bracts.

(Fl. Fr. October - November). DNT. 929.

Cultivated.

Cochlearia Linn.

Cochlearia cochlearioides (Roth ) Santapau & Maheshwari, in JBNHS. 54: 804, 1957; Fl. Delhi, 59; Thaker & Sabnis, in JBNHS. 69(1): 227, 1972.

Alysium cochlearioides Roth, Nov. Pl. Sp. 322, 1821.

Cochlearia flava Buch.-Ham. ex Roxb. Hort. Beng. 48, 1814, nom. nud.; FBI. 1: 145; FUGP. 1: 41; Haines, 1: 28; P. 1: 146.

An erect, glabrous, diffusely branched, annual herb, about 30 cm. high. Leaves pinnatifid, lobes sinuate-toothed; lower leaves long-petioled and upper short-petioled to almost sessile. Flowers small, yellow, in elongate racemes. Silicula glabrous, hemispheric with membranous valves. Seeds small, numerous, rugose, funicles filiform. (Fl. Fr. January - February). DNT. 1555, 1900, 1905.

PLATE No. 29

A small population of these plants was noted on an undisturbed portion of the Narmada river bank at Hampheshwar. The plants have a restricted distribution and are not to be

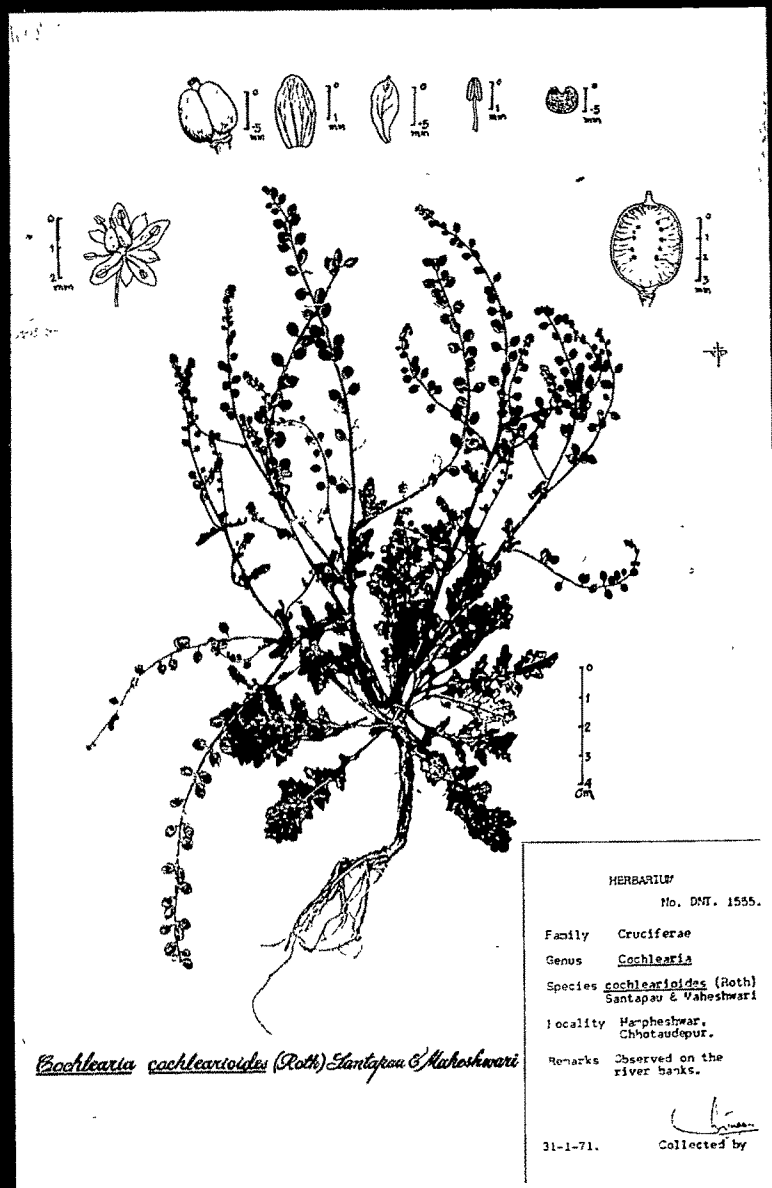


PLATE No. 29.

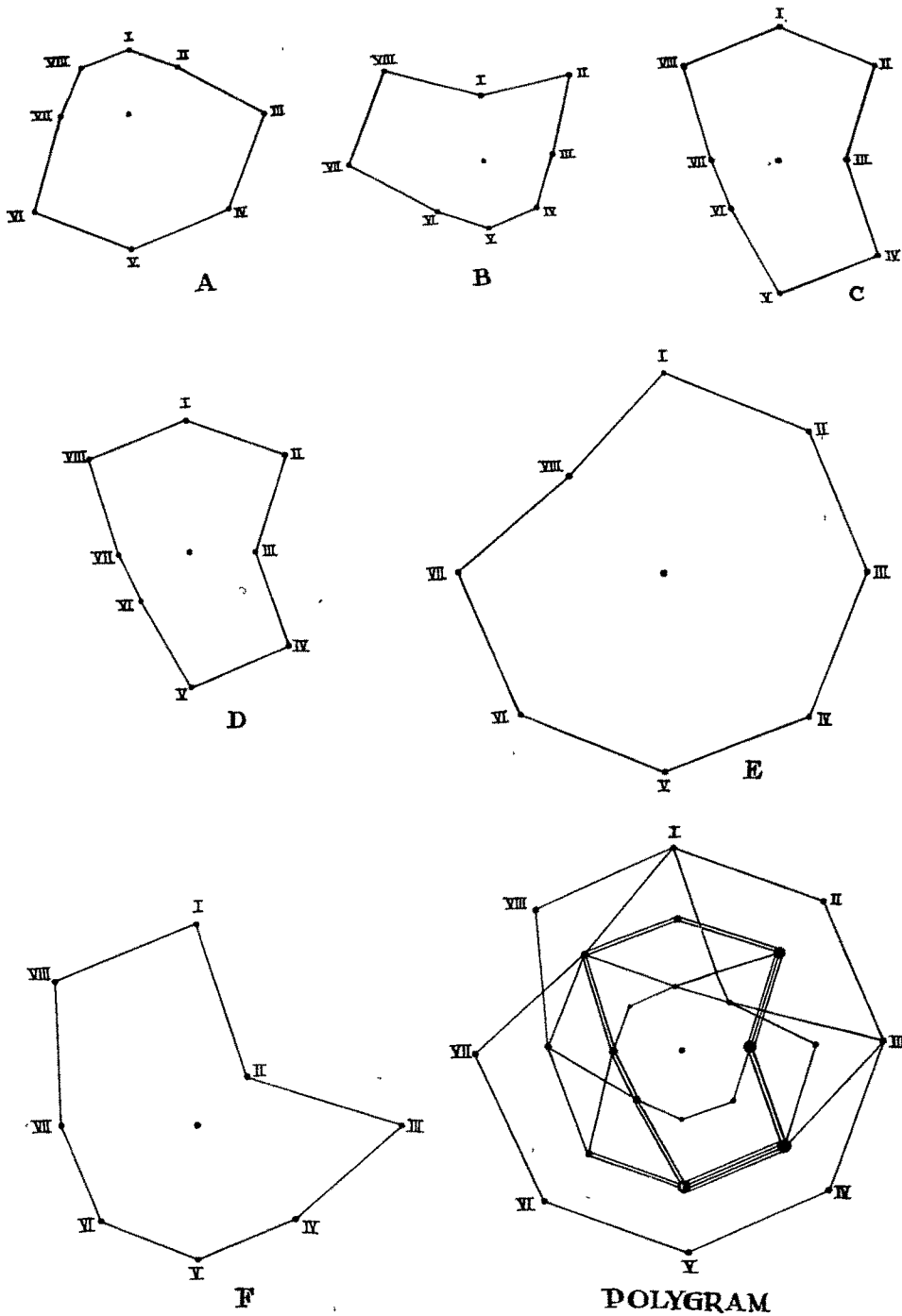


met with in any other part of the area.

Morphological characters

PLATE No. 30

<u>Character</u>	<u>Variations</u>	<u>Index value</u>
I Root system	prominent tap root	1
	tap root and laterals almost equal	3
	tap root slender and laterals poorly developed	5
II Height of the plant from the rosettes	25 cm. or more	1
	10 to 20 cm.	3
	less than 10 cm.	5
III Leaf rosettes	densely crowded	1
	sparsely crowded	3
	not crowded	5
IV Length of the leaf (including petiole)	8 cm. or more	1
	5 to 8 cm.	3
	less than 5 cm.	5
V Breadth (Maximum) of the lamina	3 cm. or more	1
	1 to 3 cm.	3
	less than 1 cm.	5
VI Leaf-colour	dark green	1
	pale green	3
	green purple mixed	5



*Cochlearia cochlearioides* (Roth) Santapau & Maheshwari

VII Leaf segmentation	pinnatifid	1
	pinnatifid and partite mixed	3
	pinnatisect	5
VIII Inflorescence axis	extensively branched	1
	sparsely branched	3
	unbranched	5

The plants are restricted to the banks of Narmada. However, certain locality factors seem to have brought about pronounced variations in the vegetative characters. Great uniformity is observed in the characters of flower, fruit and seed in all the populations.

Lepidium Linn.

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

An erect, glabrous annual, 15 to 20 cm. high. Radical leaves pinnatifid, toothed; cauline ones often entire. Flowers white, in long racemes. Silicula oblong-orbicular, notched. (Fl. Fr. January - May). DNT. 1491.

Observed as a weed in cultivated fields.

Raphanus Linn.

Siliqua 6 - 15 cm. long, greenish-yellow.....sativus

Siliqua more than 15 cm. long, purple, whip-like..caudatus

Raphanus sativus Linn. Sp. Pl. 669, 1753; FBI. 1: 166; C. 1:

37; Bailey, Man. Cult. Pl. 439; Fl. Dang, 15; Fl.

Delhi, 57.

An annual herb. Leaves lyrate-lobed or pinnatifid. Flowers white in open branched racemes. Siliqua greenish-yellow. (Fl. Fr. December - February). DNT. 1490.

Cultivated for its edible roots and young leaves.

Raphanus caudatus Linn. Mant. 1: 95, 1766.

An annual herb. Leaves radical, lyrate. Flowers purple or pale blue. Siliqua whip-like, purple. (Fl. Fr. December - February). DNT. 1503.

Cultivated.

## CLEOMACEAE

Cleome Linn.

1. Leaves simple :

2. Stamens 6 or less .....monophylla  
 2. Stamens 10 - 12 .....simplicifolia

1. Leaves compound :

3. Flowers yellow, axillary; stamens  
 10 or more .....viscosa  
 3. Flowers white in bracteate racemes;  
 stamens 6 .....gynandra

Cleome monophylla Linn. Sp. Pl. 672, 1753; Gr. 7; D. & G. 8;  
 FBI. 1: 168; C. 1: 38.

An erect, branched, more or less hairy herb. Leaves oblong-lanceolate. Flowers axillary, solitary, pink. Fruit capsular, cylindrical, striated, pointed, clothed with short hairs. (Fl. Fr. August - December). DNT. 195, 486, 965, 1918.

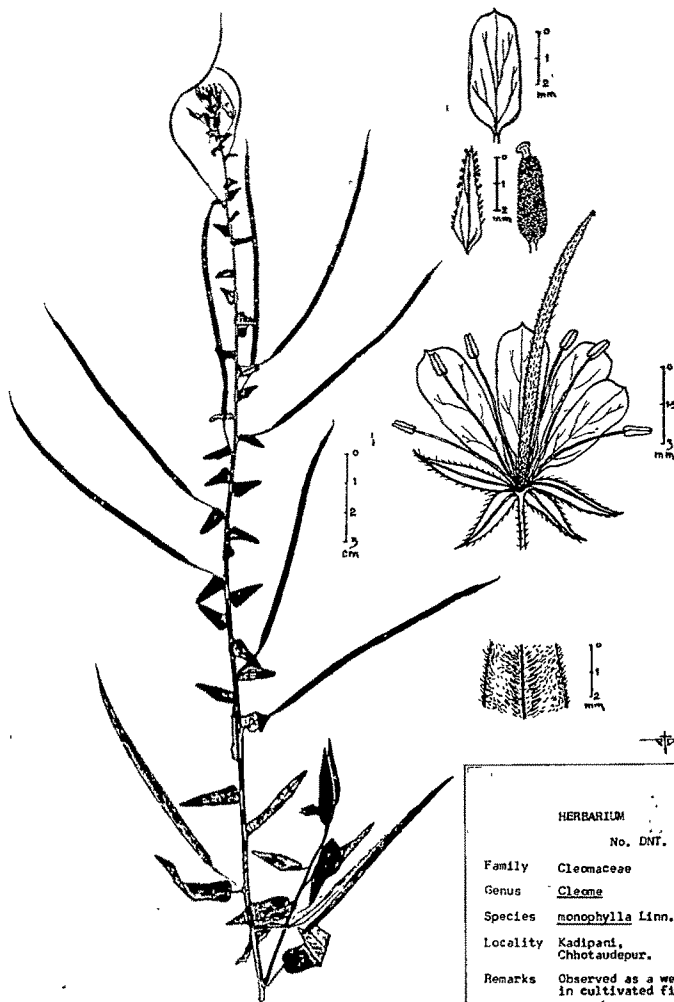
PLATE No. 31

Observed in open grasslands and as a weed in cultivated fields.

Cleome simplicifolia Hook. f. & Thoms., in FBI. 1: 69; C.1: 40.

C. monophylla Law, in Gr. 7.

Polanisia simplicifolia Camb., in Jacq. Voy. Bot. 20,  
 t. 20; D. & G. 8.



*Cleome monophylla* Linn.

HERBARIUM

No. DNT. 965.

Family Cleomaceae  
Genus Cleome  
Species monophylla Linn.  
Locality Kadipani,  
Chhotaudapur.  
Remarks Observed as a weed  
in cultivated fields.

26-8-70. Collected by 

P. burtporensis Munro, in Wt. Ic. t. 1072.

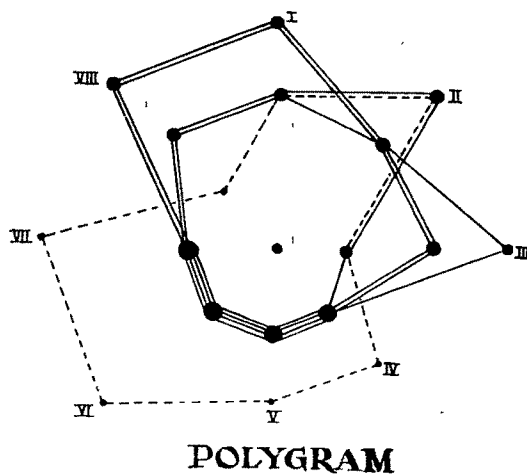
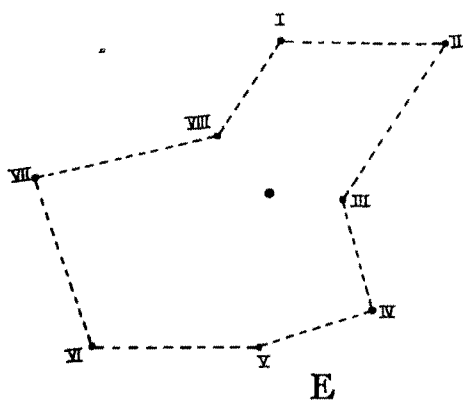
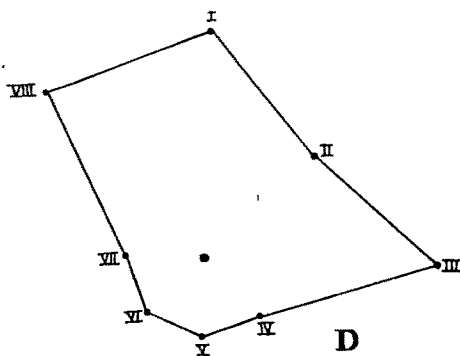
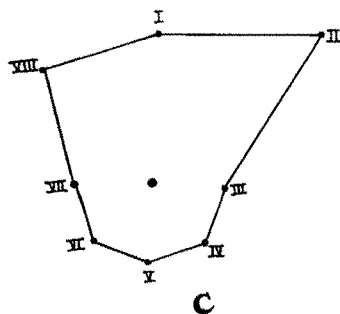
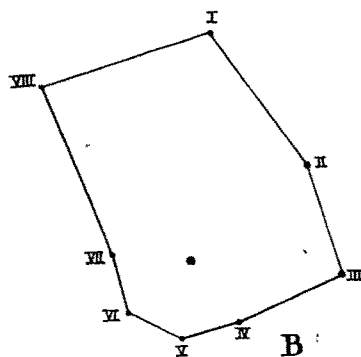
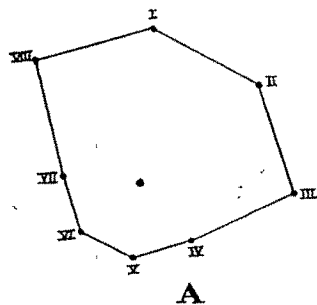
An erect or sub-erect herb, clothed with stout hairs. Leaves oblong-elliptic. Flowers solitary, in the axils of leafy bracts, violet or purple. Capsule long beaked, striate, slightly compressed. (Fl. Fr. August - November). DNT. 11.

Rare; observed as a weed in cultivated fields.

Morphological characters

PLATE No. 32

	<u>Character</u>	<u>Variations</u>	<u>Index value</u>
I	Height	Less than 20 cm.	1
		20 to 50 cm.	3
		more than 50 cm.	5
II	Shape of the leaf	Oblong-elliptic	1
		oblong-lanceolate	3
		linear-lanceolate	5
III	Leaf ( Length : Breadth Ratio)	4 : 1 (four times longer than broad)	1
		6 : 1	3
		8 : 1	5
IV	Hairiness of the plant	appressedly densely hairy	1
		appressedly sparsely hairy	3
		not appressedly hairy	5



Cleome Linn.

C. monophylla Linn. •—• (A to D)

C. simplicifolia Hook. f. & Thoms. •---• (E)



V	Nature of hairs	hairs glandular and viscous hairy	1
		hairs bulbous based	3
		hairs not bulbous or gland-tipped	5
VI	Corolla	Corolla glabrous	1
		corolla glabrescent	3
		corolla hairy on outer side only	5
VII	No. of stamens	eight or less	1
		eight to twelve	3
		more than twelve	5
VIII	No. of seeds per fruit	twenty or less	1
		between 20 to 30	3
		more than 30	5

The distinction between the two species, namely C. monophylla and C. simplicifolia is based mainly on the character of number of stamens. The polygraphic study of various populations reveals the existence of great variation in characters like height of the plant, shape of the leaf and length-breadth ratio. Over all hairiness of the plant is appressedly densely hairy in all populations of C. monophylla, while it sparsely hairy in C. simplicifolia. Characters of reproductive organs like hairiness of corolla and number of seeds per fruit can as well be utilized for specific distinction.

Cleome viscosa Linn. Sp. Pl. 672, 1753; Wt. Ic. t. 2; FBI. 1: 170; C. 1: 41; Sant. 8; Fl. Dang, 15; Saur. 8; Fl. Delhi, 63; Fl. Pavagadh, 34.

An erect, glandular herb. Stem grooved, densely clothed with glandular and simple hairs. Leaflets 3-5-foliolate, elliptic-oblong, acute, terminal the largest. Flowers yellow, axillary. Capsule sticky-pubescent, erect, short beaked. (Fl. Fr. July - October). DNT. 23, 634, 1190, 1923.

Fairly common; observed as a weed in cultivated fields and open waste lands.

Cleome gynandra Linn. Sp. Pl. 671, 1753; Iltis, in Brittonia, 12(4): 279-294, 1960; Sant. 9; Jacobs, in Fl. Males. 6(1): 100, 1960; Santapau and Wagh, in BBSI. 5: 106, 1963; Fl. Pavagadh, 34.

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

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

An erect, glandular-pubescent annual, about 40-50 cm. high. Leaves digitately 3-5-foliolate; leaflets elliptic-obovate. Flowers white, cream or pink-coloured, in corymbose racemes. Capsule viscid pubescent, tapering at both ends.

(Fl. Fr. June - September). DNT. 92, 635.

A common weed of waste lands and cultivated fields.

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

#### CAPPARACEAE

- 1. Fruit moniliform .....Maerua
- 1. Fruit globose, ovoid or cylindric, not moniliform :
  - 2. Stamens 4-6, inserted half way up the gynophore .....Cadaba
  - 2. Stamens 8 or more, inserted at the base of gynophore :
    - 3. Leaves simple .....Capparis
    - 3. Leaves 3-foliolate .....Crateva

Maerua Forsk.

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

M. arenaria Hook. f. & Thoms. in FBI. 1: 171, 1872; G. 42; Fl. Delhi, 64; Fl. Pavagadh, 35.

Maerua ovalifolia Cambess, in Jacquemont. Voy. Bot.

22, t. 24, 1844; C. 1: 43.

A climbing shrub with divaricate branches and smooth bark. Leaves elliptic-oblong, obtuse. Flowers greenish-white, in corymbs. Fruit a fleshy, elongate, irregularly moniliform berry. (Fl. Fr. October - May). DNT. 1468.

Not common; noted on hedges.

Cadaba Forsk.

Cadaba fruticosa (Linn.) Druce, in Rep. Bot. Exch. Cl. Brit.

Isles, 1913(3): 415, 1932; Saur. 1: 17; Fl. Pavagadh, 35.

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 straggling, much-branched shrub. Leaves simple, elliptic-oblong, obtuse. Flowers dirty white, in few-flowered, terminal, 1-sided racemes. Fruit cylindrical, dehiscent. (Fl. Fr. October - April). DNT. 1694.

Observed in hedges.

Capparis Linn.

1. Trees ..... grandis

1. Erect or climbing shrubs :

2. Matured stems or branches leafless;

flowers red or orange .....decidua

2. Matured stems and branches leafy;

flowers white :

3. Flowers in umbels .....sepiaria

3. Flowers in supra-axillary rows .....zeylanica

Capparis grandis Linn. f. Suppl. 263, 1781; FBI. 1: 176;

C. 1: 50; D. & G. 10; Saur. 1: 19.

A small, armed tree, young part covered with olive green tomentum. Leaves obovate, softly tomentose beneath. Flowers in terminal corymbs, white. Berries slobose or subglobose. (Fl. Fr. March - May). DNT. 88, 859, 914, 1169.

Occasionally in hilly forest areas and also noted near habitation.

Capparis decidua (Forsk.) Edgew. in JLS. 6: 184, 1862; Pax, in

Engl. & Prantl, Nat. Pfam. 3(2): 230, 231, f. 139,

1891; Saur. 1: 18; Fl. Delhi, 65.

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). DNT. 389, 936.

Observed on open areas along roadsides.

Capparis sepiaria Linn. Syst. Nat. ed. 10, 1071, 1759; FBI. 1: 177; C. 1: 51; Sant. 9; Saur. 1: 19; Fl. Delhi, 65; Fl. Pavagadh, 36.

A large, much-branched, armed, climbing shrub. Leaves ovate-lanceolate or elliptic, entire, with stipular spines. Flowers white or muddy white, in many-flowered, short-peduncled, umbels; ovary raised on long, filiform gynophore. Fruit a globose berry. (Fl. Fr. March - May). DNT. 88.

Observed in hedges.

Capparis zeylanica Linn. Sp. Pl. (ed. 2) 720, 1762; Blatter, in JBNHS. 31: 903 (sub. C. brevispina) & 906 (non C. zeylanica Hk. & Thoms. in FBI. 1: 174) 1927; Sant. 9; Fl. Dang, 15; Fl. Pavagadh, 36.

Capparis horrida Linn. f. Suppl. 264, 1781; Wt. Ic. t. 173; FBI. 1: 178; C. 1: 51.

A large, armed, climbing shrub, young parts clothed with

tomentum. Leaves elliptic-oblong, obtuse, with hooked stipular spines. Flowers supra-axillary, solitary. Fruit a berry, red-brown. (Fl. Fr. November - April). DNT. 1691.

Observed as a climber in hedges.

Crateva Linn.

Crateva adansonii DC. ssp. odora (Buch.-Ham.) Jacobs, in Blumea (12) 12: 177-384, 1963.

Crateva odora Buch.-Ham. Trans. Linn. Soc. 15: 118, 1827.

Crateva religiosa var. roxburghii (R. Br.) Hook. f. & Thoms. in FBI. 1: 172; C. 1: 45.

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

Crateva nurvala (non Buch.-Ham.) Blatter, in JBNHS. 35: 293, 1931; Saur. 1: 17; Fl. Delhi, 65.

A small or middle-sized tree. Leaves 3-foliolate; leaflets ovate-lanceolate, abruptly acuminate. Flowers white or yellowish-white, in terminal cymes; petals clawed; gynophore stout. Berry globose, woody. (Fl. Fr. January - May). DNT. 912.

Noted near habitation.

VIOLACEAE

Hybanthus Jacq. (nom. cons.)

Hybanthus enneaspermus (Linn.) F. Muell. Fragm. Phyt. Aust.

10: 81, 1877; Fl. Dang, 16; Tennant, in KB 16(3):

431, 1963; Fl. Delhi, 66; Fl. Pavagadh, 33.

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

Ionidium suffruticosum (Linn.) Roem. & Schult. Syst. Veg.

5: 394, 1819; FBI. 1: 185.

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

Ionidium heterophyllum Vent, Jard. Malm. in Addn. Sub. t.

27, 1803; C. 1: 55.

A small erect or prostrate herb. Leaves linear-lanceolate, acute, alternate, entire or with serrate margin. Flowers pink or light purple, solitary, axillary; sepals keeled; petals variable, one with a long claw and expanded limb. Fruit a subglobose capsule. (Fl. Fr. July - February). DNT. 38, 334, 1439.

Fairly common among grasses, in open waste places during monsoon.

#### COCHLOSPERMACEAE

Cochlospermum Kunth.

Cochlospermum religiosum (Linn.) Alst. Fl. Ceyl. 6: 14, 1931;



Raizada, in Ind. For. Rec. (N.S.) Bot. 5(1): 12, 1958.

Bombax religiosum Sp. Pl. 512, 1753.

Cochlospermum gossypium DC. Prodr. 1: 527, 1824; Gr. 22;

Talb. 70, f. 45; FBI. 1: 190; C. 1: 56; Brandis, For.  
Fl. 17.

Bombax gossypium Linn. Sp. Pl. 552, 1753; Roxb. Fl. Ind.  
3: 169.

A middle-sized, deciduous tree; bark smooth. Leaves scattered at the end of branchlets, palmately 3-5-lobed. Flowers yellow, in terminal subcorymbose panicles. Capsule obovoid, 3-5-valved. (Fl. Fr. February - April). DNT. 855 A.

Rare; noted near roadside at Ambadungar.

#### POLYGALACEAE

Polygala Linn.

Wings obtuse .....erioptera

Wings acute or acuminate :

Racemes short; capsule densely ciliate.....chinensis

Racemes long; capsule not or scarcely

ciliate .....elongata

Polygala erioptera DC. Prodr. 1: 326, 1824; FBI. 1: 203;

C. 1: 63; Sant. 11; Saur. 22; Fl. Delhi, 68; Fl. Pavagadh, 38.

An erect or suberect, annual herb. Leaves narrow, linear or obovate. Flowers pink or rosy, in axillary or extra-axillary few flowered racemes; lateral sepals expanded into obtuse wings which are densely hairy with prominent green midrib. Fruit a 2-seeded capsule; seeds with galeate, slightly hairy strophiole. (Fl. Fr. August - October). DNT. 55, 463, 1034, 1872.

The plant is greatly variable in habit, size and shape of the leaf. Commonly observed in open grass lands and as a weed in cultivated fields.

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

An erect, annual herb. Leaves linear-oblong, obovate. Flowers yellow, fading to pink, in axillary or extra-axillary, few-flowered racemes; sepals expanded into a acute wing, petaloid. Capsule hairy; seeds hairy. (Fl. Fr. July - September). DNT. 342, 1122, 1204.

Commonly observed in open grass lands, along forest fringes and as a weed in cultivated fields.

Polygala elongata Klein ex Willd. Sp. Pl. 3: 879, 1800; FBI.

1: 203; C. 1: 64; Thaker & Sabnis, in JMSUB. 19 & 20

(3 & 4): 36, 1970-1971.

An erect, annual herb. Leaves sessile, linear-oblong, obtuse. Flowers yellow, in lax, supra-axillary racemes; sepals expanded into wing, acute. Capsule oblong, emarginate; seeds clothed with appressed, silky hairs. (Fl. Fr. August - November). DNT. 164; 1222 A.

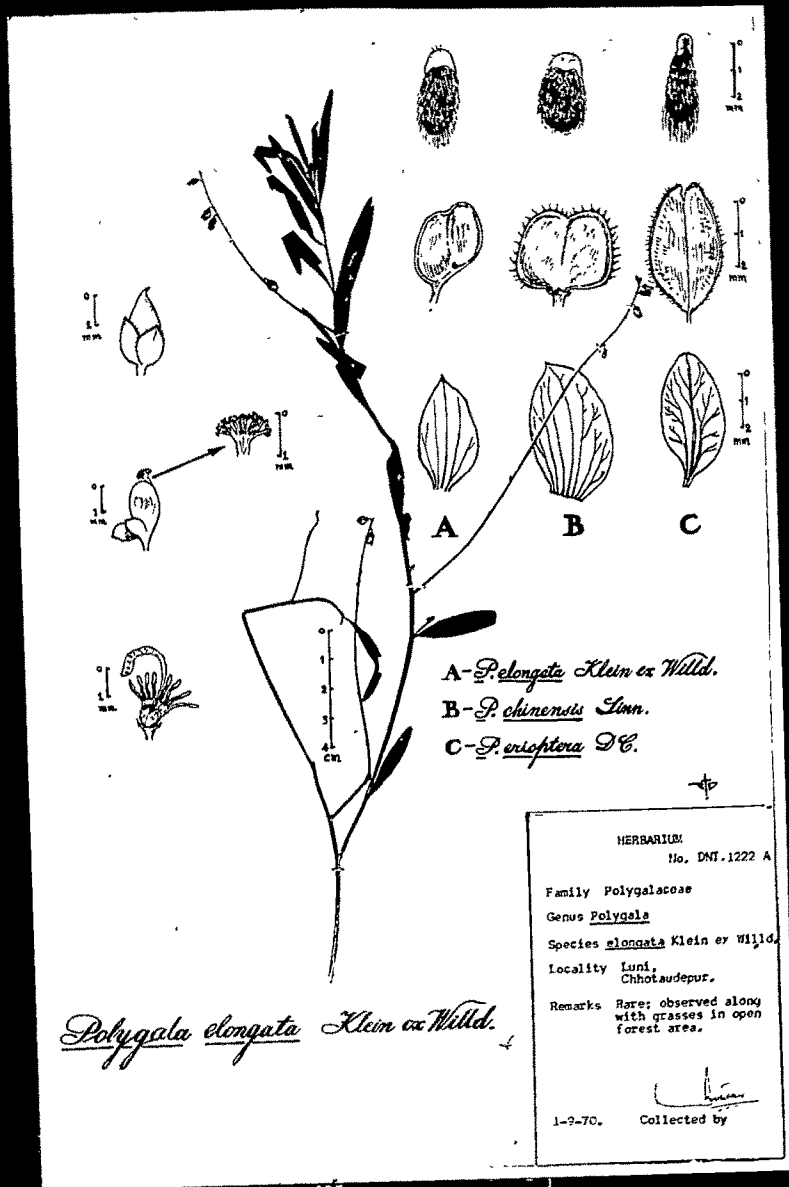
### PLATE No. 33

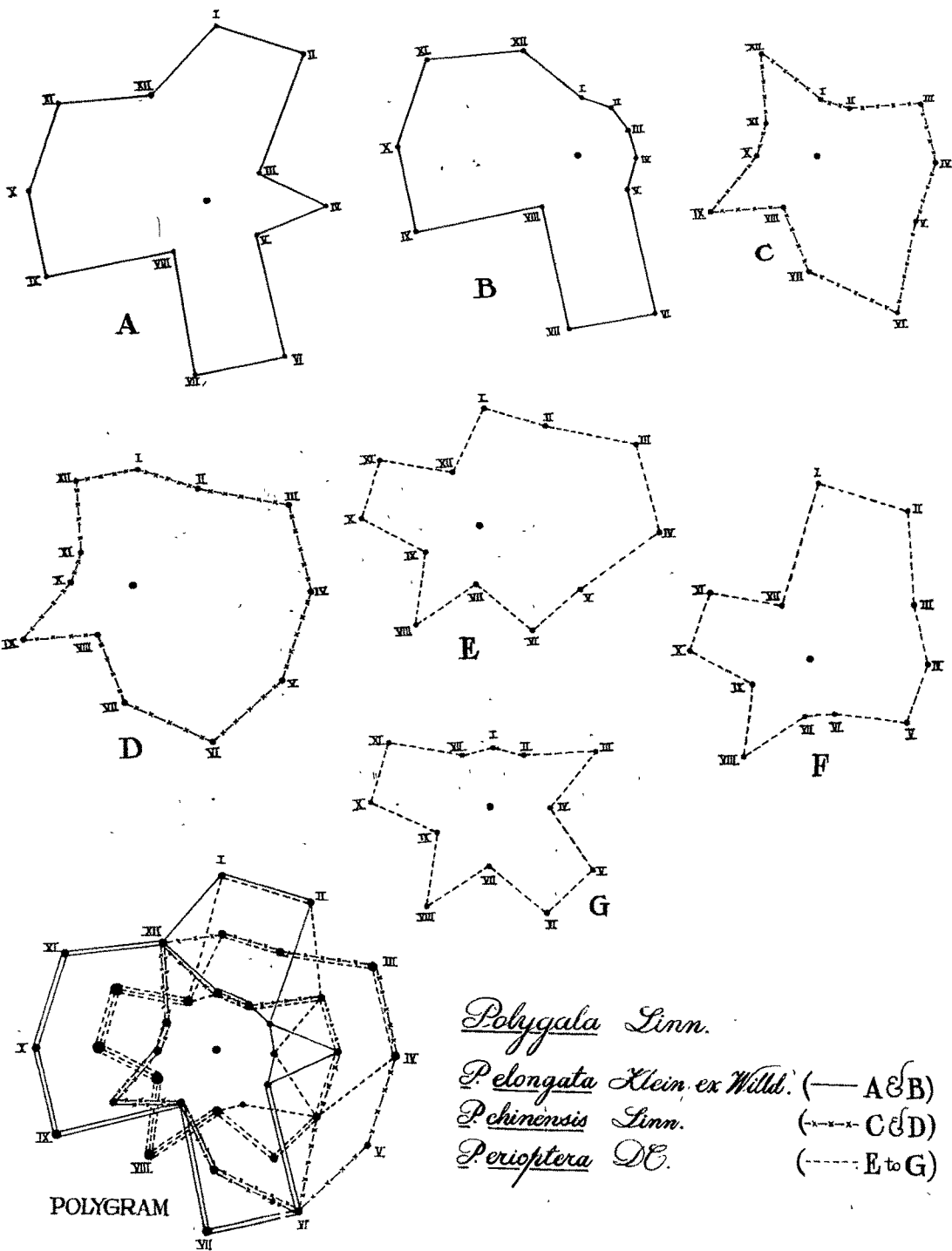
Rare; observed, along with grasses in open areas of the forests.

### Morphological characters

#### PLATE No. 34

<u>Character</u>	<u>Variations</u>	<u>Index value</u>
I. Habit	erect	1
	ascending	3
	main stem erect	5
	branches spreading	
II Stem branching	unbranched	1
	branching from the base	3
	branches distinct on the main axis	5
III Internodal length	20 mm. or more	1
	10 to 20 mm.	3





		less than 10 mm.	5
IV	Leaf shape	Linear-lanceolate	1
		Linear-elliptic	3
		elliptic-oblong	5
V	Inflorescence	elongated raceme	1
		axillary clusters	3
		solitary	5
VI	Flower colour	rose	1
		light pink	3
		yellow	5
VII	Hairiness of winged sepals	ciliolate throughout	1
		ciliolate at the base	3
		not ciliolate	5
VIII	Apex of the winged sepal	acute or acuminate	1
		obtuse	3
		rounded	5
IX	Venation of winged sepal	midrib prominent	1
		midrib diffuse	3
		many veins from the base	5
X	Fruit	broader than long	1
		longer than broad	3
		length and breadth almost equal	5
XI	Fruit margin	ciliate on margins only; cilia stiff, distantly placed	1

	ciliate on margins and faces; cilia soft, short and closely placed	3
	cilia absent	5
XII Hairiness of the seed	hairs long projecting very much beyond the seed	1
	hairs short, slightly projecting beyond the seed	3
	hairs short, not projecting beyond the seed.	5

The characters of inflorescence and the apex of the winged calyx have been consistently used by Taxonomists. The polygraphic study, in addition, brings to light other important characters such as the hairiness and venation of the winged sepal, length-breadth ratio of fruit, hairiness of the fruit and seed. These characters also can be used with advantage in the clear demarcation of the three species of Polygala. Lot of variation and overlapping are noticed in the vegetative characters of these species.

CARYOPHYLLACEAE

Stipules scarious.....	<u>Polycarpaea</u>
Stipules 0 .....	<u>Vaccaria</u>

Polycarpaea Lamk. (nom. cons.)

Polycarpaea corymbosa (Linn.) Lamk. Talb. Encycl. 2: 129,  
1791; FBI. 1: 245; C. 1: 70; Wt. Ic. t. 712; D. & G.  
16; Saur. 1: 24; Fl. Delhi, 70; Fl. Pavagadh, 38.

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

An erect, annual herb, 15-40 cm. high. Leaves narrow, linear, clustered or crowded. Flowers silvery white, shining, arranged in compound dichasial or polychasial cyme; sepals chaffy. Fruit a small capsule. (Fl. Fr. September - January). DNT. 324, 763, 1172.

Commonly observed among grasses during monsoon, on dry sandy river banks and as a weed in cultivated fields.

Vaccaria Medik.

Vaccaria pyramidata Medik. Phil. Bot. 1: 96, 1789; Cufodontis, in Bull. Jard. Bot. Brux. Suppl. 23: 104, 1953; Sant. 12; Fl. Delhi, 68.

Saponaria vaccaria Linn. Sp. Pl. 409, 1753; FBI. 1: 127; C. 1: 66; Saur. 1: 24.

An erect, glabrous annual, 30-60 cm. high. Leaves linear-oblong. Flowers pink, in corymbose dichotomous cymes; calyx



gamosepalous, with five, green nerves. Capsule ovoid, included within calyx tube. (Fl. Fr. February - March). DNT. 921, 1425, 1487.

Observed as a weed in winter crops.

#### PORTULACACEAE

Portulaca Linn.

Flowers yellow :

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

Nodes without hairs .....oleracea

Flowers red or pink .....pilosa  
ssp. grandiflora

Portulaca quadrifida Linn. Mant. 1: 73, 1767; FBI. 1: 247;

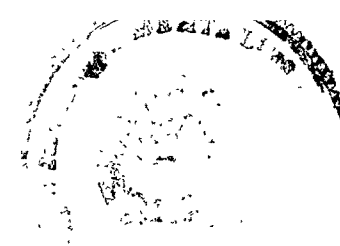
C. 1: 72; Sant. 13; Saur. 1: 26; Fl. Delhi, 70; Fl. Pavagadh, 40.

A prostrate, succulent herb, rooting at nodes; nodes hairy. Leaves fleshy, ovate to ovate-lanceolate. Flowers yellow, small, solitary, terminal. Fruit a conical capsule; seeds tubercled. (Fl. Fr. September - December). DNT. 622, 1772.

Noted as a weed in cultivated fields.

Portulaca oleracea Linn. Sp. Pl. 445, 1753; FBI. 1: 246; C. 1:

72; Sant. 13; Saur. 1: 26; Fl. Delhi, 71; Fl. Pavagadh, 39.



A succulent, prostrate herb. Leaves fleshy, obovate or spatulate. Flowers yellow in terminal clusters, surrounded by a whorl of leaves. Fruit a pyxidium. (Fl. Fr. October - May). DNT. 129, 917, 1893.

A common weed of winter crops and in moist sandy soil on the river banks.

Portulaca pilosa Linn. ssp. grandiflora (Hook.) Geissint, in Blumea 17: 297, 1969.

Portulaca grandiflora Hook. Bot. Mag. t. 2885, 1829;  
Bailey, Man. Cult. Pl. 365; Saur. 1: 26.

A prostrate or ascending, succulent herb; branches radially spreading, glabrous, tinged with red, terete. Leaves cylindrical to linear-lanceolate, fleshy. Flowers large, showy, deep pink or purple, solitary or in terminal, sessile clusters. (Fl. mostly throughout the year). DNT. 865.

Cultivated.

#### TAMARICACEAE

Tamarix Linn.

Tamarix ericoides Rottl. in Gesel. Naturf. Fr. Berl. Neue.

Schr. 4: 214, 1803; FBI. 1: 249; C. 1: 76; Saur. 1: 28.

A shrubby plant. Leaves reduced, scale-like with sheathing leaf bases. Flowers bisexual, pink, in terminal racemes. Fruit a capsule. (Fl. Fr. November - May). DNT. 411, 667.

Observed on sandy river banks.

#### ELATINACEAE

Bergia Linn.

Bergia odorata Edgew., in JASB. 7: 765, 1838; FBI. 1: 251;

C. 1: 77; Blatter, in JBNHS. 34: 623, 1930; Saur. 1:39.

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). DNT. 924, 1621.

Observed as a weed in cultivated fields.

#### MALVACEAE

1. Ripe carpels separating from the axis :

(Fruit schizocarpic)

2. Trees; involucral bract persistent

forming spreading wings .....Kydia

- 2. Shrubs or herbs; involucral bracts  
not as above :
  - 3. Involucral bracts absent :
    - 4. Carpels 1-ovuled .....Sida
    - 4. Carpels 2-ovuled .....Abutilon
  - 3. Involucral bracts present :
    - 5. Flowers less than 5 cm. across :
      - 6. Ripe carpels glochidiate .....Urena
      - 6. Ripe carpels aristate or naked.....Pavonia
    - 5. Flowers more than 5 cm. across.....Althea
- 1. Ripe carpels not separating from the axis :  
(Fruit capsular)
  - 7. Involucral bracts absent .....Hibiscus  
(in part)
  - 7. Involucral bracts present :
    - 8. Involucral bracts large, spreading  
and fimbriate .....Gossypium
    - 8. Involucral bracts not spreading,  
not fimbriate :
      - 9. Calyx cupular, truncate .....Azanza
      - 9. Calyx not as above :
        - 10. Calyx persistent, in ripe fruits..Hibiscus  
(in part)

10. Calyx deciduous, spathaceous.....Abelmoschus

Kydia Roxb.

Kydia calycina Roxb. Hort. Beng. 51, 1814, nom. nud. & Pl.

Corom. 3: 12, t. 215, 1819, et Fl. Ind. 3: 188; FBI. 1: 348; C. 1: 100; Gr. 20; Talb. 1: 127; t. 78; D. & G. 24; Blatter & Mill. Beaut. Ind. Trees, 97, t. 20; Sant. 16; Fl. Dang, 19; Saur. 1: 32.

A small tree. Leaves palmately 3-7-lobed, cordate, ovate, tomentose beneath, glabrous above. Flowers white, in terminal panicles, many-flowered; involucral bracts 4-6. Fruit a capsule. (Fl. Fr. August - December). DNT. 549.

Observed at few places in hilly forests.

Sida Linn.

1. Leaves ovate, rhomboid, rarely the lower ones cordate :

2. Calyx glabrous; leaves linear-lanceolate, obtuse or rounded at base .....acuta

2. Calyx pubescent; leaves rhomboid, cuneate or truncate at base :

3. Lower leaves cuneate at base .....rhombifolia  
var. retusa

3. Lower leaves not cuneate at base.....alba

1. Leaves cordate at base :

4. Plants viscous-hairy .....glutinosa

4. Plants not viscous hairy .....cordata

Sida acuta Burm. f., Fl. Ind. 147, 1768; C. 1: 98; Sant. 15;  
Fl. Dang, 19; Saur. 1: 34; Fl. Pavagadh, 44.

Sida carpinifolia Masters, in FBI. 1: 323, 1874 (non Linn.  
1781).

An erect, much-branched undershrub. Leaves lanceolate, serrate, base rounded. Flowers yellow, axillary, solitary; pedicels longer than petiole, jointed above the middle. Carpels 6, strongly reticulated. (Fl. Fr. October - January). DNT.1695.

Rare; noted along roadsides.

Sida rhombifolia Linn. var. retusa Mast. in FBI. 1: 324, 1874;  
C. 1: 99; Sant. 16; Fl. Pavagadh, 43.

A shrubby, much-branched, erect herb. Leaves retuse, crenate, hairy. Cuneate at base. Flowers yellow, axillary and crowded towards the end of branches. Carpels 9-10, awns small. (Fl. Fr. October - November). DNT. 1084.

Rare; noted along with grasses.

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

Sida spinosa Linn. Sp. Pl. 683, 1753; FBI. 1: 323; C. 1: 98; Fl. Dang, 19; Fl. Delhi, 74; Fl. Pavagadh, 43.

An erect, much-branched herb, stellately pubescent all over. Leaves elliptic, crenate, rounded, obtuse; petiole spiny at base. Flowers yellow, clustered in the axil of leaves or solitary; pedicel jointed. Carpels 3, pubescent. (Fl. Fr. October - May). DNT. 400, 530, 1603, 1774.

Fairly common; observed as a weed in cultivated fields, in open waste lands and along the roadsides.

Sida glutinosa Cav. Diss. 1: 16, t. 3, f. 8, 1785; C. 1: 97; Saur. 1: 37; Fl. Pavagadh, 42.

S. mysorensis Wt. & Arn. Prodr. 1: 59, 1834; FBI. 1: 322.

An erect, viscous-hairy undershrub. Leaves nearly as broad as long, acuminate, crenate, cordate at the base. Flowers yellow, in axillary fascicles. Carpels 5-6, not reticulated; beak very short. (Fl. Fr. October - January). DNT. 1459, 1508, 1870.

Rare; observed as an undergrowth of forest and along forest paths.

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

Melochia cordata Burm. f. Fl. Ind. 143, 1768.

Sida veronicifolia Lamk. Encycl. 1: 5, 1783; C. 1: 97;

Fl. Dang, 19; Saur. 1: 37; Santapau & Wagh, in BBSI.

5: 108, 1963; Fl. Delhi, 74; Fl. Pavagadh, 42.

S. humilis Cav. Diss. 5: 277, t. 134, f. 2, 1788; D. & G.

17; FBI. 1: 322.

A prostrate or straggling herb, young parts covered with straight, spreading hairs. Leaves ovate-cordate with dentate-crenate margins. Flowers yellow, axillary, solitary or twin together; pedicels 3-5 cm. long. Carpels 5. (Fl. Fr. September - January ). DNT. 350, 475, 908, 1319.

Fairly common; observed in waste land and along with grasses in open areas.

Abutilon Linn.

Abutilon indicum (Linn.) Sweet, Hort. Brit. 54, 1826; Gr. 15;

D. & G. 18; FBI. 1: 326; C. 1: 102; Fl. Dang, 17;

Chavan, Sabnis & Bedi, in Curr. Sci. 30: 402, 1961;

Saur. 1: 40; Santapau & Wagh, in BBSI. 5: 105, 1963;

Fl. Pavagadh, 45.

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.

Sida asiatica Linn. Cent. Pl. 2: 26, 1756 & Sp. Pl.

(ed. 2) 964, 1763.

An erect, much-branched undershrub, about 120-140 cm. high. Leaves ovate to orbicular, cordate, crenate, acute. Flowers yellowish-orange, axillary, solitary. Carpels hairy; seeds brown, tubercled. (Fl. Fr. May - December). DNT. 1450.

Commonly observed along roadside ditches.

Urena Linn.

Urena lobata Linn. Sp. Pl. 692, 1753; FBI. 1: 329 (excl. syn.

U. palmata); C. 1: 106; Sant. 17; Fl. Dang, 20; Saur. 1: 54; Fl. Delhi, 77; Fl. Pavagadh, 46.

U. sinuata Linn. Sp. Pl. 692, 1753; FBI. 1: 329; C. 1:

106; Blatter, in JBNHS. 34: 631, 1931.

An erect herb or undershrub. Leaves entire or variously lobed, dark above and pale beneath. Flowers pink, axillary, solitary; involucral bracts equalling or slightly longer than calyx. Capsule covered with hooked bristles. (Fl. Fr. October - December). DNT. 1371.

Not common; observed along roadside of forests.

The leaf character being very variable, the two species namely U. lobata and U. sinuata of Linn. have been merged (and rightly too) under U. lobata by Santapau in his Flora of Khandala.

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;

Saur. 1: 52; Fl. Delhi, 77; Fl. Pavagadh, 46.

An erect, much-branched, glandular, hairy undershrub, about 100-150 cm. high. Leaves 3-lobed, pinnatifid, dentate. Flowers axillary, solitary, pink; involucral bracts about twice as long as calyx, linear, ciliolate. Carpels pale-brown, glabrous, keeled at the edges. (Fl. Fr. August - January). DNT. 1044, 1901.

Noted on open waste lands, along with grasses on river banks.

Althaea Linn.

Althaea rosea (Linn.) Cav. Diss. 2: 91, t. 28, f. 1, 1786;

C. 1: 95; Bailey, Man. Cult. Pl. 658; Saur. 1: 55.

An erect, unbranched undershrub. Flowers axillary, solitary or clustered, large, beautiful, of a variety of

colours - white, purple, rose. (Fl. Fr. December - April).

DNT. 1635.

Grown in the garden for their showy flowers.

Gossypium Linn.

Gossypium herbaceum Linn. Sp. Pl. 693, 1753; FBI. 1: 346, in part; C. 1: 123; Fl. Pavagadh, 48.

An erect, hairy, undershrub. Leaves divided to middle, 3-5-lobed. Flowers axillary, solitary, yellow with purple base. Capsule ovate, loculicidally 3-5-valved. (Fl. Fr. September - December). DNT. 427.

Cultivated for surface fibres.

Azanza Alef.

Azanza lampas (Cav.) Alef. in Bot. Zeit. 19: 298, 1861; Sant. 19; Exell, in Fl. Zamb. 1(2): 434, 1961; Raizada, in Ind. For. 92(5): 303, 1966.

Hibiscus lampas Cav. Diss. 3: 154, t. 56, f. 2, 1787; Wt. Ic. t. 5; Gr. 13; Saur. 1: 47.

Thespesia lampas Dalz. & Gibs. Bomb. Fl. 19, 1861; FBI. 1: 345; Talb. 124, f. 75; Fl. Dang, 19.

T. macrophylla Bl. Bijdr. 73; C. 1: 121.

An erect shrub. Leaves 3-lobed, lobes triangular, acuminate. Flowers axillary; yellow; calyx cupular, truncate. Capsule loculicidally dehiscent. (Fl. Fr. August - February). DNT. 995, 1083.

Observed as an undergrowth of forests and along forest paths.

Hibiscus Linn.

1. Involucral bracts present :

2. Seeds clothed with long, cottony hairs :

3. Leaves long, narrow; upper 3-lobed;

flowers white .....hirtus

var. talbotii

3. Leaves broad-ovate, not lobed;

flowers light pink .....ovalifolius

2. Seeds smooth or hairy, not cottony :

4. Plants cultivated or as escape  
from cultivation :

5. Calyx red, fleshy, edible .....sabdariffa

5. Calyx not as above :

6. Flowers red .....rosa-sinensis

- 6. Flowers yellow .....cannabinus
- 4. Plants truly wild :
  - 7. Capsule winged .....vitifolius
  - 7. Capsule not winged :
    - 8. Involucral bracts linear,  
subspinous, prickly .....caesius
    - 8. Involucral bracts spatulate,  
densely hairy .....panduraeformis
- 1. Involucral bracts absent or minute .....lobatus

Hibiscus hirtus Linn. var. talbotii Rakshit, in Sci. & Cult.

27: 193, 1961; Rakshit & Kundu, in BBSI. 12(1-4):  
170, 1970.

Hibiscus hirtus Linn. Sp. Pl. 1753; Wt. Ic. t. 41; FBI.

1: 335; C. 1: 113; Blatter, in JBNHS. 34: 632, 1931;

Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 36, 1970-1971.

An erect, hairy shrub. Leaves ovate, ovate-lanceolate, prominently 3-lobed, central lobe much bigger than the two lateral lobes; upper leaves narrow, lanceolate, smaller, more or less stellately hairy on both surfaces, with a gland on the midrib beneath. Flowers in axillary or terminal panicles; peduncles longer than the petioles, jointed at the middle or below, hairy; epicalyx subulate, shorter than the calyx.

Capsule 5-valved, globose, shorter than the calyx; seeds cottony. (Fl. Fr. October - January). DNT. 1450.

PLATE No. 35

Not common; observed only once in the crevices of rocks at Ambadungar.

Masters (FBI. 1: 335) records the presence of glands on the under surface of the leaves. Cooke (1: 113) mentions their absence. Our specimens show the presence of glands, though not on all the leaves.

Hibiscus ovalifolius (Forsk.) Vahl, Syst. Bot. 1: 50, 1790;

Santapau and Janardhanan, in BBSI. 8: 11, 1966.

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

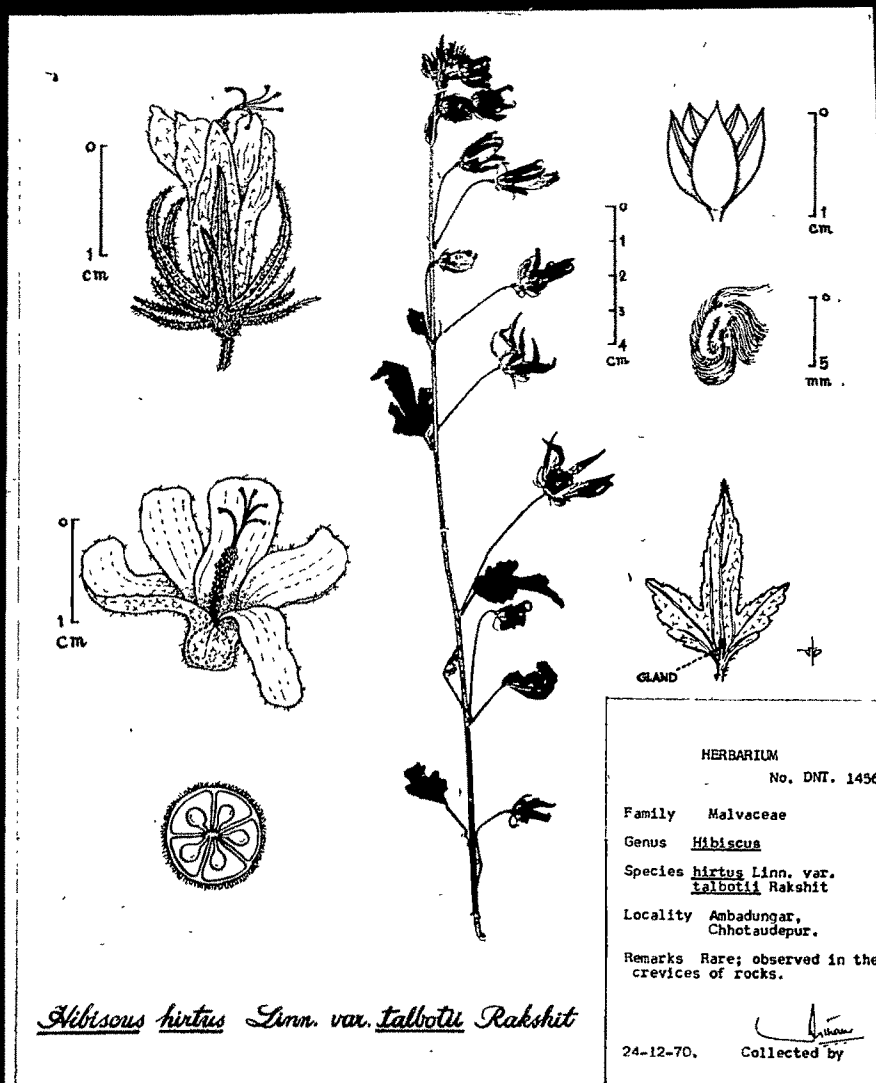
Hibiscus micranthus Linn. f. 308, 1781; FBI. 1: 335;

C. 1: 113; Sant. 18; Saur. 1: 44; Fl. Delhi, 80.

An erect, almost unbranched shrub, with slender, terete branches and scattered stellate bristles. Leaves small, ovate or oblong, obtuse, serrate without glands. Flowers axillary, pink; peduncles longer than the petioles. Capsule globose; seeds cottony. (Fl. Fr. July - October). DNT. 970.

Observed along forest paths and in hedges.

Hibiscus sabdariffa Linn. Sp. Pl. 696, 1753; FBI. 1: 338;



C. 1: 117; Fl. Dang, 18; Saur. 44; Fl. Delhi, 79;  
Rakshit & Kundu, loc. cit. 162.

An erect shrub with reddish-purple stem. Leaves cuneate at the base, glandular on the midrib beneath. Flowers axillary, solitary, yellow; peduncles very short, stout, jointed; calyx red, fleshy, sepals connate below the middle, purple, persistent. Capsule ovoid, beaked, hairy. (Fl. Fr. October - December).  
DNT. 448.

Cultivated for its fibre and fleshy, edible calyx.

Hibiscus rosa-sinensis Linn. Sp. Pl. 694, 1753; FBI. 1: 344;

C. 1: 120; Bailey, Man. Cult. Pl. 665; Bor and Raizada, 237; f. 137 & t. 88; Fl. Dang, 18; Sant. 18; Saur. 1: 47; Fl. Delhi, 80.

A large, shrub with drooping branches. Leaves ovate, coarsely serrate towards the apex, acuminate. Flowers red, axillary, solitary; peduncles jointed above middle. (Fl. almost throughout the year). DNT. 96.

Cultivated.

Hibiscus cannabinus Linn. Syst. Nat. 10: 1149, 1759; FBI. 1:

339; C. 1: 116; Fl. Dang, 18; Saur. 1: 46; Fl. Delhi, 79; Rakshit & Kundu, loc. cit. 164.

An erect, tall, undershrub; stem glabrous, sparsely



prickly. Lower leaves unlobed and upper deeply, palmately 5-7-lobed. Flowers yellow, solitary, axillary or in terminal racemes; calyx 5-lobed, connate below middle; lobes long, acuminate, persistent, lanceolate, prickly, each with a gland at the base. Capsule ovoid, beaked, hairy, hairs become stiff at maturity. (Fl. Fr. October - January)..DNT. 595, 1344.

Cultivated for its fibres.

Hibiscus vitifolius Linn. Sp. Pl. 696, 1753; Gr. 13; D. & G. 20; FBI. 1: 338; C. 1: 115; Blatter, in JBNHS. 34: 633, 1931; Saur. 1: 45; Fl. Pavagadh, 47; Shah, in Ind. For. 95(4): 272, 1969; Rakshit & Kundu, loc. cit. 166.

An erect undershrub or shrub, usually unbranched. Leaves ovate-cordate, palmately 5-nerved, 3-7-lobed. Flowers axillary, solitary or clustered at the end of branches, yellow with purple centre; peduncles shorter than the petiole, jointed at the middle or below the middle; calyx persistent, 5-lobed. Capsule apiculate, suborbicular, shorter than calyx, 5-winged, the wings reticulately winged. (Fl. Fr. August - January). DNT. 963, 1354, 1876, 1922.

Observed on open areas along with grasses and as an undergrowth of forests.

Hibiscus caesius Garcke, in Bot. Zeit. 7: 850, 1849; FBI. 1:

339; C. 1: 116; Saur. 1: 45; Rakshit & Kundu, loc. cit. 173.

An erect herb with minute, bristle-pointed prickles. Leaves deeply lobed, lobes oblong-lanceolate, sharply serrate. Flowers yellow with a purple centre, axillary, solitary. Involucral bracts usually 10, free, linear, sub-spinous, prickly. Capsule ovoid, pointed, shorter than calyx, valves setose. (Fl. Fr. September - November). DNT. 1357 A, 1466.

Observed as a weed in cultivated fields.

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

An annual herb; stem and branches covered with glandular and stellate hairs. Lower leaves ovate-cordate and shallowly 3-5-lobed. Upper leaves oblong-lanceolate, irregularly toothed, acute, both surfaces covered with silky hairs. Flowers yellow with a purple centre, axillary, solitary; peduncles very short jointed, hairy; involucral bracts 6-10, densely ciliate, spatulate, persistent; petals pubescent outside. Capsule ovoid, shorter than the calyx, densely hairy. (Fl. Fr. October - December). DNT. 1441.

Observed as a weed in cultivated fields.

Hibiscus lobatus (Murr.) O. Kuntze, Rev. Gen. Pl. 3: 19,  
1898; Saur. 1: 43; Fl. Delhi, 80; Rakshit & Kundu,  
loc. cit. 169.

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

Hibiscus solandra L'Her. Strip. 1: 103, t. 49, 1788;  
FBI. 1: 336; C. 1: 114.

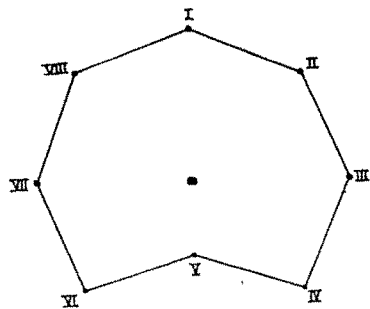
An erect, annual herb; stem slightly branched, pubescent or somewhat hispid. Leaves variable, lower long-petioled, ovate, almost entire, upper deeply 3-lobed, all cordate and acute or obtuse, irregularly crenate; simple and stellate hairs on both the surfaces, more on the lower surface; stipules setaceous. Flowers in terminal lax racemes, white or pink; pedicels jointed above middle. Capsule ovoid, beaked, hairy. (Fl. Fr. August - November). DNT. 410, 494, 1009, 1793.

Fairly common; observed in hedges, along forest paths and in open fields.

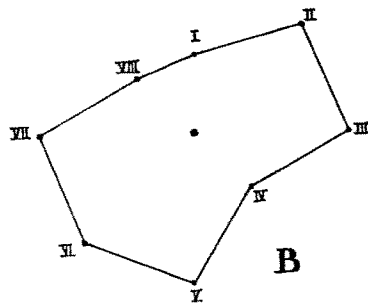
#### Morphological characters

PLATE No. 36

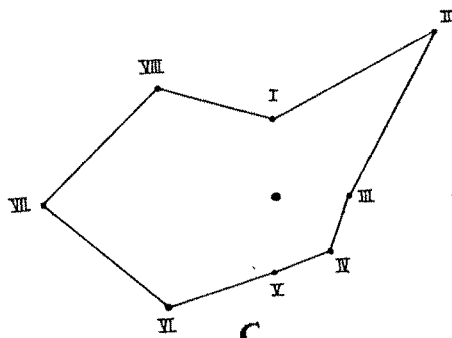
<u>Character</u>		<u>Index</u>
	<u>variations</u>	<u>value</u>
I	Height	
	15 to 25 cm.	1
	25 to 50 cm.	3
	more than 50 cm.	5



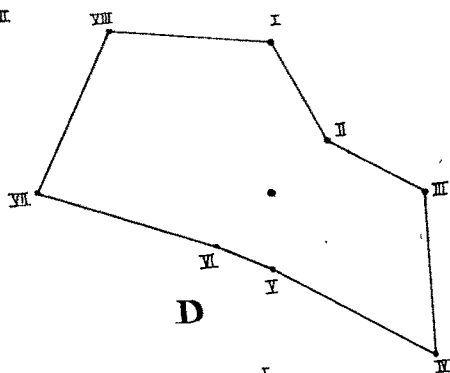
A



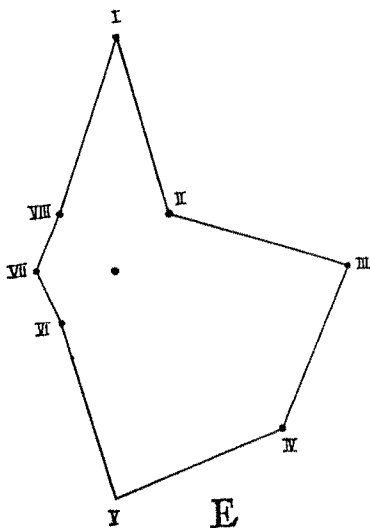
B



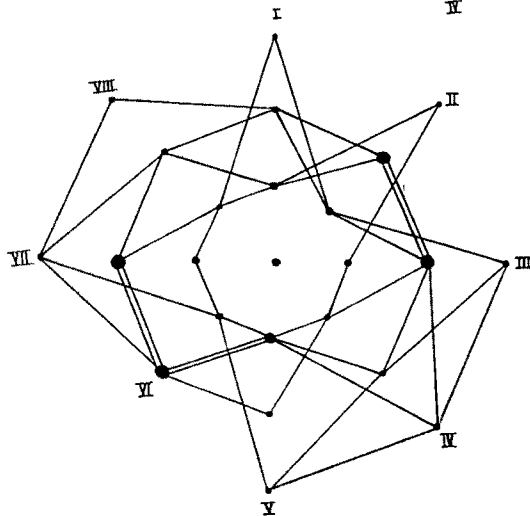
C



D



E



POLYGRAM

*Hibiscus lobatus* (Murr.) O. Kuntze

II	Branching of the stem	unbranched	1
		sparingly branched on the main stem	3
		branching from the base	5
III	Internodal length	10 to 20 mm.	1
		20 to 40 mm.	3
		more than 40 mm.	5
IV	Shape of the leaf	all leaves entire	1
		lower entire, upper shallowly lobed	3
		lower entire, middle shallowly lobed and uppermost deeply lobed	5
V	Length of petiole	20 to 30 mm.	1
		30 to 40 mm.	3
		more than 40 mm.	5
VI.	Hairiness of the leaf	densely hairy	1
		spasely hairy	3
		glabrescent	5
VII	Flower	3 to 4 mm. long	1
		4 to 6 mm. long	3
		more than 6 mm. long	5
VIII	Length of the jointed fruit stalk	10 to 20 mm.	1
		20 to 40 mm.	3
		more than 40 mm.	5

Polygraphic study of the various populations highlights the variations in the vegetative characters. But for a single population (E), where the flower is very much reduced, there is great uniformity in the characters of flower and fruit. The size differences in various other vegetative characters are of ecological nature and hence, different populations studied can be considered as ecotypes of the species.

Abelmoschus Medic.

( In all modern works the tendency is to maintain Abelmoschus as a separate genus from Hibiscus. For details, reference may be made to Santapau's Flora of Saurashtra, 1: 48, 1962).

Involucral bracts 4-5, distinct, leafy .....manihot

Involucral bracts more than 5, linear.....esculentus

Abelmoschus manihot (Linn.) Medic. Malv. Fam. 46, 1787;

Sant. 18; Fl. Dang, 17; Saur. 1: 50; Fl. Pavagadh, 47; Bates, in Bailey 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.

An erect shrub; stem with scattered prickles. Leaves

scabrid with short stiff hairs, cordate, irregularly serrate, roundish ovate or 3-5-lobed. Flowers solitary, axillary or clustered at the end of branches; calyx softly villous. Capsule hairy with stiff hairs, cuspidate. (Fl. Fr. October - November). DNT. 437, 1020.

Observed as an undergrowth of forests and along forest paths.

Abelmoschus esculentus (Linn.) Moench. Meth. 617, 1794; Gr. 14; Sant. 19; Saur. 1: 49; Fl. Delhi, 81; Bates, in Bailey, 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. Flowers yellow, solitary, axillary or clustered at the end of branches. Capsule ribbed, hairy at first and glabrous later. (Fl. Fr. June - October). DNT. 82.

Cultivated for its edible fruit.

#### BOMBACACEAE

Bombax Linn.

Bombax ceiba Linn. Sp. Pl. 511, 1753, p.p. quoad plantas

asiaticas, Excl. Syn. Bauhin; id., Sp. Pl. (ed.2)  
 959, 1763, p.p. quoad plantas asiaticas, Excl. Syn.  
 Jacquin, Bauhin, Sloane; Robyns, in Taxon 10: 160,  
 1961; Sant. 20; Fl. Pavagadh, 48.

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

Salmalia malabarica (DC).Schott. & Endl. Melet. Bot.  
 35, 1832; Blatt. & Mill, Beaut. Ind. Trees 22,  
 t. 26; Fl. Dang, 20; Saur. 1: 59; Fl. Delhi, 83.

A large, deciduous tree. Trunk and branches covered  
 with sharp, conical prickles. Leaves palmately compound,  
 3-7-foliolate; leaflets glabrous, lanceolate. Flowers large,  
 red, in clusters near the end of branches; stamens many,  
 polyadelphous. Capsule 5-valved; seeds covered with white  
 silky hairs. (Fl. Fr. February - March). DNT. 70, 106.

Fairly common; observed in the forests.

#### STERCULIACEAE

Herbs or shrubs :

Fruit capsular, spirally twisted .....Helicteres

Fruit capsular, not spirally twisted :



Perfect stamens alternating with  
staminodes .....Melhania

All stamens perfect :

Flowers yellow; capsule 1-seeded....Waltheria

Flowers pink or purple; capsule  
many-seeded .....Melochia

Trees :

Fruit a follicle, armed with  
stinging hairs .....Sterculia

Fruit a capsule, woody .....Eriolaena

Helicteres Linn.

Helicteres isora Linn. Sp. Pl. 963, 1753; FBI. 1: 365; C. 1:  
136; Talb. 1: 146, t. 89; Wt. Ic. t. 180; Sant. 22;  
Fl. Dang, 20; Saur. 1: 62; Fl. Delhi, 84; Fl.  
Pavagadh, 50.

A bushy shrub. Leaves serrate, obovate, cordate. Flowers  
red turning to orange, in axillary clusters. Capsule of 5  
spirally-twisted follicles. (Fl. Fr. July - December). DNT.  
109, 1480.

Fairly common; observed as an undergrowth of forests.

Melhania Forsk.

Melhania futteyporensis Munro ex Mast. in FBI. 1: 373, 1874;  
Saur. 1: 63; Fl. Delhi, 85.

M. tomentosa Stocks ex Mast. in FBI. 1: 373; C. 1: 142.

A coarse, hoary-tomentose undershrub. Leaves oblong, cordate, crenate-serrate. Flowers orange, in axillary or terminal cymes; involucral bracts ovate, acuminate. Capsule villous. (Fl. Fr. August - October). DNT. 146.

Rare; observed only once in the drier parts on the plains.

Waltheria Linn.

Waltheria indica Linn. Sp. Pl. 673, 1753; FBI. 1: 374; C. 1: 144; Sant. 24; Saur. 1: 64; Fl. Pavagadh, 49.

An erect herb about a meter high. Leaves elliptic-ovate with crisped margins, softly pubescent on both the surfaces. Flowers yellow, in dense axillary heads, pedunculate or not. (Fl. October - November). DNT. 323, 1195.

A weed of waste lands and roadsides.

Melochia Linn.

Melochia corchorifolia Linn. Sp. Pl. 675, 1753; FBI. 1: 374;

C. 1: 142; Fl. Dang, 21; Saur. 1: 63; Fl. Delhi, 86; Fl. Pavagadh, 50.

A stout, much-branched herb. Leaves ovate-oblong, serrate. Flowers pinkish-purple, in dense, crowded, terminal clusters. Capsule 5-valved; many-seeded. (Fl. Fr. August - November). DNT. 371, 1134.

Commonly observed on plains and near streams.

Sterculia Linn.

Sterculia urens Roxb. Pl. Cor. 1: 25, t. 24, 1795; FBI. 1: 355; C. 1: 131; Talb. t. 83; Sant. 21; Fl. Dang, 20; Saur. 1: 60; Fl. Delhi, 84; Fl. Pavagadh, 51.

A soft-wooded tree with whitish bark. Leaves crowded at the end of branches, cordate, shallowly palmately lobed. Flowers in much-branched, glandular-pubescent panicles, appear when the tree is leafless. Follicles woody, red when ripe. The whole inflorescence and particularly the fruits are covered with stinging hairs. (Fl. Fr. October - December). DNT. 1449.

Fairly common in the forests.

Eriolaena DC.

Eriolaena hookeriana Wt. & Arn. Prodr. 70, 1834; FBI. 1: 370;

C. 1: 139.

A small tree. Leaves as broad as long, cordate, bluntly acuminate, irregularly crenate, dotted with stellate hairs above, pubescent beneath. Flowers large, in few-flowered, lax, terminal cymes; involucral bracts shorter than calyx, multisect. Capsule ovoid, oblong, tuberculated, 10-valved. Valves pubescent. (Fl. Fr. June - January). DNT. 114, 566.

PLATE No. 37

Rare; observed on the slopes of hillock at Ambadungar.

#### TILIACEAE

Fruit capsular; herbs or undershrubs :

Fruit echinate .....Triumfetta

Fruit not echinate .....Corchorus

Fruit drupaceous; trees or shrubs .....Grewia

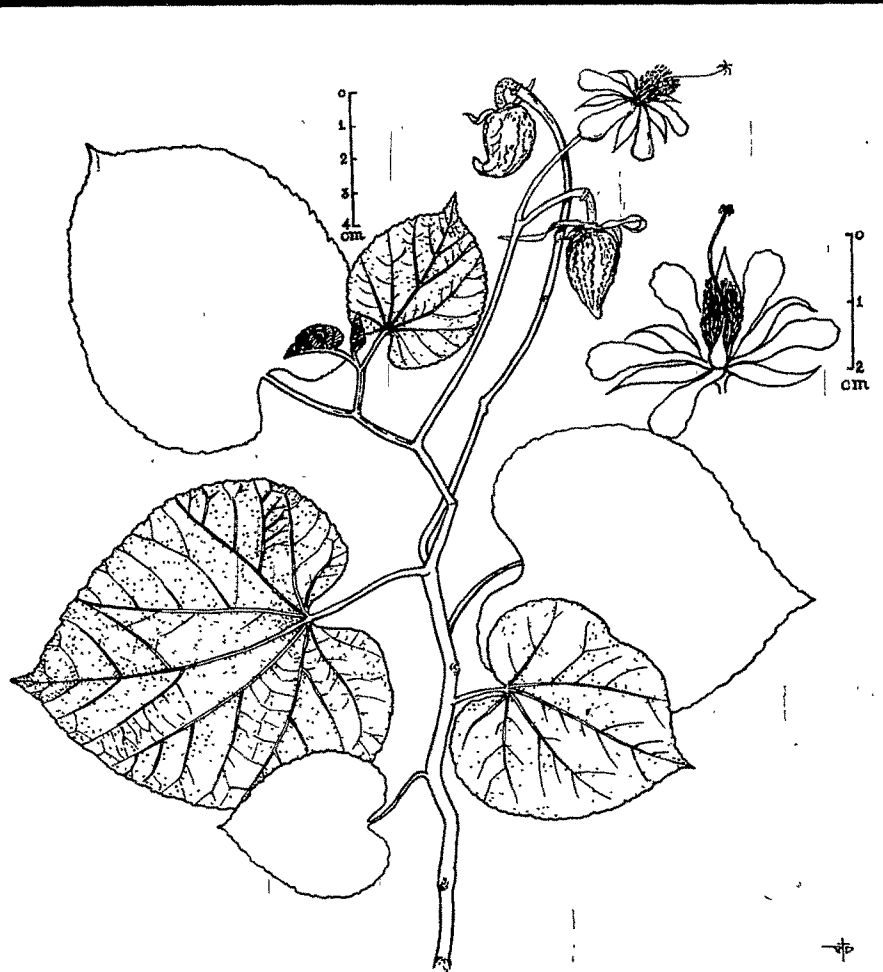
Triumfetta Linn.

Stamens less than 8; spines of the

fruit hispid .....pentandra

Stamens more than 8; spines of the

fruit not hispid :



*Eriolaena hookeriana* Wt. & Arn.

Capsule 4-celled, spines

about 4 mm. long .....annua

Capsule woody, not 4-celled,

less than 4 mm. long :

Stamens 8-15; spines of the

fruit glabrous .....rhomboidea

Stamens 15-25; spines of the

fruit pubescent .....rotundifolia

PLATE No. 38

Triumfetta pentandra A. Rich, in Guill. & Perr. Fl. Seneg,

93, t. 19, 1831; G. 1: 120; Blatter, in JBNHS. 34:

890, 1931; Vartak, in JBNHS. 56(2): 365-366, 1959.

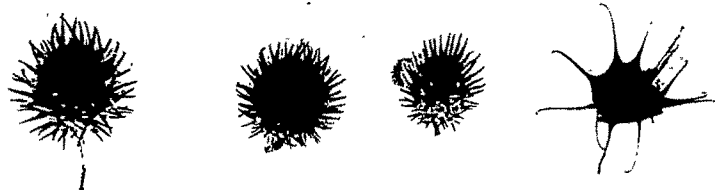
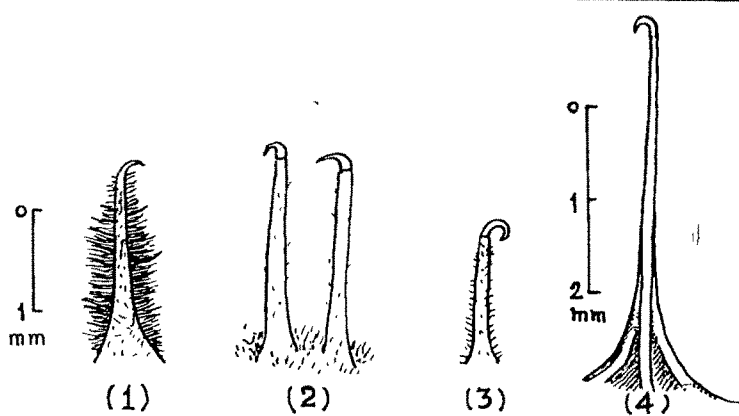
T. neglecta Wt. & Arn. Prodr. 1: 75, 1834; FBI. 1:

396; Haines, 1: 89.

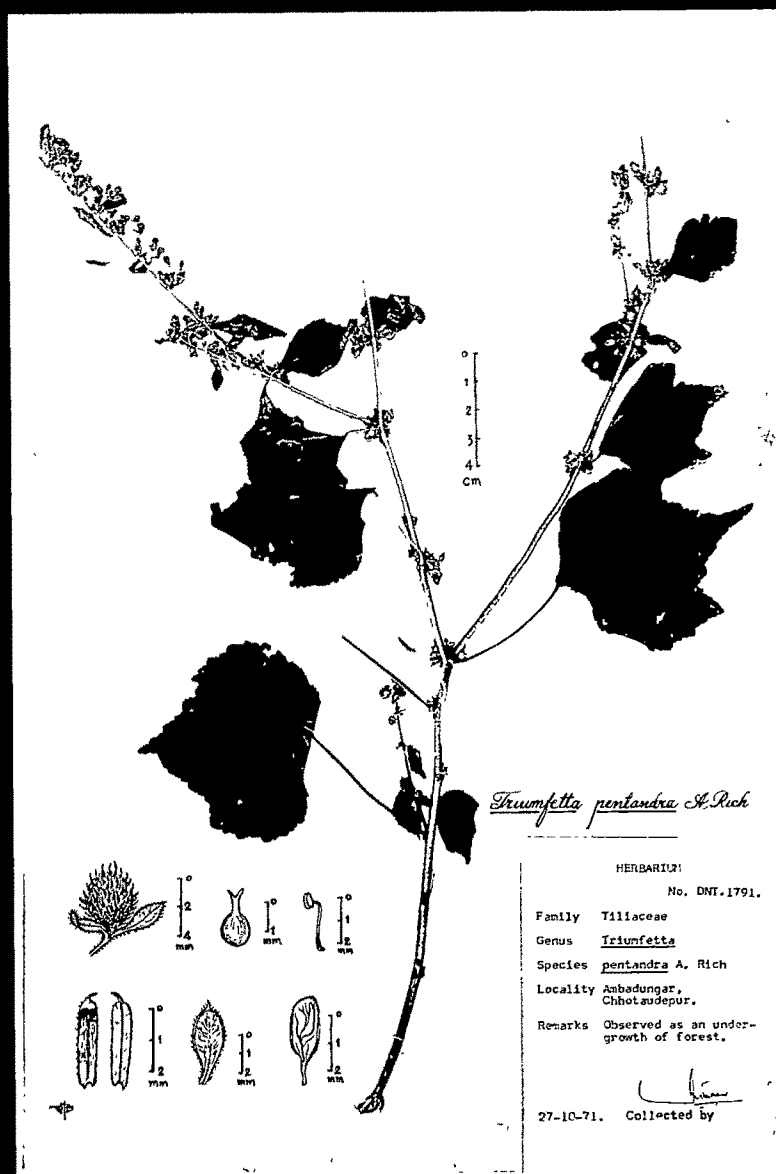
An erect, much-branched annual herb. Leaves subcordate, acuminate, serrate, glabrous, lower ones ovate 3-lobed. Flowers yellow, small, in lateral extra-axillary clusters. Capsule ovoid, spines of the fruit hispid. (Fl. Fr. October - January). DNT. 1791, 1926, B.5117 A.

PLATE No. 39

Commonly observed as an undergrowth of forests.



- (1) *Triumfetta pentandra* A. Rich.  
 (2) *Triumfetta rhomboidea* Jacq.  
 (3) *Triumfetta rotundifolia* Lamk.  
 (4) *Triumfetta annua* Linn.



*Triumfetta pentandra* A. Rich

HERBARIUM

No. DNT.1791.

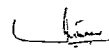
Family Tiliaceae

Genus *Triumfetta*

Species *pentandra* A. Rich

Locality Ambadungar,  
Chhotaudepur.

Remarks Observed as an under-  
growth of forest.

27-10-71. Collected by 



A population of these plants growing on Ambadungar, attracted the attention because of the unusually stunted habit. The plants showed decrease in the size of all the parts especially the leaf and the petiole. These plants, on further investigation in the laboratory, revealed a number of morphological variations, which are as follows :

1. In the floral structure, various transitional stages have been observed. In a few flowers, 4 sepals are of uniform shape and size and the 5th is much thinner and smaller, thus resembling a petal.

2. The corolla whorl of a few flowers also showed variations. Out of the usual 5 petals, only 1 remains normal (smaller than the sepals and yellow in colour), while the rest are of various sizes and shapes; green, sepaloid, clawed, much thicker and hairier than even the sepals. Such a transition between sepals and petals in any member of the Tiliaceae is unheard of.

3. Although the usual number of stamens is 5, in many flowers, six stamens were noted. The filaments are densely stellately hairy, a character which has not been mentioned in any of the standard floras. The stamens are nearly as long as the sepals and are trapped in the cucullate calyx, which is hairy on both the surfaces.

4. In normal flowers, the ovary is shorter than the sepals and slightly longer than the petals. In some flowers, the ovary was found to be even longer than the sepals with a very short style and bifid stigma.

The locality where these plants were growing is known to be rich in radioactive minerals. Are these morphological variations possibly due to the effects of radiation ?

PLATE No. 40

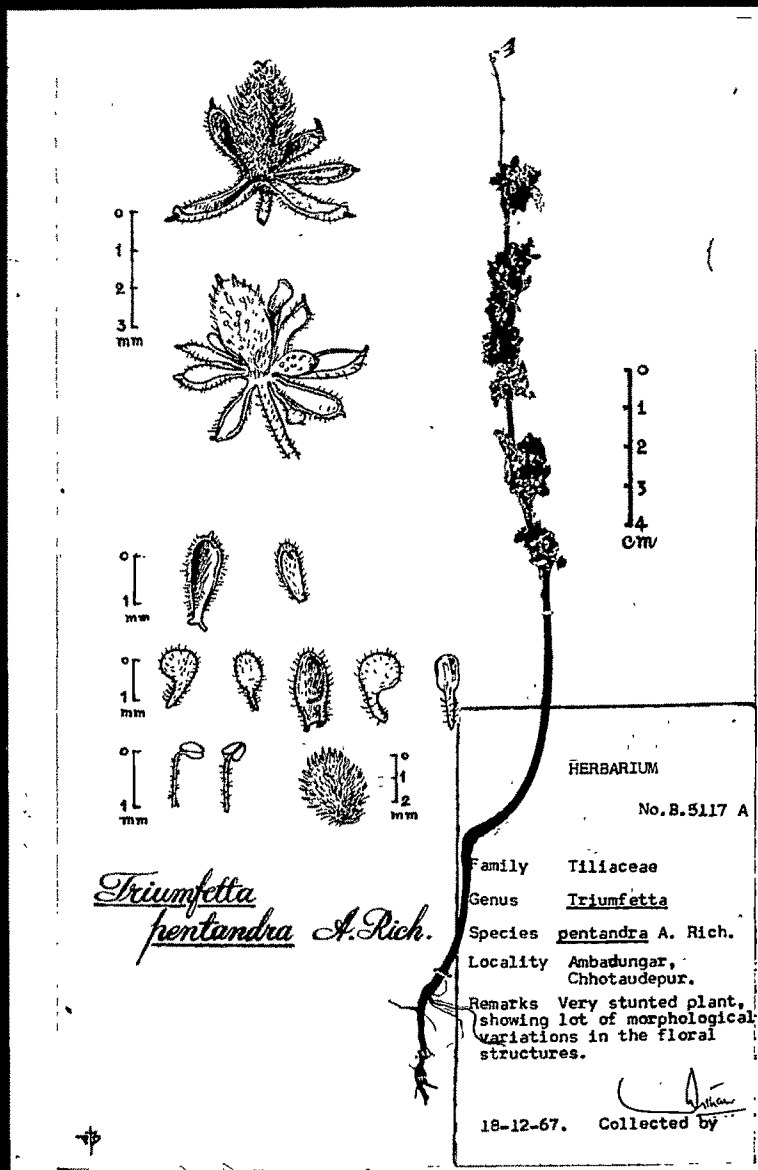
Triumfetta annua Linn. Mant. 1: 73, 1767; FBI. 1: 396; G. 1: 86; Blatter, loc. cit. 890; Fl. Pavagadh, 52.

An erect, annual herb. Leaves ovate, serrate, glabrous. Flowers yellow, in extra-axillary, few-flowered cymes. Spines of the capsule glabrous, hooked. (Fl. Fr. November - December). DNT. 1792.

Rare; observed as an undergrowth of forest at Ambadungar.

Triumfetta rhomboidea Jacq. Enum. Pl. Craib. 22, 1760; FBI. 1: 395; C. 1: 156; Sant. 26; Saur. 1: 73; Fl. Delhi, 89; Raizada, in Ind. For. 92(5): 325, 1966; Fl. Pavagadh, 52.

Triumfetta bartramia Linn. Syst. (ed. 10) 1044, 1759 (nomen. illegit.); Roxb. Fl. Ind. 2: 463; Fl. Dang,



53; Santapau, in RBSI. 16(1): 24, 1960.

An erect, undershrub. Leaves variable, the lower ones usually 3-lobed, the lobes acute, serrate; upper leaves usually unlobed. Flowers yellow, in dense, terminal and leaf-opposed cymes. Capsule pubescent. Spines of the fruit glabrous, minutely hooked. (Fl. Fr. August - February). DNT. 1132, 1257, 1790.

Fairly common; along roadsides and forest paths.

Triumfetta rotundifolia Lamk. Encycl. 3: 421, 1789; FBI. 1: 395; C. 1: 157; Saur. 1: 73; Fl. Pavagadh, 53.

An erect, undershrub. Leaves orbicular, toothed, stellately hairy above, grey tomentose beneath. Flowers yellow, in interrupted racemes. Spines of the capsule pubescent. (Fl. Fr. August - February). DNT. 408, 1114, 1623.

Common; observed as a weed in cultivated fields and along roadsides.

Corchorus Linn.

1. Capsule elongate or short; beak entire or trifid :
2. Beak entire :

- 3. Capsule more than 3 cm. long :
  - 4. Capsule stout, glabrous .....olitorius
  - 4. Capsule slender, scabrid .....trilocularis
- 3. Capsule less than 3 cm. long,  
pubescent, 3-valved .....fascicularis
- 2. Beak trifid, spreading .....aestuans
- 1. Capsule globose; beak 0 .....capsularis

Corchorus olitorius Linn. Sp. Pl. 529, 1753; FBI. 1: 397;  
C. 1: 158; Sant. 27; Fl. Dang, 21; Saur. 1: 71;  
Fl. Delhi, 88; Fl. Pavagadh, 54.

An erect, much-branched herb or undershrub, 30-90 cm. tall. Leaves ovate-lanceolate, irregularly serrate with filiform appendages on either side near the base of lamina. Flowers yellow. Capsule glabrous, cylindric, stout, 10-ribbed, beaked. (Fl. Fr. September - November). DNT. 461, 1074.

Commonly observed as a weed in cultivated fields and in moist places along streams.

Corchorus trilocularis Linn. Mant. 77, 1767; FBI. 1: 397;  
C. 1: 158; Fl. Delhi, 89; Fl. Pavagadh, 53.

An erect, herb or undershrub, branching from the base. Leaves lanceolate or linear-oblong. Flowers yellow, in leaf-opposed short cymes. Capsule more than 3 cm. long, scabrous, straight with a short beak. (Fl. Fr. August - December). DNT. 1436, 1461.

Observed as a weed in cultivated fields and along forest paths.

Corchorus fascicularis Lamk. Encycl. 2: 104, 1786; FBI. 1: 398; C. 1: 159; Sant. 26; Fl. Dang, 21; Saur. 1: 71.

An annual, much-branched herb or undershrub, branching from the base. Leaves elliptic-oblong, obtuse, serrate. Flowers yellow, in short, leaf-opposed sessile cymes. Capsule short, beak entire, pubescent, 3-valved, in fascicles. (Fl. Fr. September - December). DNT. 1433, 1826.

Rare; observed as a weed in cultivated fields and in open waste lands.

Corchorus aestuans Linn. Syst. (ed. 10) 1079, 1759 (non Forsk.); Blatter, in JBNHS. 34: 892, 1931; Sant. 27; Fl. Dang, 21; Saur. 1: 72; Fl. Delhi, 89; Fl. Pavagadh, 53.

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

An erect or ascending herb or undershrub. Leaves ovate-oblong to sub-orbicular, serrate with filiform appendages on either side near the base of the lamina. Flowers yellow, in leaf-opposed cymes. Capsule stout, elongate, 6-angled, 3 of the angles winged; beak trifid. (Fl. Fr. August - October). DNT. 75, 382, 454.

Fairly common; observed as a weed in cultivated fields and along roadsides.

Corchorus capsularis Linn. Sp. Pl. 529, 1753; FBI. 1: 397;

C. 1: 157; Sant. 26; Fl. Dang, 21; Saur. 1: 70;

Fl. Pavagadh, 54.

An erect undershrub. Leaves lanceolate, acute, serrate. Flowers yellow, in short cymes. Capsule subglobose, 5-valved, ridged and muricate, beak 0. (Fl. Fr. September - January). DNT. 1921.

Rare; observed in hedges near habitations.

Grewia Linn.

Leaves hoary beneath .....damine

Leaves not as above :

Flowers all bisexual :.....flavescens

Flowers polygamous .....hirsuta

Grewia damine Gaertn. Fruct. 2: 113, 1791; Saur. 1: 67.

G. salvifolia Heyne ex Roth, Nov. Pl. 239, 1829;  
FBI. 1: 388; C. 1: 149.

An erect shrub. Leaves ovate-oblong, 3-nerved, base rounded and oblique, hoary tomentose beneath. Flowers yellow, in axillary umbels. Fruit globose, shallowly lobed. (Fl. Fr. May - September). DNT. 970.

Observed in forests and on plains.

Grewia flavescens Juss. in Ann. Mus. Paris 4: 89, 1804; Saur. 1: 68; Shah, in Ind. For. 95(4): 272, 1969.

G. Pilosa non Lamk. 1789; Wt. & Arn. Prodr. 1: 78, 1834;  
FBI. 1: 388; C. 1: 151; Talb. 1: 162,

A large shrub or a small tree. Leaves ovate-oblong, acute, serrate, rounded, more or less oblique, 3-nerved. Flowers muddy-white, in small, axillary umbels; anthers with a few simple hairs on the back. Drupe yellowish-brown with stellate hairs. (Fl. Fr. August - November). DNT. 197.

Rare; observed at the foot of hillock.



Grewia hirsuta Vahl, Symb. Bot. 1: 34, 1790; Gr. 21; Wt.

Ic. t. 76; FBI. 1: 391; C. 1: 144; Talb. 1: 166; Saur.

1 : 69.

A much-branched shrub, young parts softly pubescent. Leaves lanceolate, serrate, glabrous on upper surface and densely villous on under surface. Flowers white, polygamous. Fruit a fleshy, wrinkled, 4-lobed drupe. (Fl. Fr. July - November). DNT. 658, 1186.

Observed on the slopes of the hillock and on the plains.

#### LINACEAE

Linum Linn.

Linum usitatissimum Linn. Sp. Pl. 277, 1753; FBI. 1: 423;

C. 1: 164; Sant. 27; Saur. 1: 74; Bailey, Man. Cult.

Pl. 604; Fl. Delhi, 90.

An erect, much-branched, annual herb. Leaves linear-lanceolate, attenuated at both ends. Flowers pink, in corymbose panicles; stamens 5, a single petaloid staminode noted. (Fl. Fr. January - February). DNT. 1535.

Rare; observed as a weed in winter crops at Moti Chikhli.

## ZYGOPHYLLACEAE

Tribulus Linn.

Tribulus terrestris Linn. Sp. Pl. 387, 1753; FBI. 1: 423;

C. 1: 170; Saur. 1: 76; Fl. Delhi, 91; Fl. Pavagadh, 55.

A spreading, hairy herb. Leaves opposite, abruptly pinnate. Flowers yellow, solitary, axillary or leaf-opposed. Fruit schizocarpic, globose, each mericarp armed with 2 pairs of sharp, hard spines. (Fl. Fr. August - November). DNT. 1400.

Observed as a weed in cultivated fields.

## OXALIDACEAE

Erect herb; leaves pinnate .....Biophytum

Procumbent herb; leaves trifoliolate.....Oxalis

Biophytum DC.

Biophytum sensitivum (Linn.) DC. Prodr. 1: 690, 1824; FBI.1:

436; C. 1: 177; Fl. Dang, 22; Saur. 1: 79; Fl.

Pavagadh, 56.

An erect, unbranched, annual herb. Leaves pinnately

compound, crowned at the top. Flowers yellow, in umbel-like inflorescence. Capsule ellipsoid. (Fl. Fr. August - November). DNT. 86, 444, 1602.

Fairly common; observed as a weed in cultivated fields and along forest fringes.

Oxalis Linn.

Oxalis corniculata Linn. Sp. Pl. 435, 1753; FBI. 1: 436; C. 1: 177; Sant. 29; Saur. 1: 79; Fl. Delhi, 93; Fl. Pavagadh, 56.

A small, prostrate herb, rooting at nodes. Leaves trifoliolate; leaflets cuneate-obcordate, small, petioles long and slender. Flowers yellow, axillary, on long peduncles. Fruit an elongated capsule. (Fl. Fr. August - January). DNT. 1632, 1647.

Commonly observed in moist, shaded localities.

BALSAMINACEAE

Impatiens Linn.

Impatiens balsamina Linn. Sp. Pl. 938, 1753; FBI. 1: 453; C. 1: 184; Saur. 1: 77.

An erect, annual herb. Leaves alternate, lanceolate, acuminate, deeply serrate. Flowers violet-blue, pink, in axillary clusters; spur long. Capsule loculicidal, elastically dehiscent. (Fl. Fr. July - September). DNT. 135,201.

Fairly common; observed on the slopes of the hillock during monsoon.

#### RUTACEAE

Leaves pinnately compound :

Armed shrubs or trees .....Limonia

Unarmed shrubs or trees .....Murraya

Leaves palmately compound :

Leaves unifoliolate .....Citrus

Leaves trifoliolate .....Aegle

Limonia Linn.

Limonia acidissima Linn. Sp. Pl. (ed. 2) 554, 1762; Airy-Shaw, in KB. 293, 1939; Fl. Pavagadh, 58.

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

A middle-sized tree, armed with stout, straight 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 - May). DNT. 1757.

Cultivated; noted near habitation.

Murraya Linn.

Murraya koenigii (Linn.) Spreng. Syst. 2: 315, 1825; FBI. 1: 503; C. 1: 193; Sant. 30; Saur. 1: 80; Fl. Delhi, 97.

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

A large shrub with highly scented leaves. Leaves imparipinnate. Flowers white, in corymbose umbels. Berries shining. (Fl. Fr. March - April). DNT. 1758.

Cultivated; noted near habitation.

Citrus Linn.

Petioles marginate or winged; fruit

4-6 cm. broad .....limon

Petioles broadly winged; fruit more

than 12 cm. broad .....grandis

Citrus limon (Linn.) Burm. f. Fl. Ind. 173, 1768; Bailey,  
Man. Cult. Pl. 609; Saur. 1: 83; Fl. Delhi, 95.

C. media var. limon Linn. Sp. Pl. 2: 782, 1753.

A small, glabrous tree, 5-6 meter tall. Leaves pale green, oblong to elliptic-ovate, obtuse; petioles marginate or winged. Flowers white, axillary, solitary or clustered. Fruit oblong to ovoid, with a terminal nipple. (Fl. Fr. mostly throughout the year). DNT. 861.

A Lemon tree, cultivated in gardens.

Citrus grandis Osbeck, Dagbok Ostind. Res. 98, 1757; Bailey,  
Man. Cult. Pl. 610.

C. maxima (Burm. ) Merr. Interpret. Herb. Amb. 296,  
1917 & Sp. Blancoanae 204; Fl. Delhi, 95.

A small tree. Leaves large, ovate-oblong; petioles broadly winged. Flowers white, in panicles or axillary clusters. Fruit globose; rind thick. (Fl. Fr. mostly throughout the year). DNT. 686, 936.

Cultivated in gardens for the edible fruits popularly known as 'Pompelmous'.

Aegle Correa (nom. cons.)

Aegle marmelos (Linn.) Correa, in TLS. 5: 223, 1800; FBI. 1:

516; C. 1: 204; Talb. 1: 206, t. 125; Fl. Dang, 22;  
Saur. 1: 81; Fl. Delhi, 95; Fl. Pavagadh, 57.

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

A 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). DNT. 1697.

Fairly common; observed on the slopes of the hillocks and planted in gardens.

#### SIMAROUBACEAE

Ailanthus Desf. (nom. cons.)

Ailanthus excelsa Roxb. Pl. Cor. 1: 24, t. 23, 1795; FBI. 1: 518; C. 1: 205; Talb. 1: 208, ff. 126 & 127; Saur. 1: 83; Fl. Pavagadh, 58.

A large tree, 8 to 12 meters tall. Leaves large, alternate, imparipinnate; leaflets alternate or opposite, irregularly serrate, 8-14 pairs. Flowers small, in much-branched, terminal and axillary panicles. Fruit a samara. (Fl. Fr. January - May). DNT. 1884.

Fairly common; observed on the slopes of the hillocks and along forest roads.

## BALANITACEAE

Balanites Del. (nom. cons.)

Balanites aegyptiaca (Linn.) Del. Ill. Fl. d'Eg. 263, t.

28, f. 1, 1813; Blatter, in JBNHS. 34: 895, 1931;

Saur. 1: 84.

Ximenia aegyptiaca Linn. Sp. Pl. 1194, 1753.

Balanites roxburghii Planch, in Ann. Sc. Nat. (Ser. 4)

2: 258, 1854; FBI. 1: 522; C. 1: 207; Fl. Delhi, 98.

A large, much-branched, thorny shrub or a small tree. Stem and leaves covered with white-grey tomentum; branches ending in sharp, straight thorns. Leaves bi-foliolate. Flowers dull white, in close cymes. Fruit ovoid, woody. (Fl. Fr. March - June). DNT. 1703.

Observed in open waste places.

## BURSERACEAE

Fruit dehiscent, trigonous .....Boswellia

Fruit indehiscent, rounded .....Garuga

Boswellia Roxb.

Boswellia serrata Roxb. ex Coleb. As. Res. 9: 379, t. 5,



1807; FBI. 1: 528; C. 1: 210; Talb. 1: 215, f. 130;  
Saur. 1: 85; Fl. Delhi, 98.

A large, deciduous tree, bark pale whitish. Leaves imparipinnate, crowded at the end of branches; leaflets opposite, serrate; dark-green. Flowers dull white, in axillary racemes. Fruit dehiscent, trigonous. (Fl. Fr. January - April). DNT. 1518.

Fairly common; observed on the slopes of hillocks and along forest paths.

Garuga Roxb.

Garuga pinnata Roxb. Hort. Beng. 33, 1814 & Pl. Cor. 3: 5, t. 208, 1819; FBI. 1: 528; C. 1: 211; Talb. 1: 217, f. 131; Sant. 35; Fl. Dang, 22; Saur. 1: 85; Fl. Pavagadh, 59.

A large tree. Leaves crowded at the end of branches, imparipinnate; leaflets opposite, lanceolate, 6-10 pairs. Flowers white or creamy white, in panicles, at the end of branches. Flowers appear when the tree is completely leafless. Fruit indehiscent, rounded. (Fl. Fr. February - May). DNT. 847.

Fairly common; on the slopes of the hillocks.

The leaves are often covered with galls produced by insect bites.

## MELIACEAE

Seeds winged .....Soymida

Seeds not winged :

Flowers lilac; drupe 4-seeded .....Melia

Flowers white; drupe 1-seeded .....Azadirachta

Soymida A. Juss.

Soymida febrifuga A. Juss. in Mem. Mus. Paris 19: 251, t.

22, f. 26, 1830; FBI. 1: 567; C. 1: 228; Talb. 1:

245, t. 146; Fl. Dang, 23; Saur. 1: 89.

A large tree. Leaves pinnate, dark-green; leaflets 3-6 pairs, conspicuously unequal-sided at the base. Flowers white, small, in large, terminal and axillary panicles. Capsule obovoid, 5-celled, 5-valved. (Fl. Fr. March - April). DNT. 1726.

Rare; observed at the foot of hillock at Alwa.

Melia Linn.

Melia azedarach Linn. Sp. Pl. 384, 1753; FBI. 1: 544; C. 1:

218; Parker, For. Fl. 72; Saur. 1: 88; Fl. Delhi, 99.

A medium-sized tree. Leaves bi-pinnate; leaflets serrate,

acuminate. Flowers lilac, in long, axillary panicles;  
staminal tube purple. Drupe sub-globose, 4-seeded. (Fl. Fr.  
April - May). DNT. 1759.

Occasionally grown as a roadside tree or in gardens.

Azadirachta A. Juss.

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

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

A large tree. Leaves pinnate; leaflets 9-12, sub-opposite,  
serrate, acuminate. Flowers white, in large axillary panicles.  
Drupe ellipsoid or subovoid, 1-seeded. (Fl. Fr. April - May).  
DNT. 1740.

Fairly common; observed along forest paths and on the  
slopes of the hillocks.

#### CELASTRACEAE

Fruit dehiscent, capsular :

A large woody climber; fruit bright  
yellow at maturity ..... Celastrus

An erect shrub or a small tree;

fruit purple at maturity .....Maytenus

Fruit indehiscent, drupaceous .....Cassine

Celastrus Linn.

Celastrus paniculata Willd. Sp. Pl. 1: 1125, 1798; FBI. 1: 617; C. 1: 245; Wt. Ic. t. 158; Talb. 1: 276, f. 163; Sant. 41; Fl. Dang, 23; Saur. 1:89; Fl. Pava-gadh, 60.

A large, woody climber. Leaves simple, alternate, shortly acuminate. Flowers yellow, in large, terminal, pendulous panicles. Fruit capsular, yellow, dehiscent. (Fl. Fr. October - November). DNT. 662, 1815.

Common; observed in hedges and along forest paths.

Maytenus Molina.

Maytenus emarginata (Willd.) Ding Hou, in Fl. Males. 1: 6(2): 241, 1962; Raizada, in Ind. For. 92(5): 316, 1966.

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, p.p. (non Roxb.)

An erect, tall, glabrous, much-branched shrub; young branches reddish brown, ending in 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). DNT. 1627.

Commonly observed in hedges and on plains.

Cassine Linn.

Cassine glauca (Pers.) O. Kuntze, Rev. Gen. 114, 1891.

Elaeodendron glaucum Pers. Syn. 1: 241, 1805; FBI. 1: 623; C. 1: 248.

E. roxburghii Wt. & Arn. Prodr. 157, 1834; Gr. 38; D. & G. 48.

A small tree. Leaves elliptic, acute, crenate. Flowers small, in axillary or extra-axillary, divaricate, dichotomously branched cymes. Drupe obovoid, indehiscent. (Fl. Fr. August - November). DNT. 528, 721, 988, 1799.

PLATE No. 41

Fairly common; observed on the slopes of the hillocks along with Lannea, Lagerstroemia and Adina.

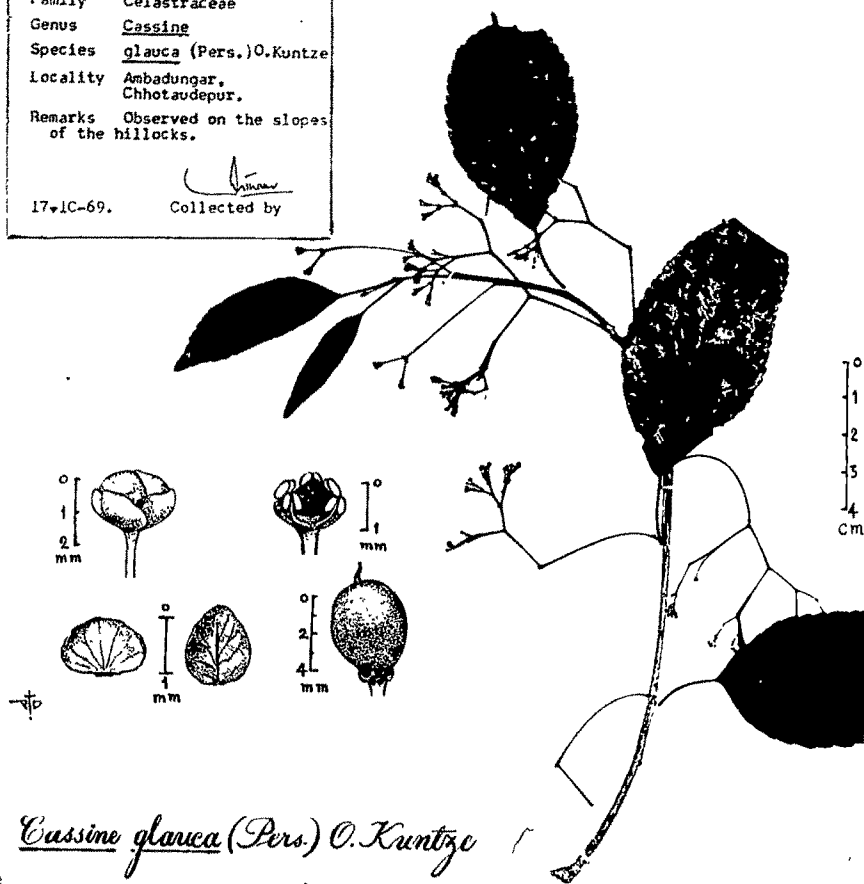
HERBARIUM

No. DNT. 528.

Family Celastraceae  
Genus Cassine  
Species glauca (Pers.) O. Kuntze  
Locality Ambadungar,  
Chhotadepur.  
Remarks Observed on the slopes  
of the hillocks.

17-IC-69.

Collected by 



*Cassine glauca* (Pers.) O. Kuntze

PLATE No. 41.

## RHAMNACEAE

Trees or shrubs, usually armed;

fruit drupaceous .....Zizyphus

Climbing shrubs, unarmed; fruit a

nut with persisting calyx, apical

wing linear-oblong .....Ventilago

Zizyphus Mill.

Styles connate to the middle :

Fruit exceeding 1.5 cm. in diameter;

leaves tomentose beneath .....mauritiana

Fruit under 1.5 cm. in diameter :

Leaves glabrous .....glabrata

Leaves not glabrous :

Leaves tomentose on both sides....nummularia

Leaves clothed with silky

hairs beneath .....oenoplia

.. Styles distinct or nearly so .....xylopyra

Zizyphus mauritiana Lamk. Encl. 3: 319, 1789; Santapau, in

JBNHS. 51: 802, 1951; Sant. 43; Fl. Dang, 24; Saur. 1: 92; Fl. Delhi, 101; Fl. Pavagadh, 61.

Z. jujuba Lamk. Encycl. 3: 318, 1789 (non Z. jujuba Miller, Gard. Dict. (ed. 8) no. 1, 1768); FBI. 1: 632; C. 1: 256; Gr. 39; D. & G. 49.

A small, much-branched, thorny tree. Leaves ovate-elliptic, rounded at base and apex, buff-tomentose beneath. Flowers small, greenish-yellow, in short axillary clusters. Drupe globose or oblong. (Fl. Fr. August - October). DNT. 412, 504, 1126.

Fairly common; observed in hedges, and open waste places.

As Lamarck's name Z. jujuba (1789), is pre-occupied by Miller's name of 1768, it is therefore, become illegitimate being a later homonym according to Art. 64 of the code (1966). The matter has been discussed by Santapau, loc. cit.

Zizyphus glabrata Heyne ex Roth, Nov. Pl. Sp. 159, 1821; FBI. 1: 633; Fl. Dang, 24; Saur. 1: 92.

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

A large shrub or a small tree, armed with twin stipular spines; one straight and the other hooked. Leaves glabrous,



prominently 3-nerved, serrate, base oblique. Flowers greenish-yellow, in axillary, peduncled cymes. Drupe globose. (Fl. Fr. November - December). DNT. 1699.

Rare; observed near habitation.

Zizyphus nummularia (Burm. f.) Wt. & Arn. Prodr. 162, 1834;

FBI. 1: 633; Saur. 1: 93; Fl. Delhi, 102; Fl.

Pavagadh, 62.

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

Zizyphus rotundifolia Lamk. Encycl. 3: 319, 1789; C. 1:

257.

An armed shrub with geniculate branches. Leaves ovate to rounded, serrate; stipular spines 2, one straight and the other hooked. Flowers in small axillary cymes. Drupe small, rounded. (Fl. Fr. October - December). DNT. 1760.

Observed in waste land and along roadsides.

Zizyphus oenoplia Mill. Gard. Dict. (ed. 8) no. 3, 1768;

FBI. 1: 634; C. 1: 257; Sant. 40; Fl. Dang, 24;

Saur. 1: 93; Fl. Delhi, 102; Fl. Pavagadh, 62.

A subscaudent, straggling shrub with rusty-pubescent branches. Leaves ovate, acute, oblique at the base, silky

hairy beneath, distichously arranged. Flowers greenish-yellow, in short axillary cymes. Drupe globose, black. (Fl. Fr. August - November). DNT. 654.

Observed in open waste lands and along roadsides.

Zizyphus xylopyra (Retz.) Willd. Sp. Pl. 1: 1104, 1797; FBI. 1: 634; C. 1: 258; Saur. 1: 94; Fl. Pavagadh, 62.

Rhamnus xylopyrus Retz. Obs. 2: 11, 1781.

Zizyphus glaberrima Santapau, in JBNHS. 51: 803, 1953.

An erect tree, often unarmed, at least in the younger branches; when armed, prickles 2, one straight, the other curved. Leaves stiff, ovate-oblong or orbicular, large, rounded, white tomentose beneath. Flowers greenish, in paniculate cymes. Drupe globose. (Fl. Fr. June - August). DNT. 177, 580, 1088.

Noted along roadsides in the forests and near habitation.

Ventilago Gaertn.

Ventilago denticulata Willd. in Ges. Naturf. Fr. Neue Schr.

3: 417, 1801; Fl. Pavagadh, 63; Oza, in Ind. For.

96(5): 406-407, 1970.

V. maderaspatana Roxb. Pl. Corom. 1: 55, t. 76, 1796-98;

Wt. & Arn. Prodr. 164 (non Gaertn. 1788); Sant. 42.

V. calyculata Tulasne, in Ann. Sc. Nat. (ser. 4) 8:

124, 1857; FBI. 1: 631; C. 1: 254; Fl. Dang, 23.

An extensive climber. Leaves elliptic-oblong, acute, crenate-serrate, base oblique. Flowers yellowish, in large panicles. Fruit a nut with persisting calyx; wing linear-oblong, pubescent, terminated by the remains of the bifid style. (Fl. Fr. December - February). DNT. 558, 690, 1389.

Common; observed as a climber on Derris and Mitragyna at the foot of hillocks and in the valleys.

#### VITACEAE ( AMPELIDACEAE )

-or penta-  
Leaves trifoliate .....Cayratia

Leaves simple, entire or lobed :

Flowers 4-merous .....Cissus

Flowers 5-merous :

Petals cohering into a cup, detaching

at the base and falling together;

berry edible .....Vitis

Petals separating and spreading;

berry not edible .....Ampelocissus

Cayratia Juss. (nom. cons.)

Leaves tri-foliolate; berries black .....carnosa

Leaves 5-foliolate; berries red .....auriculata

Cayratia carnosa (Lamk.) Gagnep. Lecomte. Not. Syst. t. 347,  
1911; Fl. Dang, 25; Saur. 1: 98; Fl. Delhi, 102;  
Fl. Pavagadh, 64.

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

Vitis carnosa Wall. ex Wt. & Arn. Prodr. 1: 27, 1834;  
FBI. 1: 654 excl. Syn. Linn.

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

A creeping or climbing shrub. Leaves tri-foliolate;  
tendrils branched, leaf-opposed. Flowers greenish-white, in  
cymes. Berries globose, black. (Fl. Fr. August - September).  
DNT. 123.

Fairly common; noted on hedges and on trees in the  
forests.

Cayratia auriculata (DC.) Gamble, Fl. Mad. Pres. 237, 1918  
& (Rep. ed.) 1: 170; Saur. 1: 98; Raizada, in Ind.  
For. Rec. (N.S.) Bot. 5(1): 10, 1958.

Cissus auriculata DC. Prodr. 1: 632; D. & G. 40.

Vitis auriculata Wall. Cat. 6031, nom. nud. 1828, non  
Roxb. Fl. Ind. 1: 411; FBI. 1: 588; Talb. 1: 321,  
f. 191.

An extensive climber. Tendrils leaf-opposed, forked.  
Leaves 5-foliolate; leaflets obovate, serrate, acute; stipules  
foliaceous. Flowers in much-branched, divaricate cymes.  
Berries red. (Fl. Fr. September - October). DNT. 465, 1003,  
1010.

Fairly common; observed as a climber on trees along  
roadsides and in forests.

Cissus Linn.

Cissus repanda Vahl, Symb. Bot. 3: 18, 1794; Sant. 45; Fl.  
Dang, 25; Saur. 1: 95.

Vitis repanda Wt. & Arn. Prodr. 125, 1834; FBI. 1: 648  
(excl. C. vitiginea L.); C. 1: 215.

A strong climber on trunk of trees; glabrous when old.  
Stems large and corky. Tendrils multifid with sucker-like  
attachment at the tips. Flowers in cymes; peduncle leaf-  
opposed. Berries pyriform, 1-seeded. (Fl. Fr. March-April).  
DNT. 71.

Observed as a climber on the slopes of the hillocks.

Vitis Linn.

Vitis vinifera Linn. Sp. Pl. 202, 1753; FBI. 1: 652; C. 1: 275; Bailey, Man. Cult. Pl. 649.

A woody climber with bifid tendrils. Leaves large, suborbicular, 3-5-lobed. Flowers in cymes. Berries globose. (Fl. Fr. January - April). DNT. 1846.

Cultivated on a large scale for edible fruits.

Ampelocissus Planch. (nom. cons.)

Ampelocissus latifolia (Roxb.) Planch. Journ. Vigne Amer. 374, 1884 and in DC. Mon. Phan. 5(2): 370, 1887; Sant. 44; Fl. Dang, 25; Saur. 1: 96.

Vitis latifolia Roxb. Hort. Beng. 18, 1814; FBI. 1: 652; C. 1: 253.

A heavy climber. Tendrils forked. Leaves simple, angular, 3-7-lobed, irregularly serrate. Flowers in cymes, on stout peduncles; peduncle bearing a slender forked tendril. Berries globose, succulent. (Fl. Fr. May - June). DNT. 6, 23.

Common; observed as a climber on Butea, Tectona near streams and along forest paths.

## LEEACEAE

Leea Linn.

Leaves simple .....macrophylla

Leaves simple pinnate .....edgeworthii

Leea macrophylla Roxb. ex Hormem. Hort. Hofn. 1: 231,

1813; Roxb. Fl. Ind. 1: 653; Wt. Ic. 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). DNT. 1062, 1087.

PLATE No. 42

Commonly observed as an undergrowth of forests.

Leea edgeworthii Santapau, in RBSI. 16(1): 54, 1953; Sant. 46.

Leea aspera Edg. in TLS. 20: 36, 1841; FBI. 1: 655;

C. 1: 277; Talb. 1: 327.

An erect, shrub. Leaves simply pinnate; leaflets elliptic, acuminate. Flowers in much-branched trichotomous cymes. Berries smooth, black when ripe. (Fl. Fr. August - October). DNT. 69, 554, 1011.



PLATE No. 42.

Leea macrophylla Roxb. ex Hormen.



Fairly common; observed as an undergrowth of forests.

# SAPINDACEAE

Climbing herbs .....Cardiospermum

Trees :

Petals 4-5 .....Sapindus

Petals 0 .....Schleichera

Cardiospermum Linn.

Cardiospermum halicacabum Linn. Sp. Pl. 366, 1753; FBI. 1: 670; C. 1: 280; Wt. Ic. t. 508; Fl. Dang, 25; Saur. 1: 100; Fl. Delhi, 103.

A slender, herbaaceous, tendril climber. Leaves thin, biternate. Flowers white, in umbellate cymes. Capsule trigonous, inflated, membranous. (Fl. Fr. August - October). DNT. 430.

Observed as a climber on hedges and on the slopes of hillocks.

Sapindus Linn.

Sapindus emarginatus Vahl, Symb. 3: 34, 1794; Gr. 29; D. & G. 35; Saur. 1: 102; Fl. Pavagadh, 65.

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

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

A medium-sized tree. Leaves alternate, pinnate; leaflets sub-opposite, obovate, emarginate. Flowers pinkish-white, in terminal panicles. Fruits of 3-drupe, wrinkled. (Fl. Fr. October - December). DNT. 1439.

Rare; observed near habitation and at the foot of hillocks.

Schleichera Willd.

Schleichera oleosa (Lour.) Oken. Allg. Naturg. (3) 2: 1341, 1841;

Sant. 48; Fl. Dang, 26; Saur. 1: 101; Fl. Delhi, 104.

Pistacia oleosa Lour. Fl. Coch. 2: 615, 1790.

Schleichera trijuga Willd. Sp. Pl. 4(2): 1096, 1805;

FBI. 1: 681; C. 1: 283 (excl. Sapindus trifoliata Linn.); Talb. 1: 335, f. 198.

A large tree, 6 to 9 meters tall. Leaves alternate, pinnate; leaflets 2-4 pairs, entire, glabrous, obtuse. Flowers whitish-yellow, fascicled in racemes, which are axillary or below the leaves. Fruit ovoid, beaked, echinate with stout, blunt prickles. (Fl. Fr. March - April). DNT. 1727.

Rare; observed on the slopes of the hillocks at Alwa.

## ANACARDIACEAE

Leaves pinnately compound .....Lannea

Leaves simple :

Fruit a reniform nut .....Anacardium

Fruit a drupe :

Drupe large, fleshy .....Mangifera

Drupe small .....Buchanania

Lannea A. Rich. (nom. cons.)

Lannea coromandelica (Houtt.) Merrill, in JAA. 19: 353, 1939;

Sant. 51; Saur. 1: 103; Fl. Pavagadh, 66.

Dialium coromandelicum Houtt. Nat. Hist. II 2: 39, t. 5,

f. 2, 1774.

Odina woodier Roxb. Fl. Ind. 2: 293, 1832; FBI. 2: 29;

C. 1: 295; Talb. 1: 353, t. 207; Wt. Ic. t. 60.

A fairly large tree. Leaves alternate, imparipinnate, deciduous, crowded at the end of branches; leaflets ovate-oblong, acuminate, shining. Flowers purplish, in fascicled racemes, appearing towards the ends of branches. Drupe reniform, compressed. (Fl. Fr. January - March). DNT. 1567, 1708.

Commonly observed on the slopes of the hillocks in association with Tectona, Diospyros and Butea.

Anacardium Linn.

Anacardium occidentale Linn. Sp. Pl. 383, 1753; FBI. 2: 20;

C. 1: 292; Bailey, Man. Cult. Pl. 625; Talb. 1: 350, t. 205; Sant. 50.

A small, evergreen tree. Leaves coriaceous, obovate or elliptic, rounded at the apex, glabrous. Flowers yellowish-pink, in long, terminal panicle. Fruit a reniform nut, borne on fleshy, yellow or red thalamus. (Fl. Fr. April - October). DNT. 625, 922, 1711.

Cultivated; noted near habitation.

Mangifera Linn.

Mangifera indica Linn. Sp. Pl. 200, 1753; FBI. 2: 13; C. 1:

291; Sant. 50; Fl. Dang, 26; Saur. 1: 103; Fl. Delhi, 105; Fl. Pavagadh, 66.

A large, evergreen tree. Leaves simple, lanceolate, slightly wavy, shining. Flowers yellowish, polygamous, in large terminal panicles. Drupe ovoid, large. (Fl. Fr. December - May). DNT. 1541.

Cultivated for the edible fruits.

Buchanania Spreng.

Buchanania lanzan Spreng. in Schrader, Journ. 4: 234, 1801;  
C. 1: 293; Fl. Dang, 26; Raizada, in Ind. For. Rec.  
(N.S.) Botany 5(1): 8, 1958.

Buchanania latifolia Roxb. Hort. Beng. 32, 1814 nom.  
nud. & Fl. Ind. 2: 385; FBI. 2: 23; Talb. 1: 349.

A medium-sized tree. Leaves broadly-oblong, obtuse, emarginate. Flowers greenish-white, in axillary and terminal panicles. Drupe obliquely lentiform, stone hard. (Fl. Fr. January - April). DNT. 890, 1413, 1470, 1698.

Fairly common; observed in the forest on the plains; often cultivated for its fruits.

## MORINGACEAE

Moringa Linn.

Moringa oleifera Lamk. Encycl. 1: 398, 1785; Blatter, in JBNHS. 31: 907, 1931; Bailey, Man. Cult. Pl. 451; Fl. Dang, 27; Saur. 1: 105; Fl. Delhi, 106; Fl. Pavagadh, 66.

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

A medium-sized tree. Leaves alternate, usually 3-pinnate;

leaflets opposite, entire, obovate. Flowers white, in large panicles. Pods ribbed. long. (Fl.Fr. February - April).DNT.1409.

Cultivated near habitation.

## FABACEAE ( PAPILIONACEAE )

(In the present key, the wild trees, woody climbers and shrubs belonging to the Fabaceae have been excluded as these have been referred to in the artificial keys on page nos.79 to 106 . For routine keys to the tribes and genera refer to Cooke's Flora of the Presidency of Bombay. In the enumeration part, the genera are arranged according to Cooke (l. c.).

1. Plants having a simple leaf or a compound

leaf with one leaflet :

2. Plants armed with hard spines .....Alhagi pseudalhagi

2. Plants unarmed :

3. Pods 1-2-seeded :

4. Flowers yellow .....Goniogyna hirta

4. Flowers red :

5. Leaves linear, acute at

both ends .....Indigofera linifolia

5. Leaves ovate, cordate .....Indigofera cordifolia

## 3. Pods many-seeded :

6. Pods jointed, separating into  
indehiscent joints :

## 7. Joints of pods turgid :

8. Pods perfectly or  
imperfectly moniliform :9. Pods reticulately veined  
or transversely ribbed :10. Pods reticulately  
veined .....Alysicarpus  
longifolius

## 10. Pods transversely ribbed :

11. Pods 2-edged, not  
exserted .....Alysicarpus  
glumaceus11. Pods 4-gonous,  
exserted .....Alysicarpus  
tetragonolobus

## 9. Pods not veined or ribbed :

12. Leaflets linear-  
lanceolate .....Alysicarpus  
bupleurifolius12. Leaflets oblong to  
rounded .....Alysicarpus  
monilifer

## 8. Pods not moniliform; veined :

## 13. Calyx shorter than the first

joint of the pod .....Alysicarpus  
procumbens

## 13. Calyx equalling or slightly

longer than the first joint of

the pod .....Alysicarpus  
vaginalis

## 7. Joints of the pods flattened :

## 14. Branches angled; joints of

Pods longer than broad .....Desmodium  
gangeticum

## 14. Branches terete; joints of pods

as long as broad .....Desmodium  
velutinum

## 6. Pods not jointed :

15. Pods flattened, leaf like .....Tephrosia  
strigosa

## 15. Pods turgid :

## 16. Pods glabrous :

## 17. Stipules absent :

## 18. Diffuse hairy herb; racemes

few-flowered; seeds 12-15..Crotalaria  
prostrata



18. Suffruticose herb; racemes lax  
flowered; seeds 4-10 .....Crotalaria  
linifolia
17. Stipules present :
19. Pods much longer than the calyx;  
stipules and bracts large :
20. Stems clothed with spreading  
hairs; leaves linear-oblong;  
pods 2-3 cm. long .....Crotalaria  
mysorensis
20. Stems more or less glabrous;  
leaves oblanceolate, obtuse or  
retuse; pods 3-5 cm. long .....Crotalaria  
retusa
19. Pods not longer than the calyx;  
stipules minute, subulate .....Crotalaria  
calycina
16. Pods hairy, silky or velvety :
21. Stipules absent :
22. Stem and branches silky pubescent;  
leaves long, not deciduous; pods  
15-20-seeded .....Crotalaria  
junceae
22. Stem and branches clothed with

appressed brownish silky hairs; leaves

linear-oblong, densely silky; pods

4-8-seeded .....Crotalaria  
pusilla

21. Stipules present .....Crotalaria  
hirsuta

1. Plants having a leaf with two or more leaflets :

23. Leaflets two or three :

24. Leaflets 2 .....Zornia gibbosa

24. Leaflets 3 :

25. Twining or prostrate herbs :

26. Twining herbs :

27. Stamens 10, monadelphous :

28. All stamens perfect..Glycine wightii

28. Alternate stamens

sterile .....Teramnus  
labialis

27. Stamens 10, diadelphous :

29. Pods 2-seeded :

30. Seeds with a waxy

strophiole .....Rhynchosia  
capitata

30. Seeds without strophiole :

31. Leaflets 1-2 cm. long, obtuse.....Rhynchosia  
minima
31. Leaflets more than 2 cm. long,  
generally acute .....Rhynchosia  
minima var.  
laxiflora
29. Pods more than 2-seeded :
32. Leaves gland-dotted beneath;  
stipellae often abortive .....Atylosia  
scarabaeoides
32. Leaves not gland-dotted,  
leaflets stipellate :
33. Stigma oblique :
34. Keel spiral :
35. Leaflets deeply lobed.....Phaseolus  
aconitifolius
35. Leaflets entire or  
slightly lobed :
36. Pods glabrous .....Phaseolus  
vulgaris
36. Pods hirsute or  
pubescent .....Phaseolus  
radiatus
34. Keel not spiral .....Vigna  
unguiculata

33. Stigma terminal .....Lablab  
purpurens
26. Prostrate or diffuse (rarely trailing herbs) :
37. Pods boat-shaped, 1-seeded .....Eleiotis  
monophylla
37. Pods not as above; more than one-seeded :
38. Stipules lanceolate :
39. Leaflets obovate, cuneate.....Desmodium  
triflorum
39. Leaflets ovate-lanceolate,  
upper leaflet largest .....Desmodium  
neo-mexicanum
38. Stipules foliaceous :
40. Pods sparsely covered with  
grey tomentum.....Phaseolus  
angularis
40. Pods glabrous and cylindric :
41. Leaflobes broad and rounded..Phaseolus  
trilobus
41. Leaflobes narrow, long  
and acute .....Phaseolus  
aconitifolius
25. Erect herbs or cultivated shrubs :
42. Pods indented on one or both  
the sutures, jointed :

43. Stipules linear, lanceolate .....Desmodium  
laxiflorum
43. Stipules foliaceous, amplexicaul.....Desmodium  
dichotomum
42. Pods not as above :
44. Leaves gland-dotted beneath :
45. Flowers red or pink .....Indigofera  
glandulosa
45. Flowers yellow .....Cajanus  
cajan
44. Leaves not gland-dotted :
46. Flowers white, yellow or whitish-  
yellow; pods not spirally twisted :
47. Leaflets entire .....Crotalaria  
medicaginea
47. Leaflets toothed :
48. Stipules free; flowers  
1-2, axillary, sessile.....Trigonella  
foenum-graecum
48. Stipules adnate; flowers in  
slender, spicate racemes.....Melilotus  
indica
46. Flowers pink or purple; pods  
spirally twisted .....Medicago  
sativa

23. Leaflets more than three :

49. Fruit geocarpic (maturing underground)..Arachis  
hypogea

49. Fruit aerial :

50. Climbers, twiners or prostrate herbs :

51. Climbers or twiners :

52. Upper leaflets tendrillar...Pisum  
sativum

52. Tendrils absent .....Clitoria  
ternatea

51. Prostrate or diffuse herbs :

53. Leaflets toothed .....Cicer  
arietinum

53. Leaflets entire .....Indigofera  
linnaei

50. Erect herbs or shrubs :

54. Stamens monadelphous .....Cyamopsis  
tetragonoloba

54. Stamens diadelphous :

55. Stamens 5 + 5 .....Aeschynomene  
indica

55. Stamens 9 + 1 :

56. Flowers yellow or yellowish-white :

57. Unarmed; pods twisted .....Sesbania sesban  
var. picta

57. Armed; pods not twisted .....Sesbania bispinosa

56. Flowers pink, red or purple :

58. Pods joints folded on one another  
within the calyx .....Uraria picta

58. Pods flattened, not as above :

59. Flowers pink, more than 2  
cm. long .....Clitoria biflora

59. Flowers less than 2 cm. long :

60. Anthers apiculate :

61. Leaves 5-foliolate ....Indigofera glabra

61. Leaves more than 5-foliolate :

62. Racemes 6-12-flowered;  
hairs of stem gland-  
tipped .....Indigofera colutea

62. Racemes more than 12-  
flowered; pods  
tetragonous.....Indigofera  
astragalina

61. Leaves less than 5-foliolate :

60. Anthers not apiculate :

63. Pods covered with  
villous tomentum.....Tephrosia  
hirta

63. Pods more or less pilose,  
but not villous :

64. Stems glabrescent;  
flowers bluish-purple..Tephrosia  
purpurea

64. Stems angled, hairy;  
flowers rose-coloured..Tephrosia  
hamiltonii

Goniogyna DC.

Goniogyna hirta (Willd.) Ali, in Taxon 16: 463, 1967; Rao,  
in BBSI. 10(Suppl. 2), addenda no. 3, 1969.

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

Heylandia latebrosa DC. Mem. Leg. 201, 1825; Gr. 44;  
D. & G. 54; FBI. 2: 65; C. 1: 310; Sant. 51; Fl.  
Dang, 32; Saur. 1: 111; Fl. Pavagadh, 85.

A prostrate, much-branched, hairy herb. Leaves numerous,  
simple, entire, sub-sessile, broadly ovate, hairy on both  
sides. Flowers bright yellow, axillary, solitary. Pods oblong,



flat, hairy. (Fl. Fr. August - November); DNT. 473, 685, 1001.

Fairly common; observed on plains along with grasses and along roadside escarpments.

Crotalaria Linn.

Crotalaria prostrata Rottl. in Willd. Enum. Hort. Berol.

747, 1809; FBI. 2: 67; E. 1: 312; Trim. 2: 9; Fl.

Dang, 30; Saur. 1: 114.

A prostrate or ascending herb. Stem and branches clothed with silky hairs. Leaves simple, subsessile, oblong-obovate, rounded at the apex; stipules 0. Flowers small, in 2-4-flowered racemes; peduncles longer than the leaves; corolla not exerted. Pods inflated, glabrous; seeds 12-15. (Fl. Fr. October - December). DNT. 389, 1390, 1869, 1890.

Observed as a weed in cultivated fields.

Crotalaria linifolia Linn. f. Suppl. 322, 1781; FBI. 2: 72;

C. 1: 317; Sant. 53; Saur. 1: 114; Fl. Pavagadh, 83.

An erect, rigid herb. Stem covered with appressed silky hairs. Leaves oblong-lanceolate, rounded at the apex. Flowers yellow, in racemes. Pods ovoid-oblong, obliquely truncate at the apex, black when ripe; seeds 4-10. (Fl. Fr. September - December). DNT. 1959.

Observed along roadsides along with grasses and in fallow fields.

Crotalaria calycina Schrank, Pl. Rar. Monac. t. 12, 1819;

FBI. 2: 72; C. 1: 317.

An erect, hairy herb. Leaves dimorphous, narrow-linear or lanceolate, acute or subobtuse; stipules minute, subulate. Flowers yellow; calyx densely covered with long, brown hairs. Pods glabrous, shorter than the calyx; seeds 20-30. (Fl. Fr. October - January). DNT. 147, 1787.

Rare; observed on the outskirts of the hilly forest areas along with grasses at Ambadungar.

Crotalaria mysorensis Roth, Nov. Pl. Sp. 338, 1821; FBI. 2:

70; C. 1: 314; Sant. 52; Fl. Delhi, 113; Fl. Pavagadh, 82.

An erect, annual herb with numerous ascending branches, branches clothed with long spreading hairs. Leaves sub-sessile, linear-oblong, clothed with long spreading silky hairs; stipules linear-lanceolate. Flowers yellow, in lax, terminal racemes. Pods oblong, glabrous, pale brown; seeds 20-30. (Fl. Fr. September - October). DNT. 583.

Observed on plains along with grasses.

Crotalaria retusa Linn. Sp. Pl. 715, 1753; FBI. 2: 75,  
(excl. syn. Dalz. & Gibs.); C. 1: 318; Sant. 53;  
Saur. 1: 115; Fl. Pavagadh, 83.

A robust undershrub. Branches striate, pubescent. Leaves oblanceolate-oblong, subacute, obtuse or retuse, glabrous above, appressed hairy beneath. Flowers yellow, showy, numerous, in erect, terminal racemes. Pods linear-oblong; seeds 15-20. (Fl. Fr. January - April). DNT. 1594.

Commonly observed as a weed in cultivated fields.

Crotalaria juncea Linn. Sp. Pl. 714, 1753; FBI. 2: 79; C. 1: 320; Sant. 54; Saur. 1: 118; Fl. Delhi, 113; Fl. Pavagadh, 84.

An erect, much-branched, annual herb; branches ascending, silky pubescent. Leaves linear, obtuse or subacute, silky pubescent on both sides. Flowers in terminal and axillary many-flowered racemes. Pods hairy with short fulvous silky hairs; seeds 10-15. (Fl. Fr. October - December). DNT. 317, 685, 1426.

Fairly common; cultivated for its fibres.

Crotalaria pusilla Heyne ex Roth, Nov. Pl. Sp. 335, 1821;  
C. 1: 315; FBI. 2: 70.

A much-branched, leafy herb; branches ascending, clothed with appressed brownish silky hairs. Leaves subsessile, linear-oblong, densely silky. Flowers yellow, in terminal and lateral racemes. Pods oblong, densely silky villous; seeds 4-8. (Fl. Fr. September - October). DNT. 381, 1183, 1222.

PLATE No. 43

Fairly common; observed in open areas of the forest along with grasses.

Crotalaria hirsuta Willd. Sp. Pl. 3: 878, 1802; FBI. 2: 68;

Sant. Pl. Saur. 196; Pataskar & Ahuja, in Maharashtra Vidnyan Mandir Patrika 3(2): 82-83, 1968.

An erect or sub-erect herb; branches clothed with spreading hairs. Leaves simple, ovate, cordate, acute; stipules linear, reflexed. Flowers yellow, in terminal and axillary, 2-4-flowered racemes. Pods clothed with long hairs, oblong. (Fl. Fr. August - October). DNT. 1104, 1131, 1286.

Fairly common; observed on the slopes of the hillocks and on the plains along with grasses.

Crotalaria medicaginea Lamk. Encycl. Method. 2: 201, 1786;

FBI. 2: 81; C. 1: 322; Saur. 1: 119; Fl. Pavagadh, 84.

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



opposed racemes. Pods subglobose, beaked; seeds 2. (Fl. Fr. September - December). DNT. 497, 1460.

Very common and abundant; observed as a weed in cultivated fields and along roadsides, seen in association with Tephrosia hamiltonii, Cassia tora, Cassia occidentalis and Xanthium strumarium.

Trigonella Linn.

Trigonella foenum-graecum Linn. Sp. Pl. 777, 1753; Roxb.

Fl. Ind. 3: 389; FBI. 2: 87; Bailey, Man. Cult. Pl. 583; Saur. 1: 182.

An erect, annual herb. Leaves 3-foliolate; leaflets oblanceolate-oblong, toothed; stipules entire. Flowers 1-2, axillary, sessile; corolla much exserted. Pods long, beaked. (Fl. Fr. December - April). DNT. 1886.

Cultivated during the cold season.

Melilotus Juss.

Melilotus indica All. Fl. Pedem. 1: 308, 1785; C. 1: 325;

Sant. 54; Saur. 1: 121; Fl. Delhi, 116; Fl. Pava-gadh, 78.

M. parviflora Desf. Fl. Atlant. 2: 192, 1800; FBI. 2:

89.

A small, erect, annual herb. Leaves 3-foliolate; leaflets oblanceolate, serrate; stipules adnate. Flowers yellow, small, in slender, spicate racemes. Pods ellipsoid, 1-seeded. (Fl. Fr. January - March). DNT. 1060, 1492, 1537.

Commonly observed as a weed in cultivated fields.

Medicago Linn.

Medicago sativa Linn. Sp. Pl. 778, 1753; FBI. 2: 90; C. 1: 327; Bailey, Man. Cult. Pl. 582; Saur. 1: 121; Fl. Delhi, 114.

An erect, annual herb. Leaves 3-foliolate; leaflets ovate-oblong, denticulate towards the apex. Flowers purple, in axillary, close racemes. Pods spirally falcate, circinate or cochleate. (Fl. Fr. April - May). DNT. 1770.

Cultivated as a fodder plant during winter.

Cyamopsis DC.

Cyamopsis tetragonoloba (Linn.) Taub. in Engl. & Prantl, Nat. Pfam. 3(3): 259, 1894; Saur. 1: 122; Fl. Delhi, 116.

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

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

An erect, annual herb. Stem and branches grooved. Leaves trifoliolate; leaflets elliptic, acute; stipules subulate. Flowers purplish; in short, many-flowered racemes. Pods tetragonous, erect, stout, more or less pubescent. (Fl. Fr. September - December). DNT. 570, 637.

Cultivated for its pods, which are used as a vegetable.

Indigofera Linn.

Indigofera linifolia (Linn. f.) Retz. Obs. Bot. 4: 29, 1786 and 6 : 33, t. 2, 1791; FBI. 2: 92; Wt. Ic. t. 333; C. 1: 330; Sant. 55; Fl. Dang, 33; Gillett, in KB. (Add. Ser. I) 35, 1958; Ali, in Bot. Notis. III : 546, 1958; Saur. 1: 124; Fl. Delhi, 117; Fl. Pava-gadh, 74.

Hedysarum linifolium Linn. f. Suppl. Pl. 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). DNT. 321, 1042, 1208.

PLATE No. 44

Fairly common; observed in sandy river beds and on



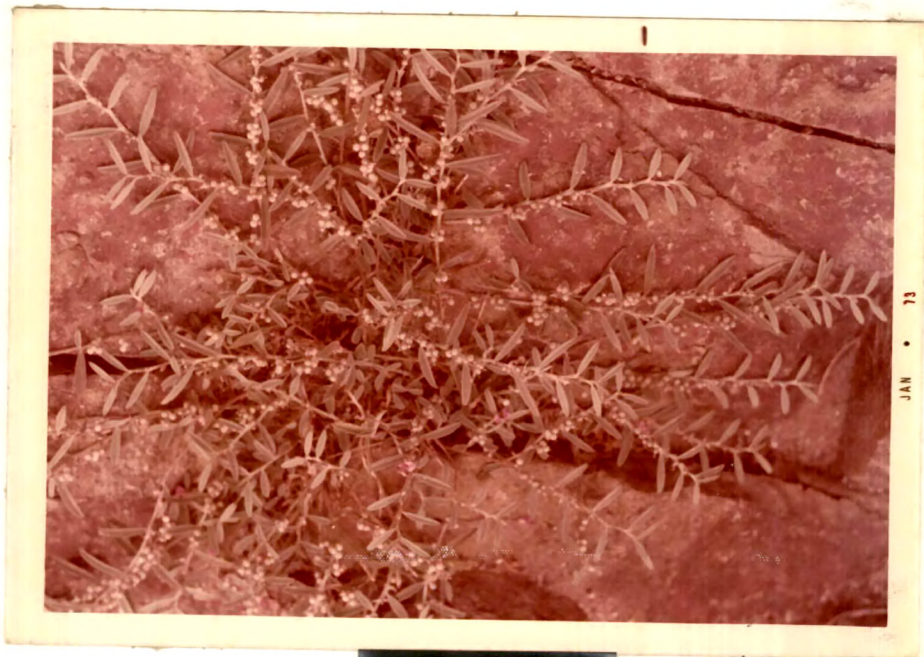


PLATE No. 44.

Indigofera linifolia (Linn. f.) Retz.

plains along with grasses.

Indigofera cordifolia Heyne ex Roth, Nov. Pl. Sp. 357, 1821;

FBI. 2: 93; C. 1: 331; Gillett, loc. cit. 35; Fl.

Dang, 33; Saur. 1: 125; Fl. Delhi, 117; Fl. Pava-  
gadh, 75.

A prostrate or diffuse annual, covered with white pubescence all over. Leaves simple, broadly ovate-cordate, hairy on both sides. Flowers bright red, in dense, axillary heads. Pods cylindric, densely hairy, 1-seeded. (Fl. Fr. August - November). DNT. 47, 376, 517.

Fairly common; observed on escarpments along roadsides and on plains along with grasses.

Indigofera glandulosa Roxb. ex Willd. Sp. Pl. 3: 1227, 1800;

Roxb. Fl. Ind. 3: 372, 1832; D. & G. 58; Wt. Ic. t.

330; FBI. 2: 94; C. 1: 332; Sant. 55; Fl. Dang, 33;  
Saur. 1: 125.

An erect, hairy herb. Leaves 3-foliolate; leaflets oblanceolate, obtuse. Flowers red or pink, in short, condensed, axillary racemes (rarely the raceme is elongate, upto 3 cm. and the flowers are distantly placed on the axis). Pods oblong, angled with fimbriate, toothed wings; 2-seeded. (Fl. Fr. August - November). DNT. 998, 1070.

Commonly observed along roadsides and along forest paths.

The presence of elongate racemes in certain populations raised doubts about the identity of the plants. However, according to R. Polhill of the Royal Botanic Gardens, Kew (personal communication) 'This form of the inflorescence falls within the continuous variation of the species as represented at Kew.'

Indigofera linnaei Ali, in Bot. Notis. III : 549, 1958; Saur.

1: 126; Fl. Pavagadh, 75.

I. enneaphylla Linn. Mant. 2: 272, 1771, append. 571, 1771, nom. illegit; D. & G. 58; Wt. Ic. t. 403; FBI. 2: 94; C. 1: 332; Fl. Dang, 33; Gillett, loc. cit. 35; Fl. Delhi, 117.

A prostrate annual herb. 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). DNT.1065.

Observed as a weed in cultivated fields.

Indigofera trita Linn. f. Suppl. 335, 1781; FBI. 2: 96;

C. 1: 335; Wt. Ic. t. 315, 386; Fl. Dang, 33;  
 Gillett, loc. cit. 101; Ali, loc. cit. 553; Saur.  
 1: 128; Fl. Delhi, 118; Fl. Pavagadh, 76.

A tall, erect, shrubby plant, clothed with greyish tomentum. Leaves 3-foliolate; lateral leaflets opposite, nearly sessile, the terminal one stalked. Flowers red or pink, in axillary racemes. Pods tetragonous, appressed-hairy, divaricate, hard-pointed. (Fl. Fr. August - January). DNT. 1065, 1336, 1580.

Commonly observed along roadsides and open waste places.

Indigofera glabra Linn. Sp. Pl. 751, 1753; C. 1: 337; G. 1: 219.

I. pentaphylla Murr. Syst. Veg. 13: 654, 1774 (not of Burch.); FBI. 2: 95.

An annual, much-branched, glabrous herb. Leaves imparipinnate; leaflets 5, slightly hairy on both the sides, obtuse. Flowers pink-red, in short, axillary racemes. Pod glabrous, straight, cylindric. (Fl. Fr. August - November). DNT. 1115.

Rare; noted in moist places near streams at Bunjer.

Indigofera colutea (Burm. f.) Merr. in Phil. J. Sci. 19: 355, 1925; Gillett, loc. cit. 65-57; Saur. 1: 131;

Raizada, in Ind. For. 92(5): 312, 1966; Fl.

Pavagadh, 76; Thaker & Sabnis, in JMSUB. 19 & 20  
(3-4): 38, 1970 & 1971.

Galega colutea Burm. f. Fl. Ind. 172, 1768; non Senu  
Willd. Sp. Pl. 3: 1246, 1803.

Indigofera viscosa Lamk. Encycl. 3: 247, 1789; FBI. 2:  
95; C. 1: 337; Trim. 2: 24.

An erect, annual herb or undershrub; stem and branches  
densely covered with gland-tipped hairs. Leaves imparipinnate;  
leaflets obovate, obtuse, more or less hairy. Flowers pink,  
in 6-12-flowered, glandular hairy racemes. Pods slender,  
cylindric, torulose, clothed with simple and glandular hairs.  
(Fl. Fr. September ). DNT. 1227 (Kew Herbarium).

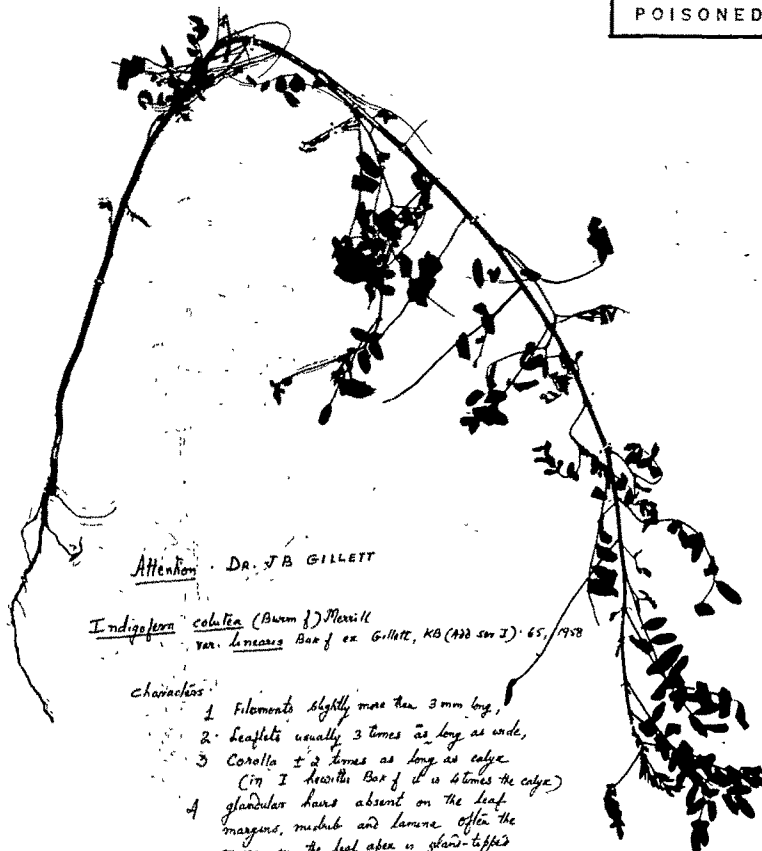
PLATE No. 45

Rare; observed only once as an undergrowth of forests  
at Luni.

The plants were critically studied following Gillett's  
treatment (loc. cit.). The important characters noted were :

1. Leaflets usually 3 times as long as broad,
2. glandular hairs absent on the leaf margins, midrib  
and lamina. Often the mucro on the leaf apex gland-  
tipped,

POISONED



Attention: DR. J. B. GILLET

*Indigofera colutea* (Burm.f.) Merr.  
var. *linearis* Bur.f. ex Gillett, KB (Add. Sm. I) 65, 1958

Characteristics

1. Filaments slightly more than 3 mm long.
2. Leaflets usually 3 times as long as wide.
3. Corolla  $\pm$  2 times as long as calyx.  
(in I herbaria Bur.f. it is 4 times the calyx.)
4. glandular hairs absent on the leaf margins, midrib and lamina often the veins on the leaf apex is gland-tipped.
5. Pods not more than 15 mm long.

S. S. Sabarwal  
4 10 70



DETERMINAVIT

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA  
BOTANY DEPARTMENT  
HERBARIUM

FLORA OF \_\_\_\_\_ No. DNT 1231

Family Papilionaceae

Genus *Indigofera*

Species *colutea* (Burm.f.) Merr.

Local Name var. *linearis* Bur.f. ex Gillett.

Locality *Baroda forest Karmat range*

*Chhatrapati Sagar Singh Estate*

Remarks *An erect herbaceous annual*

*Stems covered with gland-tipped*

*hairs noted by side of stem*

*and foot hairs on forest fringes*

Date: 2-9-70

Collected by

*[Signature]*

PLATE No. 45.

*Indigofera colutea* (Burm.f.) Merr.

3. corolla  $\pm$  2 times as long as calyx,
4. filaments slightly more than 3 mm. long,
5. pods not more than 15 mm. long.

Taking into consideration some of the important characters, such as leaflets size, absence of glandular hairs on the leaf margins and pod size, the plant is referable to I. colutea (Burm.f.) Merrill. var. linearis Bak.f. ex Gillett, while 'it appears to agree more closely with I. colutea in the broader leaflets, longer stamens and less upcurved style. It is more likely to be a chance variant of the wide-spread and variable I. colutea than a form of I. brachynema which is not known outside eastern and southern Africa.' (Personal communication - Director, Royal Botanic Gardens, Kew). Collection of more material of this population and also a critical study of the variation in distribution of glandular hairs would ultimately decide the issue. Unfortunately, however, attempts to collect more material have so far been unsuccessful.

Indigofera tinctoria Linn. Sp. Pl. 751, 1753; FBI. 2: 99;

C. 1: 339; Fl. Dang, 33; Gillett, loc. cit. 106-107;  
 Ali, loc. cit. 567; Saur. 1: 131; Fl. Delhi, 118;  
 Fl. Pavagadh, 77.

An erect, undershrub or shrub, about a meter tall. Stems

terete, covered with appressed hairs. Leaves imparipinnate; leaflets 9-13, opposite, oblong, rounded, membranous. Flowers numerous, in lax, axillary racemes. Pods linear, long, slightly curved, apiculate. (Fl. Fr. August - October). DNT. 452, 968, 1086, 1863.

Fairly common; noted along roadsides and on open grounds in forests.

Indigofera astragalina DC. Prodr. 2: 228, 1825; Gillett, loc. cit. 110, 1958 & in KB. 14(2): 290-295, 1960; Chavan & Oza, in Ind. For. 87: 763-764, 1961; Fl. Delhi, 118; Fl. Pavagadh, 78.

I. hirsuta Linn. sensu Baker, FBI. 2: 98, 1879, p.p. (non Linn.); C. 1: 399; D. & G. 60; Fl. Dang, 33; Saur. 1: 132.

An erect, annual, covered with brown pubescence. Leaves imparipinnate; leaflets elliptic or obovate, obtuse. Flowers pink or rose-coloured, in axillary racemes. Pods deflexed, tetragonous, densely hairy. (Fl. Fr. July - October). DNT. 353, 520, 1155, 1352.

Fairly common; observed along roadsides and on open grounds.



Millettia Wt. & Arn.

Millettia auriculata Baker, in Fl. Brit. Ind. 2: 108, 1876;  
Brandis, For. Fl. 138; G. 1: 227; Chavan & Bedi,  
in JBNHS. 63(3): 780, 1966.

A large, woody climber. Leaves imparipinnate; leaflets ovate-elliptic, glabrescent. Flowers in axillary racemes near the end of the branches. Pods hard, covered with brown, velvety tomentum. (Fl. Fr. July - October). DNT. 556.

Rare; observed as a climber on Mitragyna and Acacia at Ambadungar.

Tephrosia Pers. (nom. cons.)

Tephrosia strigosa (Dalz.) Santapau & Maheshwari, in JBNHS.  
54: 804, 1957; Saur. 1: 134; Fl. Delhi, 121; Fl.  
Pavagadh, 80.

Macronyx strigosum Dalz. in Hook. Kew Journ. 2: 35, 1850.

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

An erect, slender, annual herb. Leaves simple, linear, apiculate. Flowers bluish-purple, solitary, axillary, on slender pedicels. Pods linear, flat. (Fl. Fr. August - September). DNT. 1119, 1212, 1226.

Observed in open areas along with grasses during rainy season.

Tephrosia hirta Ham. in Trans. Linn. Soc. 13: 546, 1822;

Saur. 1: 135; Fl. Pavagadh, 81.

T. villosa Wt. & Arn. Prodr. 212, 1834; FBI. 2: 113

(excl. some synonyms); C. 1: 347.

An erect or suberect, robust undershrub. Leaves imparipinnate; leaflets narrowly oblanceolate, emarginate and mucronate, glabrous above, silky beneath. Flowers dark-pink or violet, in lax elongate racemes; calyx densely hairy. Pods deflexed, velvety all over. (Fl. Fr. August - October). DNT. 89, 502, 1339.

Common throughout the area along roadsides and open waste places, associated with Tephrosia hamiltonii, Cassia tora and Xanthium strumarium.

Tephrosia purpurea Pers. Syn. Pl. 2: 329, 1807; FBI. 2: 112;

C. 1: 325; Fl. Dang, 37; Saur. 1: 136; Fl. Delhi, 121.

An erect, much-branched herb or undershrub. Leaves imparipinnate; leaflets oblanceolate, obovate. Flowers bluish-purple, in leaf-opposed lax racemes. Pods slightly curved, linear glabrescent. (Fl. Fr. September - October). DNT. 631.

Observed as an undergrowth of forest and along roadsides.

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

T. purpurea (Pers.) Baker, in FBI. 2: 112, in part;  
C. 1: 346, p.p.

An erect, much-branched herb or undershrub; branches zigzag, angled, hairy. Leaves imparipinnate; leaflets 11-21, oblanceolate, retuse, glabrous above, appressed silky hairy beneath. Flowers rose-coloured, in leaf-opposed, lax racemes. Pods linear, slightly curved, glabrescent. (Fl. Fr. August - October). DNT. 488.

Commonly observed along roadsides with common associates like Crotalaria medicaginea, Cassia tora and Xanthium strumarium.

Sesbania Scop. (nom. cons.)

Sesbania grandiflora Pers. Syn. Pl. 2: 316, 1807; FBI. 2: 115; C. 1: 350; Fl. Dang, 37; Saur. 1: 139.

A small, soft-wooded tree. Leaves paripinnate; leaflets

15-20 pairs, linear-oblong, obtuse. Flowers white, more than 5 cm. long, in axillary racemes. Pods straight, erect, 15-20 cm. long. (Fl. Fr. February - April). DNT. 935, 1605.

Commonly noted near habitation.

Sesbania sesban (Linn.) Merr. var. picta (Prain) Santapau, Fl. Saur. 263, 1953; Fl. Dang, 36; Saur. 1: 139; Fl. Delhi, 120.

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

A soft-wooded, erect, medium-sized, unarmed shrub or a small tree. Leaves paripinnate; leaflets linear-oblong, 20-30 pairs. Flowers yellow, in lax, pendulous, axillary racemes. Pods long, twisted, torulose. (Fl. Fr. October - February). DNT. 1844.

Observed near habitation.

Sesbania bispinosa (Jacq.) Fawc. & Rendle, Fl. Jam. 4: 24, 1920; Sant. 56; Fl. Dang, 37; Gillett, in KB. 17: 129, 1963; Saur. 1: 140; Fl. Delhi, 119; Raizada, in Ind. For. 92(5): 323, 1966.

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

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

An erect herb or undershrub. Branches sparsely armed with weak prickles. Leaves paripinnate; leaflets linear-oblong. Flowers yellow, axillary, in drooping racemes. Pods long, cylindrical, not twisted. (Fl. Fr. August - November). DNT. 495, 1060.

Fairly common; noted as a weed in cultivated and fallow fields and on water-logged soils throughout the area.

Alhagi Adans.

Alhagi pseudalhagi (M. Bieb.) Desv., in Journ. de Bot. 1: 120, 1813; Saur. 1: 141; Fl. Delhi, 123; Fl. Pava-gadh, 69.

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

Alhagi camelorum Fisch. Ind. Hort. Gorenk (ed. 2) 72, 1812; C. 1: 355.

A. maurorum Baker, in FBI. 2: 145, 1876 (non Desv.); D. & G. 67.

A small, bushy shrub with sharp, long spines. Leaves simple, small, ovate-oblong, obtuse. Flowers red, borne on thorns. Pods small, irregularly torulose, falcate. (Fl. Fr. March - April). DNT. 836.

Observed in open places as a weed.

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.

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

A much-branched, prostrate herb. 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). *DNT*. 403, 969.

Fairly common; noted along roadsides and as a weed in cultivated fields.

According to Mohlenbrock, loc. cit. the Indian plant is not Z. diphylla Pers., but Z. gibbosa Span, which is an annual. On the subject also refer to Wagh, loc. cit.

Aeschynomene Linn.

Aeschynomene indica Linn. *Sp. Pl.* 713, 1753; *FBI*. 2: 151;

C. 1: 363; Saur. 1: 144; Fl. Delhi, 122.

An erect, much-branched, marsh-loving, annual herb. Leaves imparipinnate; leaflets small, glabrous, oblong. Flowers pale yellow, in few-flowered, axillary racemes. Pods slightly curved, indented on the lower suture, flat, covered with glandular wart-like dots. (Fl. Fr. August - November). DNT. 367, 546, 1061, 1072.

A marsh-loving plant, common and at times abundant throughout the area.

Eleiotis DC.

Eleiotis monophylla (Burm. f.) DC. Mem. Legum. 7: 350, 1825;

Raizada, in Ind. For. 92(5): 309, 1966.

Glycine monophylla Burm. f. Fl. Ind. 161, t. 50, f. 2, 1768.

Eleotia sororia DC. Mem. Legum. 7: 350, 1825 & Prodr.

2: 348; FBI. 2: 153; C. 1: 364; G. 1: 235.

A trailing, much-branched, annual herb. Leaves 1-foliolate, the terminal leaflet rounded, membranous with often two lateral, reduced leaflets. Flowers pink, in axillary racemes. Pod boat-shaped, pointed, sessile. (Fl. Fr. July - September). DNT. 1187, 1224.

Commonly observed in moist places near streams in the forest.

Uraria Desv.

Uraria picta Desv. Journ. Bot. 1: 123, t. 5, f. 19, 1813;  
D. & G. 65; FBI. 2: 155; C. 1: 367; Fl. Dang, 38;  
Saur. 1: 145.

An erect, 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 on the axis of terminal or axillary racemes. Pods 3-6-jointed, the joints folded on one another. (Fl. Fr. August - October). DNT. 1063.

Rare; noted along roadsides in moist places near canals at Moti Chikhli.

Alysicarpus Desv.

Alysicarpus longifolius Wt. & Arn. Prodr. 233, 1834; D. & G. 63; FBI. 2: 159; C. 1: 370; Wt. Ic. t. 251; Sant. 60; Fl. Dang, 27; Saur. 1: 148; Fl. Delhi, 125; Fl. Pavagadh, 72.

An erect, stout herb, sometimes 1 meter or more in



height. Leaves 1-foliolate; leaflets oblong, linear-lanceolate; stipules large, acute, scarious. Flowers purple, with a yellow dot, in long, spike-like racemes. Pods slightly moniliform, reticulately veined. (Fl. Fr. September-January). DNT. 640, 1071, 1321, 1915.

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

Alysicarpus glumaceus (Vahl) DC. Prodr. 2: 353, 1825; Andrews, in Fl. Pl. Anglo-Egypt. Sudan 2: 175, 1952; Shah, in JBNHS. 60(1): 296, 1963.

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

H. violaceum Forsk. Fl. Ang.-Arab. 136, 1775 (non Linn. 1753).

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

Alysicarpus violaceus (Forsk.) Schindl., in Fedde Repert 21: 13, 1925.

A. rugosus DC. Prodr. 2: 353, 1825; FBI. 2: 159; C. 1: 371.

A prostrate or ascending plant. Leaves 1-foliolate; leaflets oblong or lanceolate; stipules scarious, striate. Flowers in dense, spike-like racemes. Pods moniliform,

2-5-jointed, 2-edged, not exserted, transversely ribbed.  
(Fl. Fr. September - January). DNT. 1383, 1616, 1865.

Observed as a weed in cultivated fields and along roadsides.

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

FBI. 2: 159; C. 1: 372; Fl. Dang, 28; Saur. 1: 150;

Fl. Pavagadh, 71.

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

1876.

An erect or sometimes trailing herb. Leaves 1-foliolate; leaflets elliptic-oblong, obtuse or sub-acute. Flowers in lax, axillary or terminal racemes. Pods 4-gonous, exserted, transversely ribbed. (Fl. Fr. August - December). DNT. 354, 1434.

Observed as a weed in cultivated fields.

Alysicarpus bupleurifolius (Linn.) DC. Prodr. 2: 352, 1825;

Gr. 50; D. & G. 64; FBI. 2: 158; C. 1: 370; Sant.

55; Saur. 1: 148; Fl. Delhi, 125; Fl. Pavagadh, 71.

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

An erect, or ascending herb. Leaves 1-foliolate; leaflets linear-lanceolate, glabrous. Flowers purple, usually

in pairs on a lax raceme. Pods slightly moniliform, not ribbed or veined. (Fl. Fr. July - September). DNT. 1139, 1435.

Observed as a weed in cultivated fields and along with grasses in open, waste places.

Alysicarpus monilifer (Linn.) DC. Prodr. 2: 353, 1825; FBI.

2: 157; C. 1: 368; Saur. 1: 147; Fl. Delhi, 124;  
Fl. Pavagadh, 70.

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

A small, much-branched, prostrate herb. Leaves 1-foliate; leaflets oblong, obtuse, mucronate, glabrous above and hairy beneath. Flowers small, pinkish, in axillary racemes. Pods moniliform, joints turgid. (Fl. Fr. September - October). DNT. 1205, 1343.

Commonly observed along roadsides and on the river banks along with grasses.

Alysicarpus procumbens (Roxb.) Schindler, in Fedde, Repert

21: 11, 1925; Saur. 1: 147; Fl. Pavagadh, 71.

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, stems covered with long, spreading hairs. Leaves 1-foliolate; leaflets ovate-oblong or orbicular, mucronate. Flowers purple or pinkish, in axillary or terminal, elongated racemes. Pods flat, veined, hairy; calyx shorter than the first joint of the pod. (Fl. Fr. January - February). DNT. 1383, 1447, 1776.

Fairly common; observed in open grassy places, and as a weed in fallow fields.

Alysicarpus vaginalis (Linn.) DC. Prodr. 2: 353, 1825; Gr.

50; D. & G. 64; FBI. 2: 158; C. 1: 369; Sant. 60; Saur.

1: 148; Fl. Delhi, 124; Fl. Pavagadh, 71.

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 prostrate, much-branched, diffuse herb. Leaves 1-foliolate; leaflets variable, oblong to broadly ovate, obtuse or rounded. Flowers purple, in elongated racemes. Pods thin, flattened. (Fl. Fr. September - October). DNT. 390, 1322.

Very common; observed on wet banks of rivers, along roadsides and as a weed in fallow fields.

Desmodium Desv.

Desmodium laxiflorum DC. in Ann. Sci. Nat. 4: 100, 1825 &

Prodr. 2: 335, 1825; FBI. 2: 164; C. 1: 376; Sant.

61; Saur. 1: 154; Fl. Pavagadh, 73.

D. recurvatum Wall.<sup>cat. 5717</sup>: Gr. 39; Wt. Ic. t. 374.

An erect, stout herb or undershrub. Leaves 3-foliolate; leaflets ovate-elliptic or broadly lanceolate, acute, membranous. Flowers in distant fascicles, on axillary or terminal racemes. Pods hairy scarcely constricted between the seeds. (Fl. Fr. August - September). DNT. 991, 1069.

Commonly observed along roadsides and at the foot of hillocks along with grasses.

Desmodium neomexicanum A. Gray, Pl. Wright 1: 53, 1852;

Schubert, in Contrib. Gray Herb. 129: 13, 1940;

Chavan, et al., in KB. 17(2), 1963 & in JBNHS.

63(3): 786, 1966.

A straggling herb, branching from the base. Stems and branches slender, slightly hairy. Leaves 3-foliolate; leaflets ovate-lanceolate, membranous, the terminal leaflet largest. Flowers whitish-blue, in axillary and terminal lax racemes or panicles; bracts minute, setaceous. Pods reti-

-culately veined, indented deeply on both the sutures, not spirally twisted, 3-4-seeded. (Fl. Fr. August - October ).  
DNT. 415, 974, 1078, 1812.

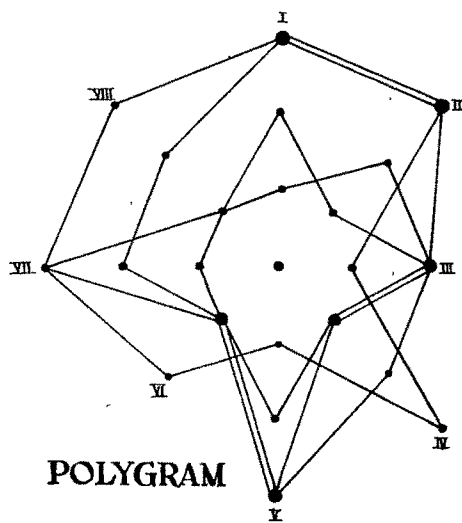
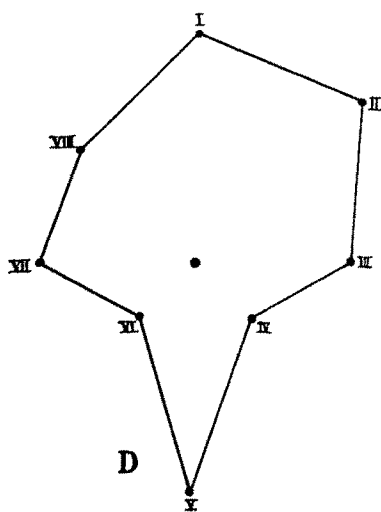
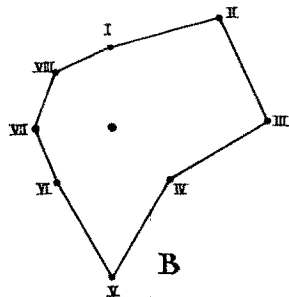
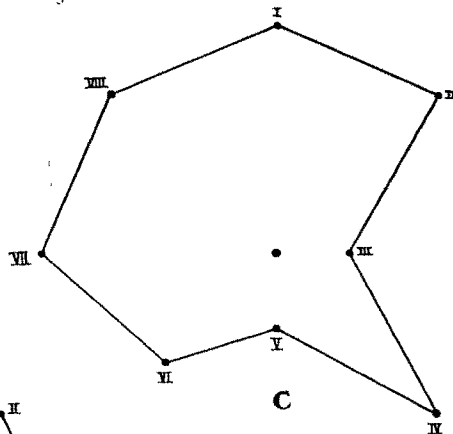
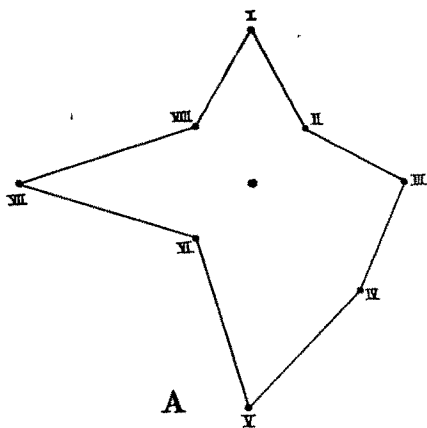
Fairly common; observed on the slopes of the hillocks as an undergrowth and along forest fringes.

Different populations exhibited variability in characters and therefore, all populations were subjected to polygraphic study.

Morphological characters

PLATE No. 46

	<u>Character</u>	<u>Variations</u>	<u>Index value</u>
I	Habit	erect	1
		ascending	3
		straggling	5
II	Internodal length	15 to 25 mm.	1
		25 to 40 mm.	3
		more than 40 mm.	5
III	Hairiness of the stem	densely hairy	1
		sparsely hairy	3
		glabrous	5



*Desmodium neomexicanum* A. Gray

IV	Size of the terminal leaflet (L x B)	4 to 7 sq. cm.	1
		7 to 10 sq. cm.	3
		more than 10 sq. cm.	5
V	Colour of leaflets	dark green	1
		green	3
		pale green	5
VI	Shape of the stipules	filiform	1
		linear-lanceolate	3
		ovate	5
VII	Breadth of the pod	2 to 3 mm.	1
		3 to 4 mm.	3
		more than 4 mm.	5
VIII	Length of the fruit stalk	less than 10 mm. long	1
		10 to 12 mm. long	3
		more than 12 mm. long	5

The study reveals the variations in characters present in different populations of Desmodium neomexicanum studied from the area. The consistency of characters like hairiness of stem and shape of the stipules is observed in 3 out of 4 populations. Other characters mentioned are greatly variable and overlapping of these characters is noted in majority of the populations. These variations, therefore, be considered the result of edaphic conditions.



Desmodium dichotomum (Willd.) DC. Prodr. 2: 336, 1825;

Meeuwen, in Reinwardtia 6(3): 248, 1962.

Hedysarum dichotomum Willd. Sp. Pl. 2: 1180, 1803.

Desmodium diffusum (Willd.) DC. Prodr. 2: 336, 1825;

FBI. 2: 169; C. 1: 377; Fl. Dang, 31; Saur. 1:154.

Hedysarum diffusum Willd. Sp. Pl. 2: 1180, 1803.

An erect, annual herb. Stem stout, deeply grooved, very sticky all over with short recurved hairs. Leaves 3-foliolate; leaflets stiff, ovate-oblong, more or less hairy on both the sides; stipules large, amplexicaul, auricled. Flowers arranged in small fascicles, in large, axillary and terminal racemes. Pods indented on both sutures, joints 3-6, rounded, hairy with small, hooked hairs. (Fl. Fr. September - December). DNT. 491, 1323, 1585.

Fairly common; observed as an undergrowth in forest, along roadsides and as a weed in cultivated fields.

Desmodium triflorum (Linn.) DC. Prodr. 2: 334, 1825; Gr. 49;

D. & G. 67; Wt. Ic. t. 392; FBI. 2: 173; C. 1: 378;

Sant. 62; Fl. Dang, 32; Saur. 1: 155; Fl. Delhi,

123; Fl. Pavagadh, 73.

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

A small, perennial, prostrate herb; branches numerous, often rooting at nodes. Leaves 3-foliolate; leaflets obovate, cuneate or obcordate. Flowers bright red or purple, in small fascicles in the axils. Pods falcate, the upper suture straight, the lower one deeply indented. (Fl. Fr. September - November). DNT. 332, 374.

Very common on the wet banks of river and open grounds, forming mats or large patches during monsoon.

Desmodium gangeticum (Linn.) DC. Prodr. 2: 327, 1825; D. & G. 66; Wt. Ic. t. 271; FBI. 2: 168; C. 1: 379; Sant. 62; Saur. 1: 156; Fl. Delhi, 123; Fl. Pavagadh, 72.

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

A stout herb or undershrub; branches angled, more or less hairy. Leaves 1-foliolate; leaflets membranous, ovate-oblong or broadly ovate, acute, rounded at the base. Flowers violet or purple, in large axillary and terminal racemes. Pods slightly falcate, joints 6-8, longer than broad. (Fl. Fr. September - December). DNT. 377, 426, 1210, 1690.

Observed as an undergrowth of forest and along roadsides in shaded localities.

Desmodium velutinum DC. Prodr. 2: 328, 1825; Schind. in Fedde

Rep. Beih. 49: 307; Saur. 1: 157.

Desmodium latifolium DC. Prodr. 2: 327, 1825; Gr. 49;

D. & G. 66; FBI. 2: 168 (excl. Syn. D. virgatum  
Zoll.); C. 1: 380.

An erect, herb or undershrub; branches densely hairy. Leaves 1-foliolate; leaflets broadly ovate or suborbicular, obtuse or sub-acute, densely hairy beneath. Flowers purple, in long axillary and terminal racemes. Pods straight, slightly indented above, joints 4-6, densely hairy with hooked hairs. (Fl. Fr. September - November). DNT. 337, 489.

Observed on the plains in shaded localities and as an undergrowth of forest.

Abrus Linn.

Abrus precatorius Linn. Syst. Nat. (ed. 12) 472, 1767; FBI.

2: 175; C. 1: 382; Fl. Dang, 27; Saur. 1: 158; Fl. Delhi, 126; Fl. Pavagadh, 82.

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

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

Fr. July - December). DNT. 1139.

Commonly observed as a climber in hedges and along streams in the forests.

Glycine Linn.

Glycine wightii (R. Grah. ex Wt. & Arn.) Verdeourt, in Taxon, 15(1): 35, 1966; Naik, in Ind. For. 96(6): 413, 1969.

Notonia wightii R. Grah. ex Wt. & Arn. Prodr. 208, 1824.

Glycine javanica auct. mult. non Linn. 1753; FBI. 2: 183; C. 1: 386; Saur. 1: 161.

A herbaceous climber. Stems angular, hairy with deflexed hairs. Leaves 3-foliolate; leaflets broadly ovate, appressedly hairy and pale beneath. Flowers in dense, axillary racemes. Pods compressed, linear, densely appressedly hairy. (Fl. Fr. November - December). DNT. 476.

Rare; observed as a twiner in hedges at Kadipani.

Teramnus Sw.

Teramnus labialis (Linn. f.) Spreng Syst. 3: 235, 1826;

FBI. 2: 184; C. 1: 387; Sant. 64; Fl. Dang, 38;

Saur. 1: 159; Fl. Delhi, 128; Fl. Pavagadh, 86.

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

G. warreensis Dalz., in Kew Journ. Bot. 3: 210, 1951;  
D. & G. 68.

A small, hairy, herbaceous twiner, clothed with deflexed hairs. Leaves 3-foliolate; terminal leaflets 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). DNT. 417, 671, 993, 1125, 1806.

Fairly common; noted on hedges and along roadsides.

Mucuna Adans. (nom. cons.)

Mucuna prurita Hook. Bot. Misc. 2: 348, 1831; Gr. 53; D. & G.  
70; Sant. 64; Fl. Dang, 34; Saur. 1: 160; Fl. Delhi,  
129; Fl. Pavagadh, 85.

M. pruriens Baker, in FBI. 2: 187, 1876; C. 1: 389 (non  
DC. 1825).

An extensive twiner, branches slender, glabrous. Leaves

3-foliolate; leaflets membranous, rhomboid-ovate, slightly hairy above, densely hairy with appressed silvery hairs beneath. Flowers deep-purple, axillary, in large pendulous racemes. Pods strongly curved at both the ends, densely covered with brownish, stinging bristles. (Fl. Fr. August - October). DNT. 507, 1137, 1168.

Fairly common; observed as a climber on hedges and in the forest.

Erythrina Linn.

Erythrina suberosa Roxb. Hort. Beng. 53, 1814, nom. nud. & Fl. Ind. 3: 253, 1832; Gr. 54; D. & G. 70; FBI. 2: 189; C. 1: 392; Blatt. & Mill. Beaut. Ind. Trees 72; Fl. Dang, 32; Saur. 1: 162; Fl. Delhi, 129; Fl. Pavagadh, 90.

A small tree. Trunk armed with prickles, which fall off in a few years. Leaves 3-foliolate; leaflets as broad as long, the terminal rhomboid-ovate, the laterals obliquely and broadly ovate-cordate. Flowers scarlet, in small racemes towards the ends of branches. Pods stalked, torulose. (Fl. Fr. April - May). DNT. 836, 1709.

Common; observed near habitation and along roadsides.

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

Butea monosperma (Lamk.) Taub., in Engl. & Prantl, Pfam.

3(3): 366, 1894; Sant. 66; Stearn, in Blatt. & Mill. Some Beaut. Ind. Tr. (ed. 2) 12, 1955; Fl. Dang, 28; Saur. 1: 163; Fl. Delhi, 130; Fl. Pava-gadh, 88.

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

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

Butea frondosa Koenig ex Roxb., in Asiat. Res. 3: 469, 1792 & Pl. Cor. 1: 21, t. 21, 1795; Gr. 54; D. & G. 71; FBl. 2: 194; C. 1: 395; Talb. 1: 409, f. 231.

A small to medium-sized, deciduous tree. Leaves 3-foliolate; leaflets coriaceous, broadly obovate, glabrous above and silky tomentose beneath. Flowers large, showy, red or orange, in dense racemes. Pods stalked, reticulately veined, velvety, 1-seeded. (Fl. Fr. February - April).  
DNT. 1614.

Fairly common; observed in forests along with Tectona, Anogeissus and Mitragyna.

Butea parviflora Roxb. Fl. Ind. 3: 248, 1832; DC. Prodr.

2: 415, 1825; Gr. 54; D. & G. 71; Wt. Ic. t. 210;

Fl. Dang, 28.

Spatholobus roxburghii Benth. Pl. Jungh. 238, 1851-

1852; FBI. 2: 193; C. 1: 394.

A large climber. Leaves 3-foliolate; leaflets sub-coriaceous, stipellate. Flowers in large, terminal panicles. Pods clothed with ferruginous tomentum, 1-seeded. (Fl. Fr. January - February). DNT. 1570.

Rare; observed near streams as a climber on Tectona and Mitragyna in the forest.

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; Saur. 1: 165; Fl. Pavagadh, 90.

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,



glabrous; leaflets large, ovate, acute. Flowers pink or purple, in a spike-like inflorescence. Pods thick, linear-oblong, flattened. (Fl. Fr. September - October). DNT. 568, 1140, 1546.

Commonly noted in hedges and sometimes as an escape from cultivation.

Pueraria DC.

Pueraria tuberosa (Roxb.) DC. in Mem. Leg. 6: 97, 1825 & Prodr. 2: 240, 1825; FBI. 2: 197; C. 1: 374; Sant. 67; Fl. Dang, 36; Saur. 1: 170.

Hedysarum tuberosum Roxb. ex Willd. Sp. Pl. 3: 1197, 1802.

A large, woody climber with tuberous roots. Leaves 3-foliolate; leaflets large, sub-coriaceous. Flowers bluish or lilac, in lax panicles. Pods clothed with long brownish hairs. (Fl. Fr. March - May). DNT. 1458.

Fairly common; noted on the slopes of the hillocks.

Phaseolus Linn.

Phaseolus vulgaris Linn. Sp. Pl. 723, 1753; FBI. 2: 200; C. 1: 403; Bailey, Man. Cult. Pl. 574; Saur. 1: 170; Fl. Delhi, 133.

A sub-erect or twining, glabrous annual. Leaves 3-foliolate; leaflets broadly-ovate to rhomboid-ovate, entire, acuminate; stipules basifixed. Flowers white, in subsessile, few-flowered, lax racemes. Pods linear recurved, 4-6-seeded. Compressed. (Fl. Fr. February - April). DNT. 867, 1068.

Cultivated for its fruits which are used as a vegetable, noted in hedges.

Phaseolus trilobus Ait. Hort. Kew 3: 30, 1789; FBI. 2: 201; C. 1: 401; Fl. Dang, 35; Saur. 1: 168; Fl. Delhi, 132.

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). DNT. 971.

Noted along canals and open moist places during monsoon.

Phaseolus aconitifolius Jacq. Obs. 3: 2, t. 52, 1758; FBI. 2: 202; C. 1: 403; Sant. 69; Saur. 1: 167; Fl. Delhi, 132.

A prostrate or twining hairy herb. Stem and branches

striate, with long spreading hairs. Leaves 3-foliolate; leaflets irregularly lobed, lobes acute. Flowers yellow, in short, capitate, long-peduncled racemes. Pods densely clothed with brownish hairs. (Fl. Fr. August - October). DNT. 368, 484, 612, 1428.

Cultivated for its seeds.

Phaseolus radiatus Linn. Sp. Pl. 725, 1753; Sant. 69; Fl.

Dang, 35; Saur. 1: 169; Fl. Pavagadh, 78.

Phaseolus sublobatus Roxb. Hort. Beng. 54, 1814, nom.

nud. & Fl. Ind. 3: 288, 1832; C. 1: 402.

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

2: 203.

Erect, suberect or climbing herb. Leaves 3-foliolate; leaflets entire, ovate, acute. Flowers yellow, in short-peduncled, few-flowered racemes. Pods cylindric, densely clothed with reddish-brown hairs. (Fl. Fr. August - October). DNT. 437, 971.

Noted in moist places along water canals and in hedges.

Phaseolus angularis (Willd.) Wight, in U.S. Dept. Agric.

Bur. Pl. Ind. Bull. 137: 17, 1909; 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). DNT. 996.

Cultivated.

### 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; Fl. Delhi, 133.

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). DNT. 1784.

Cultivated, the pods are edible.

Clitoria Linn.

Clitoria ternatea Linn. Sp. Pl. 753; 1753; D. & G. 68;

FBI. 2: 208; C. 1: 405; Fl. Dang, 29; Saur. 1:  
171; Fl. Delhi, 131; Fl. Pavagadh, 80.

A twining herb. Leaves imparipinnate; leaflets elliptic-oblong, obtuse. Flowers bright blue, axillary, solitary. Pods flattened, sharply beaked. (Fl. Fr. June - December). DNT. 1785.

Observed as a climber in hedges.

Clitoria biflora Dalz., in Kew Journ. Bot. 2: 35, 1850; FBI.

2: 208; C. 1: 405; Sant. 70; Fl. Dang, 29; Saur. 1:  
172; Fl. Pavagadh, 80.

An erect herb. Stems and branches strongly striate, with lines of hairs. Leaves imparipinnate; the terminal one the largest, acute. Flowers in axillary 2-flowered racemes. Pods stipitate, flat. (Fl. Fr. August - December). DNT. 992, 1196, 1399.

Observed on the plains and on the slopes of the hillocks along with grasses.

Lablab Adans.

Lablab purpureus (Linn.) Sweet, Hort. Brit. ed. I : 481, 1827;

Verdcourt, in KB. 24(3): 410, 1970.

Dolichos purpureus Linn. Sp. Pl. (ed. 2) 1021, 1963.

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

A large, glabrous twiner. Leaves 3-foliolate; leaflets as broad as long, sub-coriaceous. Flowers white or bluish, in axillary racemes. Pods recurved, oblong, strongly falcate. (Fl. Fr. September - October). DNT. 1378.

Cultivated; noted in hedges near habitation.

Atylosia Wt. & Arn.

Atylosia sericea Benth. MS. ex Baker, in FBI. 2: 213, 1876; C. 1: 383; Sant. 72.

An erect, grooved shrub. Leaves 3-foliolate; leaflets oblong-lanceolate, obtuse, gland-dotted beneath. Flowers axillary, solitary or in pairs. (Fl. October). DNT. 529.

Rare; observed on the plains on the top of the hills at Ambadungar.

Atylosia scarabaeoides Benth. Pl. Jungh. 3: 243, 1852; FBI. 2: 215; C. 1: 409; Fl. Dang, 28; Saur. 1: 175.

A herbaceous twiner. Stem and branches slender, covered with yellowish hairs. Leaves 3-foliolate; leaflets sub-coriaceous, oblong-elliptic, acute. Flowers yellow, on short axillary peduncles. Pods inflated, with deep transverse lines between the seeds, densely hairy with brownish hairs. (Fl. Fr. June - October). DNT. 358, 1177, 1382.

Observed as a twiner in moist places along streams and in forests.

Rhynchosia Lour. (nom. cons.)

Rhynchosia rothii Benth. ex Aitch. Cat. Pl. Punjab & Sindh 50, 1869; Noteboom, in Reinwardtia 5: 441, 1961.

R. sericea Span. in Linnea 15: 195, 1841 (non Gill. ex Hook. & Arn. 1833); FBI. 2: 225; Saur. 1: 175; Fl. Pavagadh, 89.

A stout woody climber. Stems and branches clothed with long spreading hairs. Leaves 3-foliolate; leaflets broadly ovate, acute. Flowers purplish, in axillary racemes. Pods densely hairy with short hairs, 2-seeded. (Fl. Fr. August - October). DNT. 1818.

Rare; observed on the slopes of the hillocks at Handevdungar.

Rhynchosia capitata DC. Prodr. 2: 386, 1825; FUGP. 1: 222;

Fl. Delhi, 134.

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. Ic. t.295.

A trailing herb, stem hairy. Leaves 3-foliolate; leaflets rhomboid-ovate, subobtus. Flowers yellow, in many-flowered, crowded, capitate racemes. Pods orbicular, compressed with transverse wrinkles, mottled and covered with soft spreading hairs; seeds 2, brown with a waxy strophiole.

Commonly observed in sandy soil on the plains along with grasses.

Rhynchosia minima (Linn.) DC. Prodr. 2: 385, 1825; FBI.2:

223; C. 1: 414; Fl. Dang, 36; Saur. 1: 176; Fl.

Delhi, 133; 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-folio-



late, leaflets obtuse, deltoid at the base, minutely gland-dotted beneath. Flowers yellow, small, in slender axillary racemes. Pods small, compressed, 2-3-seeded. (Fl. Fr. August-January). DNT. 480, 1145, 1547.

Fairly common; noted on hedges and along roadsides.

Rhynchosia minima var. laxiflora Baker, in FBI. 2: 223; C. 1: 414; G. 1: 264; 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). DNT. 1113.

Observed as a climber on hedges.

Dalbergia Linn. f. (nom. cons.)

Dalbergia sissoo Roxb. Hort. Beng. 53, 1814, nom. nud. &

Fl. Ind. 3: 223, 1832; FBI. 2: 231; C. 1: 421; Saur. 1: 179; Fl. Delhi, 135.

A medium-sized tree. Leaves imparipinnate; leaflets suborbicular, acuminate. Flowers yellow, in axillary short panicles. Pods thin, strap-shaped, glabrous. (Fl. Fr. December - April). DNT. 933, 1443.

Not common; planted at Rangpur.

Dalbergia latifolia Roxb. Pl. Cor. 2: 7, t. 113, 1789; Fl.

Ind. 3: 221, 1832; Wt. Ic. t. 1156; FBI. 2: 231;

C. 1: 422; Sant. 75; Fl. Dang, 31; Saur. 1: 178;

Fl. Pavagadh, 86.

A middle-sized tree. Leaves imparipinnate; leaflets orbicular or suborbicular, obtuse. Flowers white or creamy-white, in axillary or extra-axillary, lax panicles. Pods strap-shaped, glabrous. (Fl. Fr. October - December).

DNT. 552, 997, 1391.

Common; observed on the slopes of the hillocks and along forest paths.

Dalbergia lanceolaria Linn. f. Suppl. 316, 1781; FBI. 2:

235; C. 1: 425; Sant. 75; Fl. Dang, 31; Saur. 1:

178; Fl. Pavagadh, 87.

A large tree. Leaves imparipinnate; leaflets elliptic or oblong, obtuse, emarginate. Flowers in axillary and terminal panicles. Pods strap-shaped, tapering at both the ends. (Fl. Fr. June - October). DNT. 65, 668.

Observed on the slopes of the hillocks.

Pterocarpus Linn.

Pterocarpus marsupium var. acuminatus Prain, in JASB. 66:

455, 1898; FBI. 2: 239 pro.parte; C. 1: 428; Talb.  
1: 431, f. 242; Sant. 75; Fl. Dang, 36; Saur. 1:  
179.

P. marsupium Graham 56, 1839; D. & G. 76(non Roxb.)

A tall tree with crooked stem. Leaves imparipinnate;  
leaflets leathery, oblong, rounded at the apex and then  
suddenly acuminate, glabrous. Flowers in lateral and terminal  
panicles. Pods orbicular, winged, thick in the middle, 1-  
seeded. (Fl. Fr. April - June). DNT. 1730.

Rare; observed in the forest at Alwa.

Derris Lour.

Derris indica (Lamk.) Bennet, Comb. nov. in JBNHS. 68(1):  
302-304, 1971.

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

Cytisus pinnatus Linn. Sp. Pl. 1: 741, 1753 (non  
Derris pinnata Lour. 1790).

Robinia mitis Linn. Sp. Pl. 2: 1044, 1753 (nom.illegit.)

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

P. pinnata (Linn.) Pierre, Fl. Cochinch. Sub. t. 385,

1899; Sant. 75; Fl. Dang, 35; Saur. 1: 180; Fl. Delhi, 135; Fl. Pavagadh, 87.

A moderate-sized, glabrous, deciduous tree. Leaves imparipinnate; leaflets ovate, acute, pale-green, shortly acuminate. Flowers pinkish-white, in short axillary racemes. Pods thick, hard, oblong, oblique, 1-seeded. (Fl. Fr. March - June). DNT. 102, 913.

Commonly observed along streams and at the foot of hillocks.

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; Saur. 1: 181; Fl. Delhi, 134.

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

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

An erect, much-branched shrub. Leaves 3-foliolate; leaflets oblong-lanceolate. Flowers yellow, in corymbose racemes. Pods narrowed at the ends, compressed with diagonal depressions. (Fl. Fr. November - July). DNT. 515.

Cultivated.

Arachis Linn.

Arachis hypogaea Linn. Sp. Pl. 741, 1753; FBI. 2: 161; C. 1: 435; Bailey, Man. Cult. Pl. 554; Fl. Dang, 28; Saur. 1: 181; Fl. Delhi, 125.

A prostrate, diffuse annual. Leaves bi-pinnate; leaflets ovate or ovate-oblong. Flowers yellow. Pods indehiscent, 1-3-seeded. (Fl. Fr. August - November). DNT. 40.

Cultivated.

Pisum Linn.

Pisum sativum Linn. Sp. Pl. 727, 1753; FBI. 2: 181; C. 1: 436; Bailey, Man. Cult. Pl. 553; Fl. Delhi, 128.

A climbing annual herb. Leaves imparipinnate compound; rachis ending into branched tendrils; stipules large, foliaceous. Flowers white, on long peduncles. Pods broad, seeds globose. (Fl. Fr. January - March). DNT. 1622.

Cultivated for its fruits.

Cicer Linn.

Cicer arietinum Linn. Sp. Pl. 738, 1753; FBI. 2: 176; C. 1: 435; Bailey, Man. Cult. Pl. 554; Fl. Dang, 29; Fl. Delhi, 126.

A much-branched, glandular-pubescent, annual herb.  
 Leaflets opposite or alternate, closely serrate. Flowers  
 pink or blue, solitary or few in the axils. Pods turgid,  
 oblong. (Fl. Fr. January - February). DNT. 1548.

Commonly cultivated during the cold season.

#### CAESALPINIACEAE

Leaves simple, shallowly or deeply  
 divided into 2 lobes .....Bauhinia

Leaves compound :

Leaves simply pinnate :

Leaflets one pair .....Hardwickia

Leaflets more than one pair :

Herbs or shrubs; fertile

stamens 5-10 .....Cassia

Tree ; fertile stamens 3 .....Tamarindus

Leaves bi-pinnate :

Leaf rachis ending in a spine .....Parkinsonia

Leaf rachis not ending in spine :

Pods more or less winged.....Peltophorum

Pods not winged :

Climbing shrubs; pods armed  
with sharp prickles .....Caesalpinia

A small tree; pods not armed, flat.....Delonix

Bauhinia Linn.

Fertile stamens 10 .....racemosa

Fertile stamens 3-5 .....purpurea

Bauhinia racemosa Lamk. Encycl. 1: 390, 1783; FBI. 2: 276;

C. 1: 459; Sant. 80; Fl. Dang, 38; Saur. 1: 197;

Fl. Pavagadh, 91.

A small or medium-sized tree. Leaves broader than long, cordate, divided little less than half way down into two rounded lobes. Flowers white, in terminal or axillary racemes; stamens 10, all fertile. Pods stalked, glabrous. (Fl. Fr. January - June). DNT. 666, 1362, 1692.

Observed at the foot of hillocks and along roadsides.

Bauhinia purpurea Linn. Sp. Pl. 375, 1753; FBI. 2: 284;

C. 1: 461; Talb. 1: 466; Blatter & Millard, Beaut.

Tr. 80 & t. opp. p. 80; Sant. 81; Fl. Dang, 38;

Saur. 1: 198; Fl. Delhi, 138.

A small tree. Leaves simple, deeply 2-lobed, about as

broad as long. Flowers showy, rose-purple, in terminal and axillary, few-flowered racemes; fertile stamens 3-5, rest staminodes. Pods flat, woody. (Fl. Fr. September - November). DNT. 620, 1332.

Cultivated; noted near habitation.

Hardwickia Roxb.

Hardwickia binata Roxb. Pl. Cor. 3: 6, t. 209, 1811; FBI. 2: 270; C. 1: 476; Saur. 1: 195; Fl. Delhi, 456; Meher-Jomji, in JBNHS. 67(1): 81-86, 1970; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 38, 1970 & 1971.

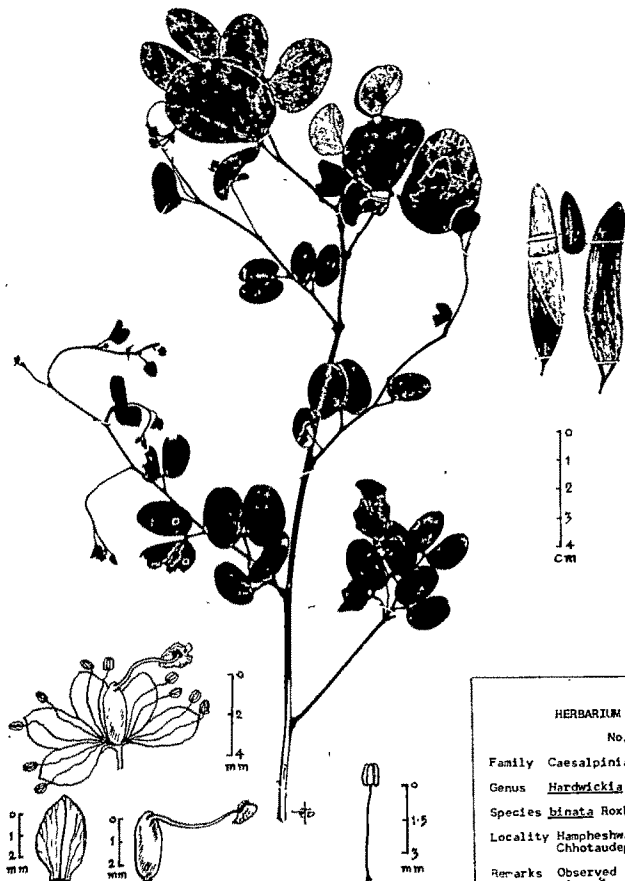
A large, deciduous tree with spreading branches. Leaves alternate; leaflets one pair, much longer than broad, oblique, emarginate, coriaceous, glabrous. Flowers white, in axillary and terminal panicles. Pods strap-shaped, thin, veined; 1-seeded, seed near the tip of the pod. (Fl. Fr. September - January). DNT. 882, 1051.

PLATE No. 47 & 48

Rare; observed along the river banks at Hampsheshwar.

According to Meher-Homji (loc. cit.) the discontinuous patchy distribution of Hardwickia binata in peninsular India is a puzzle. A remarkable feature of its distribution is its





0  
1  
2  
3  
4  
cm

*Hardwickia binata* Roxb.

HERBARIUM  
No. DNT. 882.  
Family Caesalpiniaceae  
Genus *Hardwickia*  
Species *binata* Roxb.  
Locality Hampshwar,  
Chhotaudepur.  
Remarks Observed along the  
river banks.

IP-4-70. Collected by



• JAN • 73

PLATE No. 48. Hardwickia binata Roxb.

complete absence in the Western Ghats. It occurs on the east-west oriented Satmala, Satpura, Mahadeo and Vindhya ranges but is conspicuous by its absence in the north-south oriented Sahyadris. It is found in discontinuous patches in NE-SW oriented hills of Eastern Ghats (in Andhra Pradesh and Tamil Nadu) and near Haveri, Harihar, Chitradurga, Hiriyur and Tumkur (Karnatak State) just to the east of the Western Ghats. Common in Khandesh.

In Gujarat, it is noted along the banks of river Narmada and at Gir and Girnar forests.

Cassia Linn.

Pods more than 20 cm. long, terete .....fistula

Pods less than 20 cm. long, more or less flattened :

Fertile stamens 5, staminodes 0 :

Leaflets 2 pairs .....absus

Leaflets 10-15 pairs or more .....pumila

Fertile stamens 7, staminodes 3 :

Gland present at the base of the  
petiole or rachis .....occidentalis

Gland inserted between one or more  
pairs of leaflets :

Leaflets 3 pairs .....tora

Leaflets 8-10 pairs .....auriculata

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; Saur. 1:

187; Fl. Delhi, 142; Fl. Pavagadh, 93.

C. rhombifolia Roxb. Hort. Beng. 31, 1814; Wt. Ic.  
t. 269.

A medium-sized, deciduous tree. Leaves paripinnate; leaflets glabrous, ovate or ovate-oblong, acute. Flowers yellow, in long, drooping, lax racemes. Pods cylindric, more than 20 cm. long, pendulous, brown-black. (Fl. Fr. April - July). DNT. 1739.

Commonly observed along roadsides and on the slopes of the hillocks.

Cassia absus Linn. Sp. Pl. 376, 1753; FBI. 2: 265; C. 1:

451; Sant. 79; Fl. Dang, 39; Saur. 1: 192; Shah,

in Ind. For. 89(4): 289, 1963; Fl. Pavagadh, 91.

An erect herb. Stem and branches clothed with glandular hairs. Leaves simple pinnate with only two pairs of leaflets; leaflets elliptic-oblong, oblique,

glabrous above, hairy beneath. Flowers light pink, but not yellow, (as mentioned in C. 1: 451) in small, leaf-opposed or terminal racemes. Pods thin, compressed, oblique, sparingly hairy. (Fl. Fr. August - November). DNT. 990, 1080.

Fairly common; observed along roadsides and along forest fringes.

Cassia pumila Lamk. Encycl. 1: 651, 1784; FBI. 2: 266; C. 1: 452; D. & G. 82; Sant. 79; Fl. Dang, 39; Saur. 1: 193; Fl. Delhi, 141; Fl. Pavagadh, 92.

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; stipules lanceolate, very acute. Flowers yellow, small, solitary or 2-3 together, supra-axillary; stamens 5. Pods thin, oblique, linear. (Fl. Fr. August - October). DNT. 148, 986, 1182.

Very common along roadsides, on open waste places and as a weed in cultivated fields.

Cassia occidentalis Linn. Sp. Pl. 377, 1753; Gr. 63; FBI. 2: 262; C. 1: 445; Fl. Dang, 39; Saur. 1: 188; Fl. Delhi, 141; Fl. Pavagadh, 92.

Senna occidentalis Roxb. Fl. Ind. (ed. Carey 2)  
343, 1832.

An erect undershrub. Leaves simple pinnate; leaflets 3-5 pairs, ovate-oblong or oblanceolate, with an ovoid gland at the base of rachis. Flowers yellow, axillary, in few-flowered racemes; fertile stamens 7. Pods transversely septate, glabrous. (Fl. Fr. June - November). DNT. 628, 771.

Common and abundant along roadsides, waste places and elevated banks of rivers. Usually seen in association with Cassia tora, Tephrosia hamiltonii, Crotalaria medicaginea and Xanthium strumarium.

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; Saur. 1: 189; Fl. Delhi, 141; Fl. Pava-  
gadh, 92.

Cassia obtusifolia Linn. Sp. Pl. 377, 1753.

An erect, annual herb. Leaves paripinnate; leaflets three pairs, ovate-oblong, glabrous, opposite, rachis with a conical gland between each of the two lowest pairs of leaflets. Flowers yellow, in sub-sessile, axillary pairs. Pods slender, subcylindric, obliquely septate. (Fl. Fr. August - November). DNT. 399.

Very common along roadsides, on the banks of rivers and as an undergrowth of forest. Usually seen in association with Cassia occidentalis, Tephrosia hamiltonii and Xanthium strumarium.

Cassia auriculata Linn. Sp. Pl. 379, 1753; FBI. 2: 263; C. 1: 448; De Wit, in Webbia 11: 234, 1955; Saur. 1: 190; Fl. Pavagadh, 92.

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, in terminal and axillary corymbose racemes. Pods flat, thin, oblong, obtuse. (Fl. Fr. January - April). DNT. 1624.

Observed on elevated banks of rivers.

Tamarindus Linn.

Tamarindus indica Linn. Sp. Pl. 34, 1753; D. & G. 82; FBI. 2: 273; C. 1: 457; Talb. 1: 459; f. 260; Saur. 1: 196; Fl. Delhi, 139; Fl. Pavagadh, 93.

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, linear-oblong, indehiscent. (Fl. Fr. July - December). DNT. 1630.

Often planted along roadsides and near habitation.

Parkinsonia Linn.

Parkinsonia aculeata Linn. Sp. Pl. 375, 1753; FBI. 2: 261;

C. 1: 442; Saur. 1: 186; Fl. Delhi, 138.

A small tree, armed with sharp woody spines. Leaves bipinnate; main rachis ending in a spine; rachilla long, winged, bearing numerous, small leaflets. Flowers yellow, in axillary racemes. Pods long, moniliform. (Fl. Fr. October-February) DNT. 852.

Cultivated along roadsides and near habitation.

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.

Peltophorum ferrugineum (Decne) Benth. Fl. Austr. 2: 279,

1864; FBI. 2: 257.

Caesalpinia inermis Roxb. Fl. Ind. 2: 367, 1832.



Peltophorum ferrugineum (Decne) Benth. Fl. Austr. 2:

279, 1864; FBI. 2: 257.

A large tree. Leaves bi-pinnate; leaflets ovate-oblong. Flowers golden yellow, in terminal panicles. Pods oblong, flat, thin, more or less winged. (Fl. Fr. September - October). DNT. 139.

Planted along roadsides and near habitation.

Caesalpinia Linn.

Caesalpinia crista Linn. Sp. Pl. 380, 1753, pro majore parte, excl. Fl. Zeyl. 157; Fl. Dang, 39; Saur. 1: 182; Fl. Delhi, 144; Fl. Pavagadh, 94.

Caesalpinia bonducella Fleming, in Asiat. Res. 11: 159, 1810; FBI. 2: 254; C. 1: 437.

A large, climbing shrub, armed with hooked and straight, sharp prickles. Leaves pinnate; leaflets oblong-elliptic, mucronate. Flowers yellow, in dense racemes. Pods oblong, broad, covered with sharp prickles. (Fl. Fr. September - October). DNT. 1788.

Rare; noted in hedges at Rangpur.

Delonix Raf.

Flowers large, bright red .....regia

Flowers small, white or pale-yellow.....elata

Delonix regia (Boj.) Raf. Fl. Tell. 2: 92, 1836; Sant.

78; Fl. Dang, 40; Saur. 1: 184; Fl. Delhi, 143.

Poinciana regia Boj. ex Hook. in Bot. Mag. t. 2884,

1829; FBI. 2: 260; C. 1: 442.

A medium-sized, deciduous tree. Leaves bi-pinnate; leaflets small, linear-oblong. Flowers bright red or scarlet, in large terminal racemes, appearing when the tree is leafless. Pods flat, thick. (Fl. Fr. August - April). DNT. 1712.

Planted along roadsides.

Delonix elata (Linn.) Gamble, Fl. Pres. Madras, 396, 1919;

Sant. 78; Saur. 1: 185.

Poinciana elata Linn. Cent. Pl. 2: 16, 1756; FBI. 2:

260; C. 1: 441.

A small, deciduous tree. Leaves bi-pinnate; leaflets linear-oblong, rounded and apiculate at the apex. Flowers small, white or pale-yellow, in terminal, few-flowered, corymbose racemes. (Fl. Fr. July - September). DNT. 679, 1629.

Commonly noted in hedges and near habitation.

## MIMOSACEAE

Stamens definite :

  Anthers gland-tipped :

    Pods turgid, straight or

    nearly so .....Prosopis

    Pods thin, twisted .....Dichrostachys

  Anthers not gland-tipped .....Mimosa

Stamens indefinite :

  Stamens free; flowers in spikes

  or globose heads .....Acacia

  Stamens monadelphous :

    Pods straight .....Albizia

    Pods curved or twisted .....Pithecellobium

Prosopis Linn.

Prosopis cineraria (Linn.) Druce, in Rep. Bot. Exch. Club.

  Br. Is. 3: 422, 1914; Hutchinson, in Gen. Fl. Pl.

  1: 289, 1964; Raizada, in Ind. For. 94(6): 449,

  1968.

Mimosa cineraria Linn. Sp. Pl. 517, 1753.

Prosopis spicigera Linn. Mant. 68, 1767; FBI. 2:

288; C. 1: 467; Saur. 1: 200; Fl. Delhi, 145;

Fl. Pavagadh, 95.

An armed, glabrous tree. Leaves bi-pinnate; pinnae usually two pairs with a gland between each pair; leaflets obliquely oblong, sub-sessile. Flowers yellow, in axillary, short-peduncled spikes; anthers gland-tipped, gland sessile. Pods turgid, straight or nearly so. (Fl. Fr. October - December). DNT. 1864.

Commonly noted along roadsides and in hedges.

Dichrostachys (DC.) Wt. & Arn. (nom. cons.)

Dichrostachys cinerea (Linn.) Wt. & Arn. Prodr. 271, 1834;

FBI. 2: 288; C. 1: 468; Talb. 1: 473, f. 269; Wt.

Ic. t. 357; Saur. 1: 201; Fl. Delhi, 146; Fl.

Pavagadh, 95.

Mimosa cinerea Linn. Sp. Pl. 520, 1753.

A rigid, armed shrub or a small tree. Leaves bi-pinnate; 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). DNT. 79, 1618.

Fairly common; noted along roadsides and in hedges.

Mimosa Linn.

Mimosa hamata Willd. Sp. Pl. 4: 1033, 1806; FBI. 2: 291;  
C. 1: 471; Sant. 83; Saur. 1: 202; Fl. Delhi, 147;  
Shah, in Ind. For. 89(4): 289, 1963.

A much-branched, prickly undershrub. Leaves bi-pinnate;  
leaflets small, ovate-oblong. Flowers pink, in globose  
heads. Pods flat, curved, sutures armed with prickles. (Fl.  
Fr. August - November). DNT. 124, 1076.

Rare; observed at the foot of hillocks at Hampsheshwar.

Acacia Willd.

Erect trees or shrubs :

Flowers in globose heads :

Flowers on axillary peduncles .....nilotica ssp.indica.

Flowers usually in terminal

panicles .....leucophloea

Flowers in spikes .....chundra

Climbing or straggling shrubs :

Leaflets less than 30 pairs .....torta

Leaflets more than 30 pairs .....pennata

Acacia nilotica (Linn.) Del. ssp. indica (Benth.) Brenan,  
in KB. 1: 84, 1957; Sant. 83.

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; Saur.  
1: 204; Fl. Pavagadh, 96.

A. arabica auct. Ind. non Willd. FBI. 2: 293; C. 1:  
472; Talb. 1: 480, f. 272; Fl. <sup>D</sup>ang, 40; Fl. Delhi,  
148.

A small or medium-sized tree, armed with straight,  
white, stipular spines. Leaves bi-pinnate; leaflets linear-  
oblong, obtuse. Flowers yellow, in globose heads on axillary  
peduncles. Pods moniliform, flat. (Fl. Fr. May - October).  
DNT. 905, 1723.

Observed on waste lands and in hedges.

Acacia leucophloea Willd. Sp. Pl. 4: 1083, 1805; Gr. 59;

FBI. 2: 294; C. 1: 475; D. & G. 86; Talb. 1: 485, f. 275; Saur. 1: 207; Fl. Delhi, 149; Fl. Pavagadh, 96.

Mimosa leucophloea Roxb. Pl. Cor. 2: 27, t. 50, 1800.

A small or medium-sized, armed tree. Leaves bi-pinnate; leaflets linear, crowded; stipular spines straight, short. Flowers pale-yellow, in globose heads, arranged in terminal panicles. Pods thin, flat, clothed with pale brown, tomentum. (Fl. Fr. October - September). DNT. 563, 1451, 1859.

Commonly observed along roadsides and at the foot of the hillocks.

Acacia chundra (Roxb.) Willd. Sp. Pl. 4: 1078, 1806; Sant. 84; Fl. Dang, 40; Saur. 1: 207.

Mimosa chundra Roxb. ex Willd. loc. cit. 1079, 1806.

M. sundra Roxb. Pl. Cor. 3: t. 225, 1819 & Fl. Ind. 2: 562, 1832.

Acacia sundra DC. Prodr. 2: 458, 1825; FBI. 2: 295; D. & G. 86.

A. catechu var. sundra Prain, in Journ. As. Soc. Beng. 66: 508-510, 1898; C. 1: 477.

A medium-sized tree, armed with stipular spines. Leaves

bi-pinnate; leaflets linear, subacute, sessile; main rachis with a conspicuous gland near the base. Flowers yellow, in axillary spikes. Pods stalked, flat, thin, shining. (Fl. Fr. August - October). DNT. 113, 1136.

Fairly common; noted along roadsides and on the slopes of the hillocks.

Acacia torta (Roxb.) Craib., in KB. 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.

A scandent shrub, armed with numerous hooked prickles. Leaves bi-pinnate; leaflets linear, crowded, less than 30 pairs. Flowers yellow, in globose heads on large terminal panicles. Pods strap-shaped, flat, thin. (Fl. Fr. October - December). DNT. 669.

Rare; observed as a climber on hedges at Fanai.

Acacia pennata (Linn.) Willd. Sp. Pl. 4: 1090, 1805; Gr. 59; FBI. 2: 297; C. 1: 480; Sant. 85; Fl. Dang, 41; Saur. 1: 204; Fl. Pavagadh, 96.

Mimosa pennata Linn. Sp. Pl. 522, 1753 (excl. syn.).

A heavy climber, armed with numerous hooked or straight



prickles. Leaves bi-pinnate; leaflets linear, sessile, small, more than 30 pairs. Flowers yellow, in globose heads, on large terminal panicles. Pods flat, thin, glabrous, dry. (Fl. Fr. August - January). DNT. 124, 561, 1528.

Noted on the slopes of hillocks as a climber on Mitragyna and Anogeissus.

Albizia Durazz.

Pods brown or reddish-brown;

flowers sessile .....procera

Pods straw-coloured; flowers stalked.....lebbeck

Albizia procera (Roxb.) Benth. in Hook. Lond. Journ. Bot.

3: 89, 1844; FBI. 2: 299; C. 1: 482; Talb. 1: 499;

Sant. 86; Fl. Dang, 41; Fl. Delhi, 151.

An unarmed, tall tree. Leaves bi-pinnate with a large gland at the base of the petiole, rachises glabrous with an oval gland below the upper most pair of leaflets; leaflets obtuse, 6-12 pairs. Flowers whitish-yellow, sessile, small, 12-20-flowered heads, arranged in terminal panicles. Pods scarcely stalked, thin, bright orange-brown, shining. (Fl. Fr. May - October). DNT. 678.

Rare; observed at the foot of hillocks along with  
Morinda, Mitragyna and Tectona at Fanai.

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. Dang, 41; Saur. 1: 210; Fl.  
Delhi, 151.

Mimosa lebbeck Linn. Sp. Pl. 516, 1753.

Acacia speciosa Willd. Sp. Pl. 4: 1066, 1806; Gr. 58.

A large, deciduous, unarmed tree. Leaves bi-pinnate, main rachis with a large gland near the base of the petiole; leaflets oblong, obtuse, subcoriaceous. Flowers white, in globose, umbellate heads, stalked. Pods linear-oblong, bluntly pointed, thin, pale-yellow. (Fl. Fr. July - October). DNT. 560.

Fairly common; observed along roadsides and on the slopes of the hillocks.

Pithecellobium Mart. (nom. cons.)

Pithecellobium dulce (Roxb.) Benth., in Hook. Lond. Journ.  
Bot. 3: 199, 1844; FBI. 2: 302; C. 1: 485; Talb. 1:  
502; Sant. 86; Fl. Dang, 41; Saur. 1: 211; Fl.  
Delhi, 152; Fl. Pavagadh, 97.

Mimosa dulcis Roxb. Pl. Cor. 1: 67, t. 99, 1795.

Inga dulcis Willd. Sp. Pl. 4: 1105, 1806; Gr. 56; D.  
& G. Suppl. 25; Wt. Ic. t. 198.

A large tree, armed with stipular spines. Leaves with one pair of pinnae, each pinnae with two leaflets. Flowers whitish, in dense globose heads, on elongated branches. Pods spirally twisted; aril edible. ( Fl. Fr. January - March.).  
DNT. 1612.

Cultivated near habitation.

#### VAHLIACEAE

Vahlia Thunb.

Vahlia digyna (Retz.) O. Kuntze, Rev. Gen. Pl. 227, 1891;  
Sant. 87; Fl. Dang, 42; Saur. 1: 212; Fl. Pavagadh,  
97.

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.  
Ic. 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).  
DNT. 1633.

Rare; observed as a weed in cultivated fields at Kawant.

#### ROSACEAE

Potentilla Linn.

Potentilla supina Linn. Sp. Pl. 497, 1753; FBI. 2: 359;  
C. 1: 490; Fl. Delhi, 155.

An annual, much-branched, prostrate herb. Leaves impari-  
pinnate; leaflets lobed, bluntly toothed, hairy. Flowers  
yellow, solitary, small, axillary; carpels numerous. Fruit  
an achene. (Fl. Fr. December - April). DNT. 879, 1566, 1894.

PLATE No. 49

Rare; noted in sandy, clayey or silty, moist soils of  
Narmada river bank at Hampheshwar.

#### COMBRETACEAE

Erect trees :

Flowers in spikes or racemes .....Terminalia

Flowers in globose heads .....Anogeissus

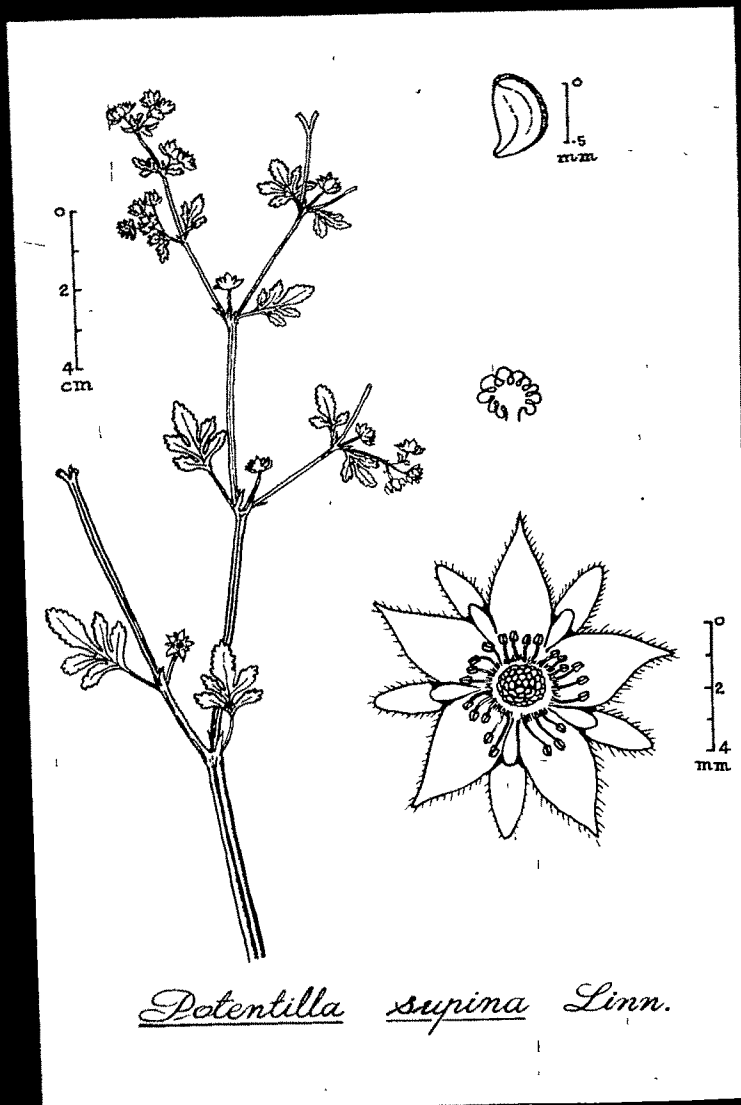


PLATE No. 49.

## Climbing shrubs :

Petals 4; flowers under 1 cm. long .....Combretum

Petals 5; flowers over 5 cm. long .....Quisqualis

Terminalia Linn.

## Fruit winged :

Veins of the wings horizontal .....crenulata

Veins of the wings curving upwards .....arjuna

## Fruit not winged :

Fruit tomentose, sub-globose .....bellirica

Fruit ellipsoid, compressed, glabrous.....cattapa

Terminalia crenulata Roth, Nov. Pl. Sp. 380, 1821; Santapau,  
in JBNHS. 50: 305-307, 1951-52; Sant. 90; Fl. Dang,  
43; Saur. 1: 216; Fl. Pavagadh, 99.

Terminalia tomentosa var. crenulata Clarke, in FBI. 2:  
448, 1878.

T. crenulata Cooke, Fl. Pres. Bombay (Rep. ed.) 1:  
510; Talb. 2: 18, 297 (non Wt. & Arn. nisi partim,  
nec mart.).

A large, deciduous tree. Leaves opposite or sub-opposite, elliptic or ovate-oblong with a stalked gland at the base of the midrib. Flowers dull yellow, in terminal spikes or panicles. Fruits brown, with five broad wings, horizontally veined. (Fl. Fr. April - June). DNT. 166, 926.

Fairly common; noted along with Tectona grandis, Butea monosperma and Adina cordifolia in the forest.

Terminalia arjuna (Roxb. ex DC.) Wt. & Arn. Prodr. 314, 1834; D. & G. 91; Bedd. Fl. Sylv. t. 28, 1869; FBI. 2: 447; C. 1: 509; Fl. Delhi, 156.

Pentaptera arjuna Roxb. Hort. Beng. 34, 1814, nom. nud.; DC. Prodr. 3: 14, 1828, cum. descript.

A medium-sized tree. Leaves opposite or sub-opposite, elliptic-oblong with 1-2 glands at the base of the lamina. Flowers pale yellow, in pendulous, terminal and axillary spikes. Fruit brown, 5-winged veins curving upwards. (Fl. Fr. April - August). DNT. 74.

Rare; noted on the slopes of the hillocks at Ambadungar.

Terminalia bellirica (Gaertn.) Roxb. Pl. Cor. 2: 54, t. 198, 1798; FBI. 2: 445; C. 1: 508; Gr. 69; Sant. 89; Fl.

Dang, 42; Saur. 1: 217; Fl. Delhi, 155; Fl.  
Pavagadh, 99.

Myrobalanus bellirica Gaertn. Fruct. ii 90, t. 97,  
1791.

A large, deciduous tree. Leaves clustered at the end of branches, coriaceous, rounded or elliptic-oblong. Flowers pale yellow, in axillary spikes. Fruit sub-globose, covered with a velvety tomentum. (Fl. Fr. April - August). DNT. 683, 888, 906.

Observed on the slopes of the hillocks and near habitation.

Terminalia cattapa Linn. Mant. 519, 1771; FBI. 2: 444; C. 1: 511; Fl. Dang, 43; Saur. 1: 218.

A small, deciduous tree. Leaves large, obovate, obtuse, auricled at base. Flowers yellow, in spikes. Fruit ellipsoid, compressed, glabrous. (Fl. Fr. April - October). DNT. 934.

Cultivated; noted near habitation.

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; Saur. 1: 220; Fl. Pavagadh, 98.

Conocarpus latifolia Roxb. Hort. Beng. 34, 1814,

nom. nud. & Fl. Ind. 2: 442, 1824; D. & G. 91;

Wt. Ic. t. 994.

A medium-sized, deciduous tree. Leaves elliptic-oblong, alternate or sub-opposite, obtuse. Flowers greenish, in small, globose heads. Fruits winged, beaked, compressed. (Fl. Fr. October - January). DNT. 527, 660, 1193, 1582.

Fairly common; observed on the slopes of the hillocks and along forest paths.

Combretum Loeffling (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; Fl. Dang, 42; Saur.

1: 219; Fl. Pavagadh, 100.

A heavy climber. Leaves opposite, elliptic or elliptic-lanceolate, glabrous. Flowers yellowish-green, in axillary spikes, at times forming large, terminal panicles. Fruit pale yellow with four broad, papery wings. (Fl. Fr. January-March). DNT. 1551.

Commonly observed as a climber on Albizia and Anogeissus at the foot and on the slopes of the hillocks.

Quisqualis Linn.

Quisqualis indica Linn. Sp. Pl. (ed. 2) 556, 1762; FBI. 2: 459; C. 1: 517; Talb. 2: 27-28, t. 304; Bailey, Man. Cult. Pl. 724; Sant. 92; Fl. Dang, 42; Saur. 1: 220; Fl. Delhi, 157; Fl. Pavagadh, 100.

A large climber. Leaves elliptic or ovate-oblong, opposite. Flowers pink or white, in terminal drooping spikes. (Fl. Fr. July - November). DNT. 886.

Cultivated near habitation.

#### MYRTACEAE

Fruits indehiscent, fleshy :

Flowers small, greenish-white, in  
terminal, axillary or lateral cymes;  
fruit 1-seeded .....Syzygium

Flowers large, white on 1 or few-  
flowered peduncles; fruit many-seeded.....Psidium

Fruits dehiscent, dry .....Eucalyptus

Syzygium Gaertner (nom. cons.)

Leaves elliptic-oblong or broadly ovate,  
more than 3 cm. broad .....cumini

Leaves oblong-lanceolate, less  
than 3 cm. broad .....heyneanum

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; Benthall, Trees Calc. 242;  
Sant. 92; Fl. Dang, 43; Saur. 1: 221; Fl. Delhi,  
160; Fl. Pavagadh, 101.

Myrtus cumini Linn. Sp. Pl. 471, 1753.

Eugenia jambolana Lamk. Encycl. 3: 198, 1789; FBI. 2:  
499; C. 1: 523; Wt. Ic. t. 535.

A large tree. Leaves leathery, elliptic-oblong or broadly  
ovate, acute, shining. Flowers white or greenish-white, in  
short cymes. Fruit ovoid, purple-black berry. (Fl. Fr. March -  
May). DNT. 1696.

Rarely cultivated for the edible fruits.

Syzygium heyneanum Wall. ex Gamble, in Fl. Madras 1: 341, 1919.

Eugenia heyneana Wall. Cat. 3599 (Syzygium) nom.nud.

ex Duthie, in Hook. f. FBI. 2: 500; C. 1: 524;

Talb. 2: 43.

A small tree. Leaves oblong-lanceolate, glabrous, shining. Flowers white, in sessile loose heads. Fruits oblong-ellipsoid. (Fl. Fr. March - May). DNT. 902.

A few plants were seen in river beds and along streams.

Psidium Linn.

Psidium guajava Linn. Sp. Pl. 470, 1753; FBI. 2: 468; C. 1:

529; Talb. 2: 30; Benthall, Trees Calc. 244; Sant.

93; Bailey, Man. Cult. Pl. 729; Saur. 1: 223; Fl.

Delhi, 160; Fl. Pavagadh, 101.

A small tree. Leaves opposite, elliptic, acute. Flowers white, axillary, solitary. Fruits globose, ovoid or pyriform, many-seeded. (Fl. Fr. March - April). DNT. 927.

Cultivated near habitation.

Eucalyptus L'Herit.

Eucalyptus sp.

A tall tree. Leaves lanceolate, acute. Flowers in stalked, few-flowered umbels. Fruit angular, flat-topped, circumcissile. (Fl. Fr. December - March). DNT. 1794.

Cultivated.

# LYTHRACEAE

Trees or shrubs :

Stamens definite :

Flowers yellowish-white; stamens 8.....Lawsonia

Flowers red, stamens 12 .....Woodfordia

Stamens indefinite .....Lagerstroemia

Herbs :

Capsule indehiscent or bursting

irregularly .....Ammannia

Capsule dehiscing through valves .....Rotala

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; Saur. 1: 228; Fl. Delhi, 162; Fl. Pavagadh, 103.

Lawsonia 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, ovate-lanceolate, acute, entire. Flowers yellowish-white, in large, terminal panicles. Capsule globose. (Fl. Fr. October - December). DNT. 647.

Commonly noted in hedges.

Woodfordia Salisb.

Woodfordia fruticosa (Linn.) Kurz, in JASB. 40: 56, 1871;

Koehne, in Pfreich. 17: 79, t. 12A; G. 1: 361; Sant. 99; Fl. Dang, 45; Saur. 1: 227; Fl. Delhi, 161; Fl. Pavagadh, 103.

Lythrum fruticosum Linn. Sp. Pl. (ed. 2) 641, 1762.

Woodfordia floribunda Salisb. Parad. Lond. t. 42, 1806; FBI. 2: 572 (excl. syns.); C. 1: 543; Talb. 2: 58, t. 322.

A straggling shrub. Leaves lanceolate, opposite or sub-opposite. Flowers red, in axillary, few-flowered cymes. Capsule ellipsoid. (Fl. Fr. January - April). DNT. 850.

Commonly observed on the escarpment of hillocks along streams.

Lagerstroemia Linn.Lagerstroemia microcarpa Wight, Ic. t. 109, 1840; Talb.

Trees Bomb. ed. 2 : 176.

Lagerstroemia lanceolata Wall. Cat. 2120, 1829, nom.nud. Wt. & Arn. Prodr. 309, 1834 pro parte; FBI.

2: 576; C. 1: 545; Talb. 2: 62, t. 324.

A medium-sized tree. Leaves elliptic-lanceolate, acute. Flowers white, in axillary and terminal panicles. Capsule ellipsoid; seeds winged. (Fl. Fr. January - April). DNT.915.

Fairly common; noted in the forests on the plains and hillocks.

Ammannia Linn.

Cymes sessile or sub-sessile; petals 0,  
or very small .....baccifera

Cymes distinctly peduncled;  
petals distinct .....multiflora

Ammannia baccifera Linn. Sp. Pl. 120, 1753; FBI. 2: 569;

C. 1: 541; Sant. 97; Fl. Dang, 44; Saur. 1: 226;

Fl. Delhi, 161; Fl. Pavagadh, 102.

Ammannia 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. (Fl. Fr. August - December). DNT. 453, 753, 1361, 1821.

Common and abundant in all moist situations.

Ammannia multiflora Roxb. Fl. Ind. 1: 447, 1820; FBI. 2:

570; Koehne, in Pfreich. 17: 48, 1903; C. 1: 541;

Sant. 97; Fl. Dang, 44; Saur. 1: 225; Fl. Pavagadh, 102.

An erect, annual herb. Leaves linear-oblong, opposite. Flowers red, in axillary, pedunculate cymes. Capsule striate, globose. (Fl. Fr. October - November). DNT. 864.

Commonly noted in moist situation along streams and in river beds.

Rotala Linn.

Rotala serpyllifolia (Roth) Bremek., in Acta Bot. Neerland.



3(1): 149, 1954; Sant. 99; Saur. 1: 224.

Micranthus serpyllifolius Roth, Nov. Pl. Sp. 282, 1821.

Rotala tenuis (Wt.) Koehne, in Bot. Jahrb. 1: 177,  
1880; Fl. Dang, 45; Santapau, in RBSI. 16(1):  
113, 1960.

Ameletia tenuis Wt. Ic. t. 257, 1840; D. & G. 96.

Ammannia tenuis Clarke, in FBI. 2: 567, 1879; C.1:538.

A small, much-branched, erect, annual herb. Leaves opposite, sessile, rounded-ovate. Flowers pink, in long, terminal, spike-like racemes. Fruit capsular. (Fl. Fr. October - January). DNT. 1347, 1591, 1885.

Fairly common; noted in dense patches on rocks in or near the streams or on sandy river beds.

#### PUNICACEAE

Punica Linn.

Punica granatum Linn. Sp. Pl. 472, 1753; FBI. 2: 581; C. 1:  
548; Saur. 1: 234; Fl. Delhi, 163.

A shrub or a small tree. Leaves oblong, obovate. Flowers red, terminal, solitary. Fruit reddish-brown, globose. (Fl. Fr. April - September). DNT. 884.

Cultivated for the edible fruits.

ONAGRACEAE

Ludwigia Linn.

Stamens twice as many as the

calyx lobes .....octovalvis ssp.  
sessiliflora

Stamens as many as the calyx lobes .....perennis

Ludwigia octovalvis (Jacq.) Raven ssp. sessiliflora (Mich.)

Raven, in Reinwardtia 6: 362, t. 3, 1963; Sant. 101.

Jussiaea octonervia ssp. sessiliflora Mich. Mart. Fl.

Bras. 13(2): 180, t. 35, 1875.

J. suffruticosa Linn. Sp. Pl. 388, 1753; FBI. 2: 587;

C. 1: 549.

An erect, much-branched herb. Leaves lanceolate, acute, sub-sessile. Flowers yellow, axillary, solitary. Capsule truncate, sub-quadrangular, ribbed, (Fl. Fr. August - October). DNT. 1219, 1366.

Commonly noted in moist situations.

Ludwigia perennis Linn. Sp. Pl. 119, 1753 (excl. 'foliis

oppositis'); Raven, in Reinwardtia 6: 367, 1963;

Sant. 101; Santapau, in RBSI. 16(1): 101, 1967.

Jussiaea perennis (Linn.) Brenan, in KB. 163, 1953;

Saur. 1: 235; Fl. Delhi, 164.

Ludwigia parviflora Roxb. Fl. Ind. 1: 440, 1820; FBI.

2: 588; C. 1: 550.

An erect, glabrous herb. Leaves simple, lanceolate, alternate, acute, sub-sessile. Flowers yellow, small, axillary, solitary. Capsule oblong. (Fl.Fr. August - October). DNT. 314, 394, 1358.

Fairly common in moist situations, such as river banks and rice fields.

#### CARICACEAE

Carica Linn.

Carica papaya Linn. Sp. Pl. 1036, 1753; FBI. 2: 599; C. 1:

557; Sant. 102; Fl. Dang, 45; Saur. 1: 236; Fl.

Delhi, 164; Fl. Pavagadh, 104.

A small, soft-wooded tree. Leaves large. Flowers generally dioecious, on axillary panicles. (Fl. Fr. June - November). DNT. 128.

Cultivated near habitation.

# SAMYDACEAE

## Casearia Jacq.

Casearia elliptica Willd. Sp. Pl. 2: 628, 1800.

C. tomentosa Roxb. Fl. Ind. 2: 421, 1832; FBI. 2: 593; C. 1: 554; Fl. Dang, 45; Saur. 1: 236.

A small tree. Leaves elliptic, oblong, acute, more or less serrate, glabrous above, tomentose beneath. Flowers pale yellow, on axillary panicles. Fruit ellipsoid. (Fl. Fr. January - May). DNT. 1700, 1924.

Rare; noted on the slopes of the hillocks at Ambadungar.

# PASSIFLORACEAE

## Passiflora Linn.

Passiflora foetida Linn. Sp. Pl. 959, 1753; Bor & Raizada, 258; Chakravarty, in Bull. Bot. Soc. Bengal 3: 57; Saur. 1: 238.

A herbaceous climber. Leaves digitately lobed. Flowers axillary, solitary; corona purple violet and white. (Fl. September - October). DNT. 1743.

Observed near habitation at Kawant.

# CUCURBITACEAE

## 1. Flowers white :

2. Petals fimbriate .....Trichosanthes

## 2. Petals not fimbriate :

3. Tendrils simple .....Coccinia

## 3. Tendrils branched :

4. Tendrils 2-fid .....Luffa (in part)

4. Tendrils 3-5-fid .....Lagenaria

## 1. Flowers yellow or pinkish-yellow :

## 5. Leaves with large fimbriate

stipular bract at the base of petiole...Blastania

## 5. Leaves without fimbriate

stipular bract :

## 6. Anther cells straight :

7. Flowers monoecious .....Mukia

7. Flowers dioecious .....Solena

## 6. Anther cells conduplicate or flexuose :

8. Corolla divided almost to the base :

9. Stamens inserted on the mouth  
of calyx tube .....Luffa (in part)

9. Stamens inserted below the  
mouth of calyx tube :

10. Tendrils 2-fid :

11. Pollen muriculate .....Diplocyclos

11. Pollen smooth .....Colocynthis

10. Tendrils simple :

12. Male flowers in racemes..Momordica

12. Male flowers in small  
clusters or solitary.....Cucumis

8. Corolla campanulate divided  
about half way down .....Cucurbita

Trichosanthes Linn.

Male flowers solitary; fruits oblong.....dioica

Male flowers in racemes; fruits ovoid,  
conical .....cucumerina

Trichosanthes dioica Roxb. Hort. Beng. 70, 1814 nom. nud.

& Fl. Ind. 3: 701, 1832; FBI. 2: 609; Duthie &

Fuller, Field & Gard. Crops 3: 23; Fl. Delhi, 166.

A climbing herb. Leaves ovate-oblong, cordate, sinuate-dentate. Flowers white, dioecious. Fruits oblong, pointed at either ends. (Fl. Fr. August - October). DNT. 369.

Cultivated; noted on hedges near habitation.

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; Saur. 1: 241; Fl. Delhi, 167; Fl. Pavagadh, 105.

An annual climber with furrowed, hairy stems. Leaves orbicular, thin, deeply 3-5-lobed. Flowers white, dioecious; male flowers in racemes. Fruits ovoid-fusiform, green and striped with white lines when immature. (Fl. Fr. August - October). DNT. 1157, 1284.

Commonly noted in hedges and as a climber on small shrubs and trees.

Coccinia Wt. & Arn.

Coccinia grandis (Linn.) Voigt. Hort. Sub. Cal. 59, 1845; Saur. 1: 241.

Bryonia grandis Linn. Mant. 1: 126, 1767.

Coccinia cordifolia (Linn.) Cogn., in DC. Monog.

Phan. 3: 529, 1881; Chakravarty, loc. cit. 117;

Fl. Delhi, 171; Fl. Pavagadh, 110.

Bryonia cordifolia Linn. Sp. Pl. 1012, 1753.

Coccinia indica Wt. & Arn. Prodr. 347, 1834; C. 1:

572; Fl. Dang, 46.

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, orbicular, cordate, shining. Flowers white, axillary, solitary. Fruits ovoid, elongate, greenish-white with irregular, white stripes. (Fl. Fr. July - January). DNT. 533 A.

Commonly observed on hedges and on low trees.

Luffa Cav.

Fruit strongly ribbed; seeds not winged.....acutangula

var. amara

Fruit not ribbed; seeds winged .....cylindrica

Luffa acutangula (Linn.) Roxb. var. amara (Roxb.) C. B.

Clarke, in FBI. 2: 615; Cogn. & Harms, in Pfreich.



1924

88: 69<sup>1/2</sup>; C. 1: 567; Sant. 103; Chakravarty, loc. cit. 81; Fl. Pavagadh, 107.

Luffa amara Roxb. Hort. Beng. 70, 1814 & Fl. Ind.

3: 715, 1832; Gr. 77; D. & G. 102.

A herbaceous climber with angled stems; tendrils 3-fid. Leaves glabrous, orbicular palmately 5-7-angled, cordate. Flowers yellow; male flowers in erect, axillary racemes. Fruits clavate-oblong, strongly ribbed; seeds not winged. (Fl. Fr. August - October). DNT. 505.

Cultivated; noted on hedges near habitation.

Luffa cylindrica (Linn.) Roem. Syn. Mon. 2: 63, 1846; Cogn.

& Harms, in Pfreich. 88: 62<sup>1924</sup><sub>1/2</sub>; Chakravarty, loc. cit.

75; C. Jeffery, in KB. 15: 355, 1962; Saur. 1: 246;

Fl. Delhi, 168; Fl. Pavagadh, 106.

Momordica cylindrica Linn. Sp. Pl. 1009, 1753.

Luffa aegyptiaca Mill. Gard. Dict. 1768; FBI. 2: 614;

C. 1: 565.

A large climber with 3-fid tendrils. Leaves palmately 5-lobed, dentate, cordate. Flowers yellow. Fruits cylindric, not ribbed; seeds winged. (Fl. Fr. September - January). DNT. 1507.

Cultivated; noted on hedges near habitation.

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: 25, 1825, t. 2; FBI. 2: 613; C. 1: 581; Saur. 1:  
252.

A trailing or climbing herb. Leaves large, lobed. Flowers  
white, large, axillary, solitary. Fruit varies much in shape  
and size, light-green, soft, smooth. (Fl. Fr. August - November).  
DNT. 1783.

Cultivated.

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, loc. cit. 174; 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 thin, shallowly 3-lobed, orbicular; stipules scabrid, foliaceous and fimbriate. Flowers yellow. Fruits globose, scarlet; 2-seeded. (Fl. Fr. August - October). DNT. 1357, 1620.

Very common all along the hedges.

Mukia Arn.

Mukia maderaspatana (Linn.) M. Roem. Syn. Pep. 47, 1846;

Sant. 104.

Cucumis maderaspatanus Linn. Sp. Pl. 1912, 1753.

Melothria maderaspatana Cogn. in DC. Mon. Phan. 3:

623, 1881; C. 1: 573; Chakravarty, loc. cit. 141;

Saur. 1: 244; Fl. Delhi, 166; Fl. Pavagadh, 112.

A slender, hairy climber with simple tendrils. Leaves deltoid-ovate, 3-5-lobed, acute, cordate. Flowers yellow, minute, monoecious. Fruits small, globose, red when ripe.

(Fl. Fr. July - October). DNT. 68.

Commonly noted on hedges.

Solena Lour.

Solena heterophylla Lour. Fl. Coch. 1: 514, 1790; Sant. 104.

Melothria heterophylla (Lour.) Cogn. in DC. Mon. Phan.

3: 618, 1881; C. 1: 575; Chakravarty, loc. cit. 159;  
Fl. Pavagadh, 111.

A slender climber with simple tendrils. Leaves ovate, acute, cordate at base, usually 3-lobed. Flowers yellowish, dioecious. Fruits ovoid-oblong, cylindric, ribbed. (Fl. Fr. April - December). DNT. 1744.

Rare; noted on hedges at Kawant.

Diplocyclos (Endl.) Von Post & Kuntze

Diplocyclos palmatus (Linn.) Jeffrey, in KB. 15: 352, 1962;

Maheshwari, in BBSI. 5(2): 128, 1963; Raizada, in  
Ind. For. 92(5): 308, 1966; Fl. Pavagadh, 107.

Bryonia palmata Linn. Sp. Pl. 1012, 1753(excl. syn.)

Bryonia laciniosa Linn. Sp. Pl. 1013, 1753 pro parte;

FBI. 2: 622; Roxb. Fl. Ind. 3: 728; Wt. Ic. t.500.

Bryonopsis laciniosa auct. non Naud.; C. 1: 568;

Chakravarty, loc. cit. 135; Saur. 1: 247.

An extensive, much-branched, climbing herb. Leaves denticulate, 3-7-lobed. Flowers greenish-yellow, small, monoecious. Fruit globose, bluish green, with white, vertical lines. (Fl. Fr. August - October). DNT. 1798.

Rare; noted on hedges during monsoon at Ambadungar.

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 1: 166, f. 99, 1950;

Chakravarty, loc. cit. 33 & 113; Saur. 1: 251.

Cucumis colocynthis Linn. Sp. Pl. 1011, 1753.

Citrullus colocynthis (Linn.) Schrad, in Linnaea 12:

414, 1838; FBI. 2: 620; C. 1: 571; Wt. Ic. t. 498;

Oza, in Taxon 11: 252, 1962; Fl. Delhi, 170; Fl. Pavagadh, 110.

A trailing, perennial herb. Leaves trilobed, deeply pinnatifid. Flowers yellow. Fruits globose, striped with dark green and white lines. (Fl. Fr. March - November). DNT. 533.

Observed on open grounds.

Colocynthis citrullus (Linn.) O. Kuntze, Rev. Gen. 1: 256, 1891; Chakravarty, in Sci. & Cult. 15: 31, 1948 & loc. cit. 114; 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; Fl. Delhi, 171; Fl. Pavagadh, 109.

An annual herb. Leaves thin, cordate, broadly 5-lobed. Flowers yellow. Fruits large, ellipsoid or oblong, more than 25 cm. in diameter. (Fl. Fr. August - May). DNT. 920.

Cultivated in river beds on sandy soils.

Momordica Linn.

Plants monoecious :

Bracts of male flowers about the  
middle or below the middle of the  
peduncle .....charantia

Bracts of male flowers at the apex  
of the peduncle .....balsamina

Plants dioecious .....dioica

Momordica charantia Linn. Sp. Pl. 1009, 1753; FBI. 2: 616;  
C. 1: 562; Wt. Ic. t. 504; Chakravarty, loc. cit.  
88; Saur. 1: 243; Fl. Delhi, 169.

A much-branched, climbing annual with angled stem and  
simple tendrils. Leaves orbicular, 5-7-lobed, coarsely  
spinous dentate. Flowers yellow, monoecious. Fruits oblong,  
tubercled all over. (Fl. Fr. August - December). DNT. 1143,  
1436.

Cultivated; noted on hedges.

Momordica balsamina Linn. Sp. Pl. 1009, 1753; FBI. 2: 617;  
C. 1: 562; Chakravarty, loc. cit. 90; Saur. 1: 243;  
Fl. Delhi, 169.

A climber with simple, filiform tendrils. Leaves 3-5-  
lobed, cordate, membranous. Flowers yellow, monoecious.

Fruit ovoid. (Fl. Fr. August - November). DNT. 18.

Commonly noted on hedges and also wild in the forest as a climber.

Momordica dioica Roxb. ex Willd. Sp. Pl. 4: 605, 1805;

FBI. 2: 617 (excl. syns.); C. 1: 563; Wt. Ic. t.

505-506; Chakravarty, loc. cit. 91; Saur. 1: 244;

Fl. Delhi, 169.

A climber with simple, filiform tendrils. Leaves membranous, usually 3-5-lobed, cordate at base. Flowers yellow, dioecious. Fruit ovoid. (Fl. Fr. August - October). DNT. 670, 1024.

Cultivated; noted on hedges.

Cucumis Linn.

Fruit smooth at least at maturity :

Annuals; leaves 5-angled, hairy .....melo

Perennials; leaves 5-7-lobed,

scabrid .....callosus

Fruit sparingly tubercled, muricate.....sativus

Cucumis melo Linn. Sp. Pl. 1011, 1753; FBI. 2: 620; C. 1:



570; Chakravarty, loc. cit. 102; Saur. 1: 248;  
Fl. Delhi, 169; Fl. Pavagadh, 109.

A prostrate, trailing annual. Leaves sub-orbicular, cordate, 5-angled or 3-7-lobed. Flowers yellow. Fruit variable in size and shape, glabrous. (Fl. Fr. October - January). DNT. 919.

Cultivated on river banks.

Cucumis callosus (Rottl.) Cogn. ex Cogn. & Harms. in Pfreich.

88: 129, 1924; Sant. 103; Fl. Dang, 46; Chakravarty, loc. cit. 100; Saur. 1: 249; Fl. Pavagadh, 109.

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. Ic. t. 497.

A perennial, trailing herb. Leaves sub-orbicular, scabrid. Flowers yellow. Fruit obovoid with white and yellow stripes. (Fl. Fr. August - October). DNT. 130, 345.

Commonly noted on waste lands during monsoon and also on hedges.

Cucumis sativus Linn. Sp. Pl. 1012, 1753; FBI. 2: 620;

C. 1: 570; Chakravarty, loc. cit. 105; Fl. Delhi, 170.

An annual, climbing or trailing herb with simple tendrils. Leaves sub-orbicular, cordate, entire. Flowers yellow. Fruit cylindric, oblong. (Fl. Fr. August - April). DNT. 119.

Cultivated for its edible fruit.

Cucurbita Linn.

Lobes of leaf rounded, not sinuate;

peduncle terete .....maxima

Lobes of leaf acute, deep sinuate;

peduncle angled .....pepo

Cucurbita maxima Duch. in Lamk. Encycl. 2: 151, 1786; FBI.

2: 622; C. 1: 582; Sant. 105; Saur. 1: 252; Fl.

Delhi, 172; Fl. Pavagadh, 111.

An annual, trailing, hairy herb with branched tendrils. Leaves sub-orbicular to reniform. Flowers large, yellow; peduncle terete. Fruit large, heavy. (Fl. Fr. August - January). DNT. 1108.

Commonly cultivated on the river banks for its edible fruits which are used as vegetable.

Cucurbita pepo Linn. Sp. Pl. 1010, 1753; Bailey, Man. Cult. Pl. 952; Fl. Delhi, 172.

A trailing herb. Leaves rounded, 3-5-lobed, lobes deeply sinuate, cordate. Flowers yellow. Fruit large, furrowed. (Fl. Fr. August - January). DNT. 1144.

Cultivated along the river banks.

#### CACTACEAE

Opuntia Mill.

Opuntia elatior Mill. Gard. Dict. no. 4, 1768; Burkill, in RBSI. 4: 313, 1911; Sant. 107; Saur. 1: 253; Fl. Delhi, 173; Fl. Pavagadh, 112.

O. dillenii Graham, Cat. 546, 1839; FBI. 2: 657; pro. parte; D. & G. Suppl. 39.

O. nigricans Woodrow, in RBSI. 1: 89, 1895; C. 1: 587.

A tall, much-branched, armed shrub. Phylloclades obovate, flattened, light green. Flowers yellow. Berries red. (Fl. Fr. January - March). DNT. 939 A.

Planted along roadside hedges.

AIZOACEAE ( FICOIDACEAE )

Trianthema Linn.

Trianthema portulacastrum Linn. Sp. Pl. 223, 1753; Baker,  
in Fl. Males. (ser. 1) 4(3): 274, 1951; Saur. 1:  
229; Fl. Pavagadh, 113.

T. monogyna Mant. 69, 1769; FBI. 2: 660; C. 1: 589.

T. obcordata Roxb. Hort. Beng. 34, 1814; D. & G. 14;  
Wt. Ic. t. 288.

A prostrate, succulent herb. Leaves fleshy, sub-opposite,  
unequal sided, obovate, rounded. Flowers white, sessile,  
axillary, solitary. Fruit truncate. (Fl. Fr. May - October).  
DNT. 1797.

Common and abundant in all situations, more common in  
wet places.

MOLLUGINACEAE

Flowers in axillary fascicles .....Glinus

Flowers in terminal cymes .....Mollugo

Glinus Linn.

Prostrate, densely stellately hairy herb.....lotoides

Erect or sub-erect, glabrous herb .....oppositifolius

Glinus lotoides Linn. Sp. Pl. 463, 1753; Gr. 82; D. & G. 16  
& 311; Backer, in Fl. Males. 4(3): 269, 1951; Jeffrey,  
in Fl. Trop. E. Afr. 15 t. 5, 1961 (under Aizoaceae);  
Sant. 108; Saur. 1: 232; Fl. Delhi, 173; Fl. Pava-  
gadh, 114.

Mollugo hirta Thunb. Prodr. Pl. Cap. 24, 1794; FBI. 2:  
662; C. 1: 593.

A prostrate, stellately hairy herb. Leaves orbicular-  
obovate, opposite, sub-opposite or whorled. Flowers in sub-  
lateral axillary fascicles. Capsule ovoid, many-seeded. (Fl.  
Fr. October - June). DNT. 869, 1571.

Commonly observed on dry river banks along with species  
of Polygonum, Grangea and Gnaphalium. Very common and  
abundant throughout the area.

Glinus oppositifolius (Linn.) DC. in Bull. Herb. Boiss. (ser.  
2) 1: 559, 1901; Backer, loc. cit. 270, t. 1; Sant.  
108; Saur. 1: 233; Fl. Delhi, 174; Fl. Pavagadh, 114.

Mollugo oppositifolia Linn. Sp. Pl. 89, 1753; C. 1: 593;

G. 1: 552.

Mollugo spergula Linn. Syst. 881, 1759; FBI. 2: 662.

A slender, dichotomously-branched, glabrous, erect or sub-erect herb. Leaves usually in whorls, unequal, oblanceolate, acute. Flowers white, in axillary fascicles. Capsule ellipsoid. (Fl. Fr. July - December). DNT. 11CO.

Observed on moist or clayey soils of fallow and cultivated fields.

Mollugo Linn.

Mollugo pentaphylla Linn. Sp. Pl. 89, 1753; C. 1: 594; Sant. 108; Saur. 1: 234; Fl. Pavagadh, 114.

M. stricta Linn. Sp. Pl. (ed. 2) 131, 1762; FBI. 2: 663.

An erect, slender, much-branched herb. Leaves linear-lanceolate to ovate, acute, whorled. Flowers white, in terminal cymes. Capsule sub-globose. (Fl. Fr. July - October). DNT. 50, 514, 646, 994.

Commonly noted along roadsides and near streams.

#### APIACEAE ( UMBELLIFERAE )

Leaves simple .....Centella

Leaves compound :

Flowers yellow :

Fruits oblong or ellipsoid, the ribs  
not winged .....Foeniculum

Fruits dorsally compressed and  
narrowly winged .....Anethum

Flowers white or pink purple :

Primary ridges of fruit conspicuous,  
secondary ridges inconspicuous or  
absent :

Furrows on the fruit with 1-vitta...Trachyspermum

Furrows on the fruit with  
2-3-vitta .....Pimpinella

Secondary ridges of fruit prominent....Coriandrum

Centella Linn.

Centella asiatica (Linn.) Urban, in Mart. Fl. Braz. 11:

287, 1879; Fyson, Fl. Nilgiri & Pulney Hill Tops

3: 346; Sant. 109; Saur. 1: 253; Fl. Delhi, 176.

Hydrocotyle asiatica Linn. Sp. Pl. 234, 1753; FBI. 2: 669; C. 1: 598; Wt. Ic. t. 565.

A creeping herb, rooting at nodes. Leaves reniform or fan-shaped on long petioles, entire or shallowly crenate. Flowers pink, in simple fascicled umbels. Cremocarp ovoid with thickened pericarp. (Fl. Fr. May - December). DNT. 1631.

Rare; noted in moist ground in cultivated fields.

Foeniculum Adans.

Foeniculum vulgare Mill. Gard. Dict. n. 1, 1768; FBI. 2: 695;

C. 1: 609; Bailey, Man. Cult. Pl. 751; Fl. Delhi, 177.

A glabrous herb. Leaves much divided, segments thread-like. Flowers yellow, in compound umbels. Cremocarp oblong, ellipsoid, ribbed, glabrous. (Fl. Fr. January - March). DNT. 1500.

Cultivated for its edible fruits.

Anethum Linn.

Anethum graveolens Linn. Sp. Pl. 263, 1753; Saur. 1: 254; Fl. Delhi, 177.

Peucedanum graveolens Hiern, in Oliver, Fl. Trop. Afr.



3: 19, 1871; FBI. 2: 709; C. 1: 606.

A glabrous, branched annual herb. Leaves finely dissected, 2-3-pinnate. Flowers yellow, in large umbels. Cremocarps dorsally compressed and narrowly winged. (Fl. Fr. January - April). DNT. 904, 1506.

Cultivated.

Trachyspermum Link (nom. cons.)

Trachyspermum stictocarpum (Clarke) Wolff. var. stictocarpum

in Pfreich 43: 89, 1927; Sant 109; Fl. Dang, 48; Fl. Pavagadh, 115.

Carum stictocarpum Clarke, in FBI. 2: 681; C. 1: 600.

A slender, erect herb. Leaves finely divided, 2-3-compound. Flowers white or light pink, in compound umbels. Cremocarps with one vitta in each furrow, scarcely compressed. (Fl. Fr. September - December). DNT. 558.

Commonly observed as an undergrowth of forest and on escarpments of hillocks.

Pimpinella Linn.

Pimpinella heyneana Wall. Cat. 566, 1829 (nom. nud.); Kurz, in JASB. 46; 155, 1877; FBI. 2: 684; C. 1: 601;

G. 1: 395.

An erect, annual herb. Leaves 3-foliolate; leaflets ovate-lanceolate, acute, serrate. Flowers white or light pink, in compound umbels. Cremocarps with 2-3-vitta in each furrow, sub-globose. (Fl. Fr. August - October). DNT. 522, 1334, 1810.

Fairly common; observed as an undergrowth of forests.

Coriandrum Linn.

Coriandrum sativum Linn. Sp. Pl. 256, 1753; FBI. 2: 717;

C. 1: 609; Fl. Dang, 48; Saur. 1: 256; Fl. Delhi, 178.

A glabrous annual herb. Leaves pinnately dissected, decompound. Flowers white or pinkish-white, in compound umbels. Cremocarps ribbed, sub-globose. (Fl. Fr. December - April). DNT. 903, 1493.

Cultivated.

#### ALANGIACEAE

Alangium Lamk. (nom. cons.)

Alangium salvifolium (Linn. f.) Wang, in Engl. Pfreich.

Alangiac, 41: 9, 1910; G. 1: 404; Fl. Dang, 48;  
Saur. 1: 256; Fl. Pavagadh, 116.

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. decapetalum Lamk. Encycl. 1: 174, 1783; Gr. 72;  
Wt. Ic. t. 194.

A small, deciduous tree; branches spiny or unarmed. Leaves narrowly oblong, subobtuse. Flowers white, in axillary fascicles. Fruit globose. (Fl. Fr. January - May). DNT. 142, 851, 1705.

Commonly observed along roadsides, in hedges and at the foot of hillocks.

#### RUBIACEAE

1. Erect or prostrate herbs :

2. Fruits densely and coarsely hairy .....Dentella

2. Fruits more or less pubescent :

3. Flowers in axillary and terminal

paniculate cymes .....Hedyotis

- 3. Flowers in whorls or in  
axillary heads .....Borreria
- 1. Shrubs or trees :
  - 4. Flowers in dense, globose heads :
    - 5. Fruit a sorosis .....Morinda
    - 5. Fruit not sorosis :
      - 6. Corolla lobes imbricate;  
stigma fusiform .....Anthocephalus
      - 6. Corolla lobes valvate; stigma  
clavate or mitriform :
        - 7. Leaves orbicular, shortly  
acuminate; stigma clavate ...Adina
        - 7. Leaves elliptic or obovate;  
stigma mitriform .....Mitragyna
  - 4. Flowers not in globose heads :
    - 8. Branches spiny .....Xeromphis
    - 8. Branches not spiny :
      - 9. Inflorescence spicate .....Hymenodictyon

9. Inflorescence not spicate :

10. Flowers large, solitary ....Gardenia

10. Flowers small, in trichotomously branched panicles .....Spermadictyon

Dentella Forst.

Dentella repens (Linn.) Forst. Charact. Gen. 26, t. 13, 1776; FBI. 3: 42; C. 2: 12; Sant. 114; Fl. Dang, 49; 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 white, solitary or on forks. Capsule densely and coarsely hairy. (Fl. Fr. January - April). DNT. 870.

Commonly observed in moist places on the river banks.

Hedyotis Linn.

Peduncle 1-4-flowered from most axils :

Leaves linear; bases of calyx  
lobes not touching in fruit .....corymbosa

Leaves elliptic; bases of calyx  
lobes touching in fruit .....pumila

Peduncle many-flowered from  
most axils .....affinis

Hedyotis corymbosa (Linn.) Lamk. Tab. Encycl. 1: 272, 1791;

Rao & Hemadri, in Ind. For. 99(6): 375, 1973.

Oldenlandia corymbosa Linn. Sp. Pl. 119, 1753; FBI. 3:

64; C. 2: 15; Blatter & McCann. in JBNHS. 36: 784,

1933; Sant. 115; Fl. Dang, 50; Saur. 1: 263; Fl.

Delhi, 180; Fl. Pavagadh, 117.

A small, erect or straggling herb. Leaves linear or linear-lanceolate, sub-sessile; stipules membranous with few bristles. Flowers white, pedicelled; usually in pairs on axillary peduncle. Capsule globose; calyx teeth not touching in fruit. (Fl. Fr. May - December). DNT. 584, 602, 1047, 1910.

Very common and abundant in the area. Observed in moist situations along river banks and as a weed in cultivated fields.

Hedyotis pumila Linn. f. Suppl. 119, 1781; Backer & Bakhuizen, in Fl. Java 2: 285, 1965; Rao & Hemadri, loc. cit. 377.

Oldenlandia pumila (Linn. f.) DC. Prodr. 4: 425, 1830; Fl. Dang, 50; Saur. 1: 264.

O. crystallina Roxb. Fl. Ind. 1: 422, 1820; FBI. 3: 65; C. 2: 16; G. 2: 424.

A sub-erect or prostrate herb. Leaves elliptic-lanceolate, sub-acute. Flowers white, on 1-2-flowered peduncle. Capsule glabrous, ribbed; calyx lobes touching in fruit. (Fl. Fr. August - October). DNT. 606.

Rare; noted as a weed in cultivated fields at Amirpura.

Hedyotis affinis R. & S. Syst. Veg. 3: 194, 1818; Rao & Hemadri, loc. cit. 374.

Oldenlandia affinis (R. & S.) DC. Prodr. 4: 428, 1830; Santapau & Merchant, in BBSI. 3: 109, 1962; Saur. 1: 264.

O. dichotoma (Koen. ex Roth) Hook. f. FBI. 3: 67, 1880; C. 1: 17; G. 2: 424; Fl. Dang, 50.

A slender annual herb, branches terete, glabrous. Leaves linear-lanceolate, acute. Flowers white, arranged in lax panicles. Capsule globose. (Fl. Fr. August - October). DNT. 1147, 1226.

PLATE No. 50

Rare; observed as a weed in cultivated fields at Luni and Manka.

Borreria F. W. Meyer (nom. cons.)

An erect herb; leaves linear-lanceolate;  
flowers white .....stricta

A procumbent herb; leaves elliptic-  
oblong; flowers pale blue .....articularis

Borreria stricta (Linn. f.) K. Schum. in Pfam. 4(4): 143, 1891; Sant. 121; Fl. Dang, 49; Saur. 1: 262; Fl. Delhi, 180; Fl. Pavagadh, 118.

Spermacoce stricta Linn. f. Suppl. 120, 1781; FBI. 3: 200; C. 2: 52; Gr. 93; D. & G. 111.

An erect, annual herb with quadrangular stem. Leaves sub-sessile, linear-oblong or linear-lanceolate, acute.



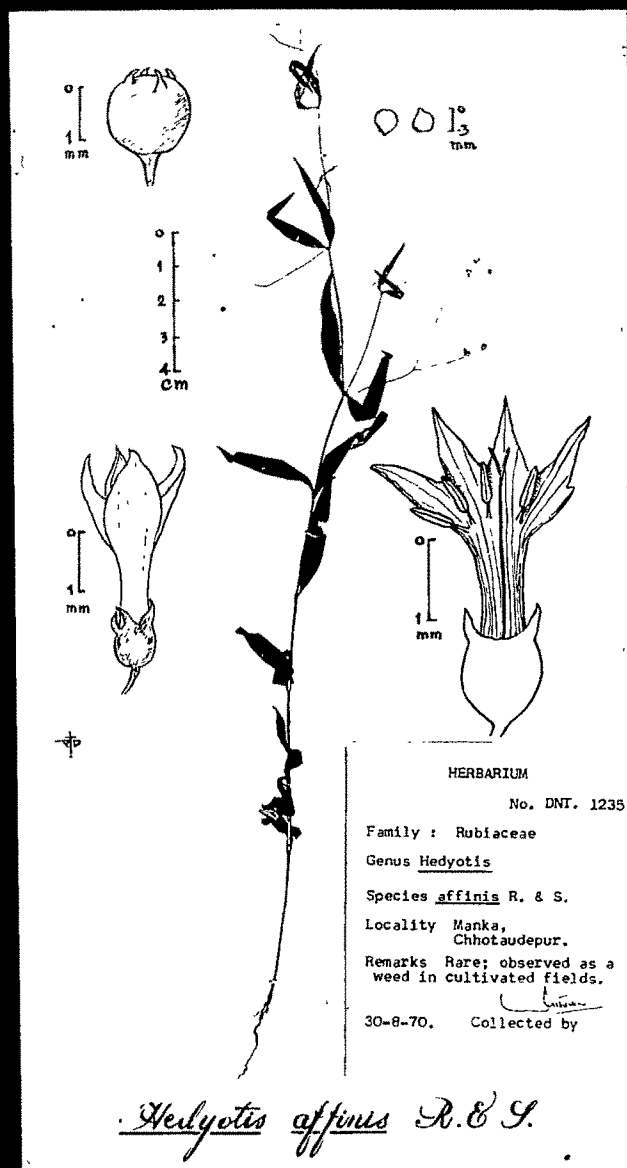


PLATE No. 50.

Flowers white, in dense axillary or terminal clusters.

Capsule membranous. (Fl. Fr. August - October). DNT. 93, 1110, 1178.

Commonly observed as a monsoon weed in cultivated fields and along forest paths.

Borreria articularis (Linn. f.) F.N.Will. in Bull. Herb.

Boiss. II, 5: 956, 1905; Saur. 1: 261; Santapau & Merchant, loc. cit. 107; Fl. Pavagadh, 117.

Spermacoce articularis Linn. f. Suppl. 119, 1781 (excl. Syn. Rumph.):

S. hispida Linn. Sp. Pl. 102, 1753; FBI. 3: 200; C. 2: 53; Gr. 93; D. & G. 111.

Borreria hispida K. Schum. in Pfam. 4(4): 144, 1891, non Spruce ex K. Schum. 1888; Fl. Dang, 49; Fl. Delhi, 181.

A procumbent, quadrangular, hispid, deep-rooted herb. Leaves sub-sessile, elliptic, oblong, acute; stipules membranous, hispid. Flowers pale blue, in whorls within the stipular cup. Capsule oblong, hairy. (Fl. Fr. August - October). DNT. 330, 1180.

Commonly observed as a monsoon weed in most of the area.

Morinda Linn.

Morinda tomentosa Heyne ex Roth, Nov. Pl. Sp. 147, 1821;  
D. & G. 114; Saur. 1: 258; Santapau & Merchant,  
loc. cit. 108; Fl. Pavagadh, 119.

M. tinctoria Roxb. var. tomentosa Hook. f. FBI. 3:  
156, 1880; C. 2: 43; Blatter & McCann. loc. cit.  
793; Fl. Dang, 50.

A small tree with tomentose, young branches. Leaves  
elliptic, oblong-lanceolate, tomentose on both sides. Flowers  
white, in globose heads. Fruit globose, sorosis. (Fl. Fr.  
June - October). DNT. 64, 378.

Commonly observed on the slopes and at the foot of  
hillocks.

Anthocephalus A. Rich.

Anthocephalus indicus A. Rich. in Mem. Soc. Hist. Nat. Par.  
5: 238, 1834; C. 2: 6.

Anthocephalus cadamba Miq. Fl. Ind. Bat. 2: 135, 1856;  
FBI. 3: 23; Talb. 2: 184.

A large tree. Leaves coriaceous, elliptic-oblong,

entire. Flowers orange, in solitary, terminal globular heads; stigma fusiform. (Fl. Fr. October - March). DNT. 432.

Rare; noted at the foot of hillocks at Kadipani.

Adina Salisb.

Adina cordifolia (Roxb.) Hook. in Benth. & Hook. Gen. Pl.

2: 30, 1873; FBI. 3: 24; Talb. 2: 85, f. 334; Blatter & McCann. loc. cit. 781; Sant. 112; Fl. Dang, 48; Fl. Mel. 178.

Nauclea cordifolia Roxb. Pl. Cor. 1: 40, t. 63, 1795;

Gr. 87; D. & G. 118.

A tall tree. Leaves about as broad as long, more than 10 cm. in diameter, orbicular, shortly acuminate. Flowers yellow, in axillary globose heads. Capsule minute. (Fl. Fr. July - October). DNT. 63, 987.

Fairly common and abundant in the forest.

Mitragyna Korth. (nom. cons.)

Mitragyna parvifolia (Roxb.) Korth. Obs. Naocl. Ind. 19,

1839; C. 2: 8; Sant. 112; Fl. Dang, 50; Saur. 1:  
239; Fl. Delhi, 181; Fl. Pavagadh, 118.

Nauclea parvifolia Roxb. Fl. Cor. 1: 40, t. 52,  
1795; Gr. 87.

A large, deciduous tree. Leaves elliptic or obovate,  
glabrous; stipules foliaceous, large, caducous. Flowers  
light yellow, in globose heads; stigma mitriform. Fruit  
a globose head of capsules. (Fl. Fr. July - January). DNT.  
1468.

Fairly common and abundant in the forests.

Xeromphis Rafin.

Fruits less than 2.5 cm. in diameter .....spinosa

Fruits more than 3 cm. in diameter .....uliginosa

Xeromphis spinosa (Thunb.) Keay, in Bull. Jard. Bot. Etat.

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; Saur.  
1: 266; Fl. Pavagadh, 119.

R. dumetorum Lamk. Tab. Encycl. Suppl. 2: 829, 1811;  
FBI. 3: 110; C. 2: 27.

A small to a medium-sized, armed tree. Leaves obovate, obtuse. Flowers white, at the end of short leaf-bearing branchlets. Fruit globose. (Fl. Fr. March - June). DNT. 255,868.

Rare; noted on the slopes of hillocks at Hampsheshwar.

Xeromphis uliginosa (Retz.) Maheshwari, in BBSI. 3(1): 92, 1961.

Gardenia uliginosa Retz. Obs. 2: 14, 1781; Roxb. Pl. Corom. t. 135, 1798.

Randia uliginosa DC. Prodr. 4: 386, 1830; FBI. 3: 110; C. 2: 27; Saur. 1: 266; Fl. Mel. 182.

A small, armed tree. Leaves obovate-oblong, obtuse. Flowers white, solitary, at the end of superposed branches. Fruit ovoid, smooth. (Fl. Fr. May - July). DNT. 130.

Rare; noted at the foot of hillocks at Hampsheshwar.

Hymenodictyon Wall.

Hymenodictyon excelsum (Roxb.) Wall. in Roxb. Fl. Ind. 2: 149, 1824; FBI. 3: 35; Gr. 87; D. & G. 117; Wt. Ic.

t. 79; C. 2: 9; Sant. 113; Saur. 1: 267; Fl. Mel.  
179.

Cinchona excelsa Roxb. Pl. Cor. 2, t. 106, 1798.

A medium-sized tree. Leaves ovate, elliptic; stipules oblong, obtuse, deciduous. Flowers creamy white, in clusters forming a spike-like raceme. Capsule ellipsoid. (Fl. Fr. August - October). DNT. 111, 581.

Rare; noted at the foot and on the slopes of the hillocks at Mahudabari.

Gardenia Linn.

Gardenia turgida Roxb. Hort. Beng. 15, 1814 & Fl. Ind. I.711,  
1832 var. montana Hook. f. FBI. 3: 118, 1880; C. 2:29.

Gardenia montana Roxb. Fl. Ind. 1: 709; Wt. Ic. t. 577;  
Gr. 88; D. & G. 120.

A small, armed, deciduous tree. Leaves opposite, oblong, obtuse. Flowers white, solitary or fascicled, axillary or terminal. Fruit ovoid, globose. (Fl. Fr. March - May). DNT. 72.

Rare; observed at the foot of hillocks at Ambadungar.

Spermadictyon Roxb.

Spermadictyon suaveolens Roxb. Pl. Cor. 3: 32, t. 236, 1815;

Santapau & Merchant, loc. cit. 110; Sant. 120.

Hamiltonia suaveolens Roxb. Fl. Ind. 2: 223, 1824 &  
3: 554, 1832; FBI. 3: 197; C. 1: 51; Talb. 2: 134,  
t. 364; Fl. Mel. 190.

A small shrub. Leaves elliptic-lanceolate, rough.  
Acute. Flowers bluish-white, in terminal, trichotomously  
branched panicles. Capsule ellipsoid. (Fl. Fr. August -  
December). DNT. 105, 562, 1328.

Commonly noted on the escarpment along river banks and  
on rocky crevices in the forest.

#### ASTERACEAE ( COMPOSITAE )

For routine keys to the tribes, genera and species,  
refer to Cooke's Flora of the Presidency of Bombay. The  
artificial key presented here leads directly to the species  
and is partly based on Santapau's key to the genera of  
Asteraceae of Bombay (Indian Ecologist I (1): 1-4, 1946).  
In the enumeration part, the genera are arranged according  
to Cooke (l. c.).

1. All florets on the head of one colour :

2. All florets white :



## 3. All florets tubular :

## 4. Stems with white, cottony

pubescence .....Echinops  
echinatus

## 4. Stems without cottony pubescence :

5. Plants erect; stems more or  
less pubescent :

## 6. Involucral bracts connate

for about half way into

a tube .....Lagasea  
mollis

## 6. Involucral bracts not

connate .....Ageratum  
conyzoides

## 5. Plants sub-erect or prostrate;

stems glabrous .....Caesulia  
axillaris

## 3. Outer florets ligulate, inner tubular :

7. Leaves sessile .....Eclipta  
prostrata

## 7. Leaves petiolate :

- 8. Palea concave, embracing the achene;  
pappus of a few scales or short  
bristles .....Blainvillea  
acmella
- 8. Palea narrow, flat; pappus of 2-4  
retrosely hispid, slightly  
spreading awns .....Bidens  
bitermata
- 2. All florets other than white :
  - 9. All florets yellow :
    - 10. Leaves entire or serrate, but not  
(or only obscurely) lobed :
      - 11. Leaves opposite :
        - 12. Achenes spinous with two  
horn-like spines at the  
top .....Acanthospermum  
hispidum
        - 12. Achenes not spinous :
          - 13. Achenes ciliate .....Spilanthus  
paniculata
          - 13. Achenes not ciliate :
            - 14. Achenes cuneiform...Blainvillea  
acmella

14. Achenes gibbose, curved .....Sclerocarpus  
africanus
11. Leaves not opposite :
15. Leaves mainly radical :
16. Achenes compressed .....Sonchus  
oleraceus
16. Achenes columnar .....Launaea fallax
15. Leaves cauline, never radical :
17. Outer florets ligulate,  
inner tubular :
18. Leaves sessile or sub-sessile:
19. Anther bases obtuse,  
entire .....Conyza  
japonica
19. Anther bases variously  
tailed, sagittate :
20. Involucral bracts  
few-seriate, sub-  
equal .....Pulicaria  
angustifolia
20. Involucral bracts  
many-seriate,

- unequal with scarious margins .....Vicoa  
indica
18. Leaves petiolate :
21. Achenes truncate, triquetrous.....Blainvillea  
acmella
21. Achenes not truncate or  
triquetrous :
22. Achenes hairy .....Vicoa  
indica
22. Achenes glabrous .....Sclerocarpus  
africanus
17. All florets tubular, or tubular and  
ligulate on the same head, but ligulate  
ones small, inconspicuous :
23. Leaves petiolate :
24. Heads few, in terminal and  
axillary corymbs :
25. Leaves thick; achenes  
flattened, hairy .....Blumea  
malcolmi
25. Leaves membranous, thin;  
achene angled, angles with  
a few hairs .....Blumea  
eriantha

24. Heads many :

26. Heads villous, small, in

spiciform cymes or racemes ..... Blumea  
fistulosa

26. Heads in peduncled open corymbs :

27. Glabrous herb ..... Blumea  
virens

27. Pubescent herb ..... Blumea  
membranacea

23. Leaves sessile or nearly so :

28. Pappus 0 ..... Centipeda  
minima

28. Pappus 1-2-seriate :

29. Heads solitary ..... Blumea  
obliqua

29. Heads in dense clusters or  
leafy spikes :

30. Heads in leafy spikes ..... Gnaphalium  
indicum

30. Heads in clusters :

31. Heads in corymbose

leafless clusters ..... Gnaphalium  
luteo-album

31. Heads in rounded leafy clusters....Gnaphalium  
pulvinatum
10. Leaves distinctly lobed :
32. Plants prostrate; pappus a short  
tube with fimbriate mouth .....Grangea  
maderaspatana
32. Plants prostrate or erect; pappus  
of 2 small, stiff awns .....Glossocardia  
bosvallea
9. All florets either red, pink,  
purple or violet-blue :
33. Involucre of fertile heads hard,  
tough, 2-beaked .....Xanthium  
strumarium
33. Involucre not as above :
34. Leaves with dense, white, woolly  
tomentum beneath .....Centratherum  
phyllolaenum
34. Leaves without white, woolly  
tomentum beneath :
35. All leaves petiolate :
36. Outer involucral bracts

- shorter than those of inner rows....Centratherum  
anthelminticum
36. Involucral bracts not as above :
37. Pappus of 5 scales .....Ageratum  
conyzoides
37. Pappus not as above :
38. Pappus 1-seriate .....Blumea  
mollis
38. Pappus 2-seriate .....Vernonia  
cinerea
35. Leaves petiolate and sessile or  
sessile only :
39. Lower leaves petiolate, upper  
leaves sessile .....Emilia  
sonchifolia
39. All leaves sessile :
40. Leaves decurrent into stem :
41. Heads axillary, sessile.....Caesulia  
axillaris
41. Heads distinct, pedunculate :
42. Heads distinct; pappus  
slender, copious .....Laggara  
aurita

42. Heads in globose, terminal  
masses; pappus 0 ..... Sphaeranthus  
indicus
40. Leaves not decurrent into stem :
43. Pappus zero or of a few short hairs :
44. Leaves spinous-toothed or  
spinous serrate ..... Tricholepis  
glaberrima
44. Leaves pinnatifid, but not  
spinous-toothed ..... Cyathocline  
purpurea
43. Pappus present :
45. Achenes prominently ribbed .... Amberboa  
ramosa
45. Achenes not ribbed ..... Goniocaulon  
glabrum
1. All florets on the head of two.  
or more colours :
46. Leaves simple ..... Tridax  
procumbens
46. Leaves compound ..... Bidens  
bitermata



Centratherum Cass.Centratherum phyllolaenum (DC.) Benth. ex Clarke, Comp. Ind.

4, 1876; FBI. 3: 228; C. 2: 62; Sant. 122; Fl.

Pavagadh, 127.

Decaneurum phyllolaenum DC. Prodr. 7: 264, 1836.

An erect, branched, annual herb. Leaves elliptic, acute, irregularly serrate, with dense white, woolly, tomentum beneath. Heads purplish, solitary, axillary and terminal. Achenes ribbed. (Fl. Fr. September - October). DNT. 523.

Rare; observed as an undergrowth of forest at Ambadungar.

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; Gr. 96; D. & G. 313; 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. Achenes oblong-cylindric, ribbed. (Fl. Fr. October - December). DNT. 1333, 1454, 1842.

Commonly noted in hedges and as a weed in cultivated fields.

Vernonia Schreb. (nom. cons.)

Vernonia cinerea (Linn.) Less, in Linnaea 4: 291, 1829; FBI.

3: 233; C. 2: 65; Sant. 122; Fl. Dang, 54; Fl. Delhi, 190; Fl. Pavagadh, 126.

Conyza cinerea Linn. Sp. Pl. 862, 1753.

An erect, annual or perennial herb. Leaves ovate-elliptic or lanceolate, obtuse, irregularly toothed. Heads purple to pinkish-violet, in terminal corymbs, heterogamous. Achenes oblong, hairy. (Fl. Fr. August - February). DNT. 45, 1079, 1437.

Common and abundant. A very common weed of waste places and cultivated fields.

Ageratum Linn.

Ageratum conyzoides Linn. Sp. Pl. 839, 1753; FBI. 3: 243;

C. 2: 70; Sant. 124; Fl. Dang, 51; Fl. Delhi, 190; Fl. Pavagadh, 123.

An erect, hairy annual herb. Leaves opposite, broadly ovate, crenate. Heads white or in terminal corymbs. Achenes

5-angled. (Fl. Fr. June - January). DNT. 333, 894, 1418, 1521.

A common weed of cultivated fields and waste places;  
often observed near ditches or muddy river banks.

Cyathocline Cass.

Cyathocline purpurea (Ham. ex D. Don) Kuntze, Rev. Gen. Pl.

338, 1891; Sant. 124; Fl. Pavagadh, 130; Fl. Mel. 194.

Tanacetum purpureum Don, Prodr. 181, 1825.

Cyathocline lyrata Cass. in Ann. Soc. Sci. Nat. (ser. 1)

17: 420, 1829; FBI. 3: 246; C. 2: 71; Wt. Ic. t. 1098.

A slender, erect herb. Leaves sessile, pinnatifid, segments  
toothed, more or less hairy. Heads rose-purple, arranged in  
small corymbose panicles. Achenes small, smooth, oblong. (Fl.  
Fr. September - January). DNT. 441, 1516.

Commonly observed in shaded, moist localities on the  
river banks.

Grangea Adans.

Grangea maderaspatana (Linn.) Poir. Encycl. Suppl. 2: 825,

1811; FBI. 3: 243; C. 2: 72; Wt. Ic. t. 1097; Sant.

126; Fl. Dang, 53; Fl. Delhi, 191; Fl. Pavagadh, 131.

Artemisia maderaspatana Linn. Sp. Pl. 849, 1753.

A prostrate, spreading herb. Leaves sinuately pinnatifid, numerous, sessile, alternate. Heads yellow, in globose, solitary, on leaf-opposed peduncles. Achenes glandular. (Fl. Fr. April - July). DNT. 846, 877.

Very common; forming mats on the dry river banks along with Polygonum plebeium and Glinus lotoides.

Conyza Less. (nom. cons.)

Conyza japonica Less. Syn. Comp. 204; DC. Prodr. V 383, 1836; FBI. 3: 258; G. 2: 480.

An erect, villous herb. Leaves sessile, obovate, serrate. Heads yellow, globose, Achenes glabrous. (Fl. Fr. January - April). DNT. 839, 1601.

Noted as a weed in cultivated fields and on waste lands.

Blumea DC. (nom. cons.)

Blumea obliqua (Linn.) Druce, in Rep. Bot. Exch. Club. Brit. Isles. 4: 609, 1917; Randeria, in Blumea 19(1): 286, 1960; Fl. Delhi, 195; Fl. Mel. 196.

Erigeron obliquus Linn. Mant. 573, 1771.

Blumea amplexans 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 or obovate, dentate. Heads yellow, solitary, disciform. Achenes oblong, hairy. (Fl. Fr. January - May). DNT. 867.

Commonly noted in waste places.

Blumea eriantha DC. in Wight's Contrib. 15, 1834; FBI. 3:  
266; C. 2: 78; Sant. 128; Randeria, loc. cit. 279;  
Fl. Pavagadh, 129.

A slender, dichotomously branched, more or less pubescent, erect herb. Leaves membranous, obovate. Heads yellow, in dichotomous cymes. Achenes angled with a few hairs. (Fl. Fr. December - March). DNT. 1412.

Commonly noted on escarpments of hillocks and along roadsides.

Blumea malcolmii (Clarke) Hook. f. in FBI. 3: 266, 1881;  
C. 2: 78; Sant. 129; Randeria, loc. cit. 278; Fl.  
Pavagadh, 129.

Pluchera malcolmi Clarke, Comp. Ind. 95, 1876.

A stout, ascending, annual herb, densely clothed with soft, white, silky hairs. Leaves thick, densely woolly, obovate, obtuse. Heads yellow, in terminal leafy panicles. Achenes flattened, hairy. (Fl. Fr. November - January ). DNT. 1445.

Rare; noted on waste lands and along roadsides at Rangpur.

Blumea mollis (D. Don) Merrill, in Phil. J. Sc. (Bot.) 5: 395, 1910; Sant. 127; Fl. Delhi, 195.

Erigeron molle D. Don Prodr. 172, 1825.

Blumea wightiana DC. in Wt. Contrib. 14: 1834; FBI. 3: 261; C. 2: 75.

An erect villous, annual, leafy herb. Leaves ovate, elliptic-lanceolate, thin, serrate. Heads purple, in terminal, spiciform, dense cymes or panicles. Achenes 4-5-angled, not ribbed. (Fl. Fr. October - January). DNT. 1303, 1421, 1540.

Commonly noted in moist places on the escarpments of rocky hillocks and in waste places.

Blumea fistulosa (Roxb.) Kurz. in JASB. 46(2): 187, 1877;

Randeria, loc. cit. 256; Fl. Pavagadh, 129.

Conyza fistulosa Roxb. Fl. Ind. 3: 429, 1832.

Blumea glomerata DC. in Wight's Contrib. 15: 1834;

FBI. 3: 262; C. 2: 76; D. & G. 125.

An erect, more or less pubescent annual herb. Leaves obovate, coarsely serrate, petiolate. Heads yellow, in sessile interrupted spikes; pappus purple. Achenes ribbed, hairy. (Fl. Fr. October - December). DNT. 1421.

Rare; noted on rocky escarpments along the streams at Banganga.

Blumea virens DC. in Wight's Contrib. 14, 1834; FBI. 3: 264;

C. 2: 77; Sant. 127.

A slender, much-branched, striate, glabrous herb. Leaves glabrous, irregularly sinuately toothed, petiolate. Heads yellow, glabrous, in much-branched panicles. Achenes oblong, ribbed, hairy. (Fl. Fr. December - January). DNT. 1569.

Rare; noted on rocky escarpments along the streams at Banganga.

Blumea membranacea DC. Prodr. 5: 440, 1836; FBI. 3: 265;

C. 2: 77; Sant. 128; Randeria, loc. cit. 269; Fl.

Pavagadh, 130.

A tall, more or less pubescent, erect herb, about 80-100 cm. high. Leaves thinly membranous, acute, coarsely serrate. Heads yellow, in terminal, peduncled corymbs; pappus white. Achenes ribbed. (Fl. Fr. December - February). DNT. 1393, 1520, 1539.

Common and abundant in the area, noted along roadsides and on forest fringes.

Laggera Sch.-Bip.

Laggera aurita (Willd.) Sch.-Bip. in Schweinf, Beitr. Fl.

Aeth. 151, 1867; FBI. 3: 271; C. 2: 80; Fl. Delhi, 196.

Conyza aurita Willd. Sp. Pl. 3: 1929, 1804.

Blumea aurita DC. Prodr. 5: 449, 1836.

A perennial, villous, branched herb. Leaves sessile, toothed or sub-pinnatifid. Heads pink, in terminal, paniculate corymbs. Achenes hairy. (Fl. Fr. February - May). DNT. 1585.

Rare; noted in waste lands and along roadsides at Mogra.

Sphaeranthus Linn.

Sphaeranthus indicus Linn. Sp. Pl. 927, 1753; FBI. 3: 275;



C. 2: 84; Sant. 130; Fl. Dang, 531; Fl. Pavagadh, 126.

A divaricately branched, prostrate or sub-erect herb. Leaves sessile, ovate-oblong, serrate, villous. Heads purple, globose or ovoid, terminal, on winged peduncles. Achenes glabrous, angular. (Fl. Fr. December - May). DNT. 1786.

Noted in dry, waste places and cultivated fields.

Gnaphalium Linn.

Gnaphalium indicum Linn. Sp. Pl. 852, 1753; FBI. 3: 289;

C. 2: 87; Gr. 97; D. & G. 130; Sant. 131; Fl. Dang, 52; Fl. Delhi, 194; Fl. Pavagadh, 133.

An erect, sub-erect, or prostrate, white-woolly herb. Leaves narrowly linear-obovate. Heads whitish yellow or straw-coloured, in leafy spikes. Achenes ovoid. (Fl. Fr. December - April). DNT. 843, 892.

Noted in wet ditches along with Ageratum conyzoides and Polygonum plebeium and on sandy river banks.

Gnaphalium luteo-album Linn. Sp. Pl. 851, 1753; FBI. 3: 288;

C. 2: 86; Sant. 131; Fl. Dang, 53.

An erect, woolly herb. Leaves sessile, linear-oblong,

obtuse; upper ones semi-amplexicaul. Heads golden yellow, in dense leafless corymbose clusters. Achenes oblong, papillose. (Fl. Fr. December - April). DNT. 843, 892.

Noted in moist places on the river banks along with Gnaphalium indicum, Polygonum plebeium and Indigofera linifolia.

Gnaphalium pulvinatum Delile, Descript. de l'Egypte, 266, t. 44, 1812; FBI. 3: 289; C. 2: 87; Fl. Pavagadh, 134.

A small, prostrate, woolly herb. Leaves spatulate, mucronate, woolly. Heads whitish-yellow, in leafy rounded clusters, covered by white, woolly involucral bracts. Achenes oblong. (Fl. Fr. January - February). DNT. 1578.

Noted in moist soils along river banks.

Vicoa Cass.

Vicoa indica (Willd.) DC. in Wight's Contrib. 10: 1834; Gr.

97; D. & G. 126; Wt. Ic. t. 1184; Sant. 132; Fl. Dang, 55; Fl. Delhi, 193; Fl. Pavagadh, 133.

Inula indica Willd. Sp. Pl. 3: 2092, 1804.

Vicoa auriculata Cass. in Ann. Sc. Nat. (ser. 1) 17: 418, 1829; FBI. 3: 297; C. 2: 88.

An erect, branched, rigid herb. Leaves sessile, lanceolate

or oblong-lanceolate, acute. Heads bright yellow, on slender peduncle, heterogamous. Achenes terete, sparsely hairy. (Fl. Fr. September - January). DNT. 331, 1010, 1128.

Fairly common and abundant in the area.

Pulicaria Gaertn.

Pulicaria angustifolia DC. Prodr. 5: 479, 1836; FBI. 3: 298;  
C. 2: 90.

A small, much-branched annual herb. Leaves sessile, linear-oblong or ovate, often serrulate. Heads yellow, solitary, ligulate. Achenes glabrous, shining. (Fl. Fr. September - October). DNT. 501.

Rare; noted as a weed in cultivated fields at Khasra.

Caesulia Roxb.

Caesulia axillaris Roxb. Pl. Cor. 1: 64, t. 93, 1795; FBI. 3: 291; C. 2: 92; Wt. Ic. t. 1102; Sant. 132; Fl. Delhi, 192; Fl. Pavagadh, 123.

A sub-erect or prostrate herb. Leaves lanceolate, alternate, serrulate, acute. Heads pale blue or white, axillary, sessile. Achenes flat, obovoid, winged on each side. (Fl. Fr.

September - January). DNT. 338, 428, 1345.

A marsh-loving herb; commonly noted near ditches, muddy river banks and as a weed in cultivated fields.

Lagasea Cav.

Lagasea mollis Cav. in Anal. Cienc. Nat. 6: 332, t. 44, 1803;  
FBI. 3: 302; C. 2: 93; Sant. 118.

A tall, slender, annual herb. Leaves ovate, acute, silky beneath. Heads white, solitary, terminal or in corymbose

panicles. Achenes cuneate. (Fl. Fr. August - November).

DNT. 1156.

Noted along roadsides at Rangpur.

Xanthium Linn.

Xanthium strumarium Linn. Sp. Pl. 987, 1753; FBI. 3: 303;

C. 2: 94; Sant. 132; Fl. Dang, 55; Fl. Delhi, 196;

Fl. Pavagadh, 128.

Xanthium indicum Koen. ex Roxb. Hort. Beng. 67, 1814 &

Fl. Ind. 3: 601, 1832; Gr. 101; D. & G. 127; Wt. Ic.

t. 1104.

An erect, scabrid herb or undershrub. Leaves irregularly toothed scabrid, triangular-cordate. Heads light purple, in axillary and terminal racemes, monoecious. Fruiting involucre clothed with hooked prickles. Achenes ovoid-oblong, compressed. (Fl. Fr. September - October). DNT. 1385, 1808.

A very common weed of cultivated fields, roadsides and waste places; also noted on the elevated river banks and on forest fringes. Usually found in association with Crotalaria medicaginea and Cassia tora.

Eclipta Linn. (nom. cons.)

Eclipta prostrata (Linn.) Linn. Mant. 2: 286, 1771; Gr. 99;

D. & G. 127; Santapau, in JBNHS. 54: 475-476, 1957;

Sant. 133; Fl. Delhi, 197; Fl. Pavagadh, 124.

Verbesina prostrata Linn. Sp. Pl. 902, 1753.

Eclipta erecta Linn. Mant. 2: 286, 1771; C. 2: 95;

D. & G. 127.

Eclipta alba (Linn.) Hassk. Fl. Jav. Rar. 528, 1848;

FBI. 3: 304; Fl. Dang, 52.

An erect, or prostrate, annual herb. Leaves sessile, linear or oblong-lanceolate. Heads white, 1-2 together, axillary, solitary. Achenes compressed, winged on the margin. (Fl. Fr. May - February). DNT. 133, 1523, 1919.

Very common and abundant, near water-logged situations, also noted on dry sandy places.

Sclerocarpus Jacq.

Sclerocarpus africanus Jacq. Icon. Pl. Rar. 1: 17, t. 176,

1782; FBI. 3: 305; C. 2: 96; Fl. Pavagadh, 132.

An erect, hispid herb with terete stems and branches. Leaves alternate, ovate, acute, clothed with appressed hairs. Heads yellow, terminal or leaf-opposed, heterogamous. Achenes ribbed, beaked. (Fl. Fr. August - October). DNT. 450, 1085.

A weed of waste lands; also noted as an undergrowth of forest.

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.

Verbesina acmella Linn. Sp. Pl. 901, 1753.

Blainvillea rhomboidea Cass. in Dict. Sc. Nat. 29: 294, 1823; C. 2: 97.

Blainvillea latifolia DC. in Wight's Contrib. 17, 1834; FBI. 3: 305; Fl. Delhi, 198.

A small hispid, dichotomously branched herb. Leaves ovate-lanceolate or ovate-rhomboid. Heads white or yellowish-white, on long, stiff, axillary peduncles. Achenes triquetrous. (Fl. Fr. August - October). DNT. 327, 485, 1498.

Commonly noted along roadsides and in shaded places.

Spilanthes Linn.

Spilanthes paniculata Wall. ex DC. Prodr. 5: 625, 1836; Koster & Philipson, in Blumea 6(2): 350, 1950; Raizada, in

Ind. For. 92(5): 324, 1966; Santapau & Janardhanan, 29.

Spilanthes acmella (non Linn.) Murr. Syst. Veg. (ed. 13)  
610, 1774; FBI. 3: 307; C. 2: 99; D. & G. 129; Fl.  
Dang, 54.

A small, erect, hairy, annual herb. Leaves opposite, ovate, glabrous, acute. Heads yellow, axillary or terminal, on long peduncles. Achenes oblong, truncate, glabrous. (Fl. Fr. September - December). DNT. 500, 1590, 1738.

Commonly noted in moist situations and as a weed in cultivated fields.

Glossocardia Cass.

Glossocardia bosvallea (Linn. f.) DC. in Wight's Contrib. 19, 1834; Fl. Dang, 52; Fl. Delhi, 197.

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, prostrate or diffuse annual herb. Leaves bipinnatisect, segments linear. Heads yellow, in small axillary or terminal, heterogamous. Achenes compressed, densely bearded along the edges. (Fl. Fr. August - October). DNT. 355, 604, 677, 1164.



Commonly noted in dry grassy places on the plains and on hillocks.

Bidens Linn.

Bidens biternata (Lour.) Merr. & Sherff, in Bot. Gaz. 88:

293; 1929; Sant. 133; Fl. Dang, 51; Fl. Delhi, 197;  
Fl. Pavagadh, 125.

Coreopsis biternata Lour. Fl. Cochinch. 508, 1790.

Bidens wallichii DC. Prodr. 5: 598, 1836; Gr. 101;

D. & G. 128.

Bidens pilosa auct. (non Linn.); FBI. 3: 309; C. 2: 101.

A tall, erect, glabrous herb. Leaves opposite, pinnately divided; basal leaflets tripartite. Heads yellowish-white, heterogamous. Achene black, ribbed. (Fl. Fr. July - November). DNT. 1002, 1089.

Commonly noted in sandy moist soils, along roadsides and on forest fringes.

Tridax Linn.

Tridax procumbens Linn. Sp. Pl. 900, 1753; FBI. 3: 311; C. 2:

102; Sant. 134; Fl. Dang, 54; Fl. Delhi, 199; Fl.  
Pavagadh, 130.

A straggling herb with hairy, spreading branches. Leaves ovate-elliptic, acute, hairy. Heads yellowish-white, solitary, on long, slender peduncles. Achenes oblong, silky hairy. (Fl. Fr. August - January). DNT. 34.

Very common and abundant on waste lands, along roadsides and in cultivated fields.

Centipeda Lour.

Centipeda minima (Linn.) A. Br. & Aschers. Ind. Sem. Hort.

Berol. App. 6, 1861.

Artemisia minima Linn. Sp. Pl. 849, 1753.

Centipeda orbicularis Lour. Fl. Cochinch. 493, 1790; FBI. 3: 317; C. 2: 103.

A prostrate, annual herb. Leaves alternate, toothed, oblong-spathulate. Heads yellow, globose, solitary, axillary, small, heterogamous. Achenes 4-angled, angles hairy. (Fl. Fr. January - April). DNT. 878, 1852.

PLATE No. 51

Rare; noted in moist shallow soils along river banks, in association with Polygonum plebeium, Gnaphalium indicum and Sutera dissecta at Hampleshwar.

HERBARIUM

No. ENT 1552


Family Asteraceae

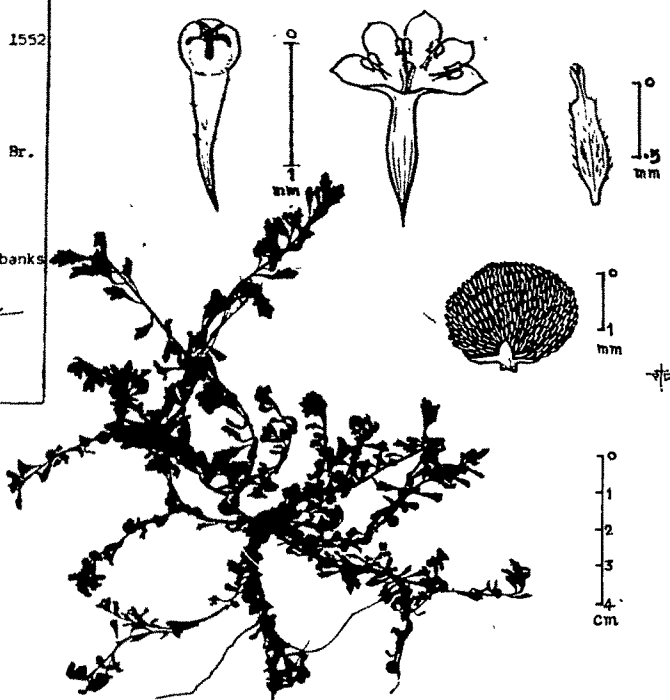
Genus Centipeda

Species minima (Linn.) A. Br.  
& Aschers.

Locality Hampheshwar,  
Chhotaudepur.

Remarks : Rare; noted in  
moist places on river banks

31-1-71. Collected by 



Centipeda minima (Linn.) A. Br. & Aschers.

PLATE No. 51.

Emilia Cass.

Emilia sonchifolia (Linn.) DC. in Wight's Contrib. 24, 1834  
 & Prodr. 6: 302; FBI. 3: 336; C. 2: 107; Sant. 135;  
 Fl. Delhi, 52; Fl. Pavagadh, 128.

Cacalia sonchifolia Linn. Sp. Pl. 835, 1753; Gr. 98.

A slender, glabrous annual herb. Lower leaves stalked, the upper amplexicaul and auricled, lyrate, pinnatifid. Heads pinkish or purplish, few, in lax corymbs; pappus copious, of white long hairs. Achenes narrowly oblong, ribbed, hispid on the edges. (Fl. Fr. August - October). DNT. 319, 983, 1626, 1831.

Common in shaded, moist places during monsoon and as a weed in cultivated fields.

Echinops Linn.

Echinops echinatus Roxb. Fl. Ind. 3: 447, 1832; FBI. 3: 358;  
 C. 2: 112; Gr. 95; D. & G. 131; Fl. Dang, 51; Fl.  
 Delhi, 200; Fl. Pavagadh, 123.

An erect or diffuse, much-branched, spiny, white woolly annual. Leaves sessile, oblong, pinnatifid, the lobes ending in long, narrow spines. Heads white, globose, solitary or

terminal, spiny. Achenes elongate, villous. (Fl. Fr. November - May). DNT. 600.

Commonly observed along roadsides and on waste lands.

Goniocaulon Cass.

Goniocaulon glabrum Cass. in Dict. Sc. Nat. 19: 201, 1821;

FBI. 3: 377; C. 2: 113.

Goniocaulon indicum C. B. Clarke, Comp. Ind. 236.

Amberboa indica DC. Prodr. 6: 558; D. & G. 131; Wt. Ic.

t. 479.

An annual, erect herb with angled, glabrous stem. Leaves sessile, linear-oblong, serrate or toothed. Heads light purple or pink, in compound corymbs, homogamous, Achenes closely ribbed, glabrous. (Fl. Fr. November - January). DNT. 1424.

Rare; noted in hedges and along roadsides at

Tricholepis DC.

Tricholepis glaberrima DC. Prodr. 6: 754, 1837; FBI. 3: 381;

C. 2: 115; Sant. 136; Fl. Pavagadh, 127.

A glabrous, spiny herb with distinctly ribbed stems and

branches. Leaves linear-oblong, serrate. Heads purple; heterogamous, terminal, solitary. Achenes oblong, faintly ribbed. (Fl. Fr. October - December). DNT. 1795.

A weed of waste places and cultivated fields.

Amberboa Less. (nom. cons.)

Amberboa ramosa (Roxb.) Jafri, in Scientist (Karachi) III : 29, 1959.

Carduus ramosus Roxb. Fl. Ind. 3: 407, 1832.

Volutarella divaricata Benth. et Hook. f. Gen. Pl. 2: 476, 1873 (excl. Syn.); FBI. 3: 387; C. 2: 115.

Tricholepis procumbens Wt. Ic. t. 1139, 1846; D. & G. 131.

An erect or straggling, dichotomously branched, annual herb. Leaves oblong or obovate, pinnatifid. Heads purple, homogamous; pappus paleaceous, many-seriate. Achenes obovoid, oblong, ribbed. (Fl. Fr. November - January). DNT. 1617.

Commonly noted in dry waste lands, along roadside ditches and in cultivated fields.

Sonchus Linn.

Sonchus oleraceus Linn. Sp. Pl. 794, 1753; FBI. 3: 414; C. 2:

119; Sant. 137; Fl. Delhi, 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). DNT. 923, 1599, 1779.

Commonly observed as a weed in cultivated fields.

Launaea Cass.

Launaea fallax (Jaub. & Spach.) Kuntze, Rev. Gen. Pl. 351, 1891; Kitamura, Fl. Afghan, 431, 1960; Sant. 137.

Microhynchus fallax Jaub. & Spach. Pl. Or. t. 276, 1849.

Launaea nudicaulis (Linn.) Hook. f. FBI. 3: 416, 1881; C. 2: 122; Fl. Dang, 53; Fl. Delhi, 189; Fl. Pavgadh, 131.

Chondrilla nudicaulis Linn. Mant. 2: 278, 1767.

An erect or sub-erect, glabrous herb with radical leaves. Leaves lobed or pinnatifid, ovate-oblong. Heads yellow, more or less sub-racemose. Achenes ribbed. (Fl. Fr. June - March). DNT. 1659.

Commonly noted in waste lands and as a weed in cultivated fields.

Acanthospermum Schrank.

Acanthospermum hispidum DC. Prodr. 5: 522, 1836; Santapau,  
in JBNHS. 45: 445, 1944-1945; Sant. 139; Fl. Pavagadh,  
132.

An erect, rigid, hairy herb. Leaves sessile or sub-sessile, ovate-lanceolate. Heads yellow, placed at the base of forking branches. Achenes spinescent, provided with 2-horn-like spines at the top. (Fl. Fr. August - October). DNT. 383, 545, 964.

Fairly common; noted along roadsides, along forest fringes and as a weed in cultivated fields.

## PRIMULACEAE

Anagallis Linn.

Anagallis arvensis Linn. var. coerulea (Schreb.) Gren. et  
Godr. Fl. France 2: 467, 1852; Pax & Kunth, in  
Pfreich. 22: 323; Fl. Pavagadh, 134.

A. coerulea Schreb. Fl. Lips. 5, 1771.

A. arvensis D. & G. Bomb. Fl. 136, 1861; FBI. 3: 506;  
C. 2: 139; Fl. Delhi, 203.

A small, much-branched, sub-erect herb with tetragonous



stems. Leaves sessile, entire, ovate, opposite. Flowers blue, axillary, solitary, on long, slender peduncle. Capsule globose. (Fl. Fr. December - February). DNT. 1431, 1579.

Commonly noted as a weed of winter crops.

#### PLUMBAGINACEAE

Calyx covered with stalked glands .....Plumbago

Calyx eglandular .....Dyerophytum

Plumbago Linn.

Plumbago zeylanica Linn. Sp. Pl. 151, 1753; D. & G. 220;  
FBI. 3: 480; C. 2: 136; Sant. 140; Fl. Dang, 55;  
Fl. Delhi, 203; Fl. Pavagadh, 134; Fl. Mel. 193.

A scandent, perennial herb or shrub. Leaves thin, ovate, entire, glabrous. Flowers white, in elongate spikes, rachis glandular; calyx sticky, covered with stalked glands. (Fl. Fr. September - January). DNT. 1522, 1804.

Commonly noted in shaded moist localities, in hedges and as an undergrowth of forest.

Dyerophytum O. Kuntze

Dyerophytum indicum (Gibs. ex Wight) O. Kuntze, Rev. Gen. Pl.

3: 394, 1891; Rao, in BBSI. 10(Suppl.) Addenda, 1969.

Vogelia indica Gibs. ex Wight, in Calc. Journ. Nat. Hist.

7: 17, 1847; FBI. 3: 481; C. 2: 137.

An erect, terete undershrub. Leaves pale green, thick, coriaceous. Flowers light orange, in dense, paniculate spikes; calyx eglandular. Fruit capsular. (Fl. Fr. December - April). DNT. 1713.

Rare; observed in the crevices of rocks at Ambadungar.

#### LOBELIACEAE

Lobelia Linn.

Lobelia alsinoides Lamk. Encycl. 3: 588, 1791; Sant. 140;

Fl. Dang, 55; Thaker & Sabnis, in JMSUB. 19 & 20(3): 40, 1970-1971.

Lobelia trigona Roxb. Fl. Ind. 2: 111, 1824; Wt. Ic. t.

1170; D. & G. 133; FBI. 3: 423; C. 2: 130.

An erect, annual herb. Leaves sub-sessile, ovate, cuneate, glabrous. Flowers light blue, axillary, peduncle longer than leaves. Capsule ellipsoid; seeds trigonous. (Fl. Fr. August - November). DNT. 1329.

Rare; noted in moist, sandy soils along streams at Ambadungar.

## CAMPANULACEAE

Campanula Linn.

Campanula dimorphantha Schweinf. Beitr. Fl. Aethiop. 140,  
1867; Tackholm, in Stud. Fl. Egypt 93, 1956.

Cephalostigma spathulatum Thwaites, Enum. Pl. Zeyl. 422,  
1864 (non Campanula spathulata Sibth. & Sm. 1806).

Campanula canescens Wall. (cat. no. 1289, nom. nud.)

ex DC. Prodr. 8: 473, 1839 (non Roth, 1827); Clarke,  
in Fl. Brit. Ind. 3: 439, 1881; Trimen, Handb. Fl.  
Ceylon 3: 60, 1895; Santapau, in JBNHS. 45:446, 1944.

C. benthamii Wall. (cat. no. 1290, nom. nud.) ex Kitamura  
Fl. Afghanistan 377, 1960; Thaker & Sabnis, in JBNHS.  
69(1): 227-228, 1972.

C. wallichii Babu, in JBNHS. 65: 808, 1968.

An erect, hairy, sparingly branched herb, with a crowded basal rosette of leaves. Branches when present arising below the rosette leaves. Stems hirsute. Leaves lanceolate, crenate, sparsely hairy. Flowers in axillary and terminal panicles. Flowers protandrous, young flowers purple-blue in colour and show mature anthers and small styles with 3, closed, stigmatic

lobes. Older flowers fade and become white or dirty white, which show empty anthers and well-developed styles with 3, recurved, stigmatic lobes. Cream-coloured flowers with purple tips form an intermediate stage. Corolla campanulate, hairy on the back, stamens 5, filaments dilated. Ovary tricarpeal, placentation axile; placenta triangular, peltate; ovules numerous. Capsules subglobose, 3-celled with numerous compressed seeds.

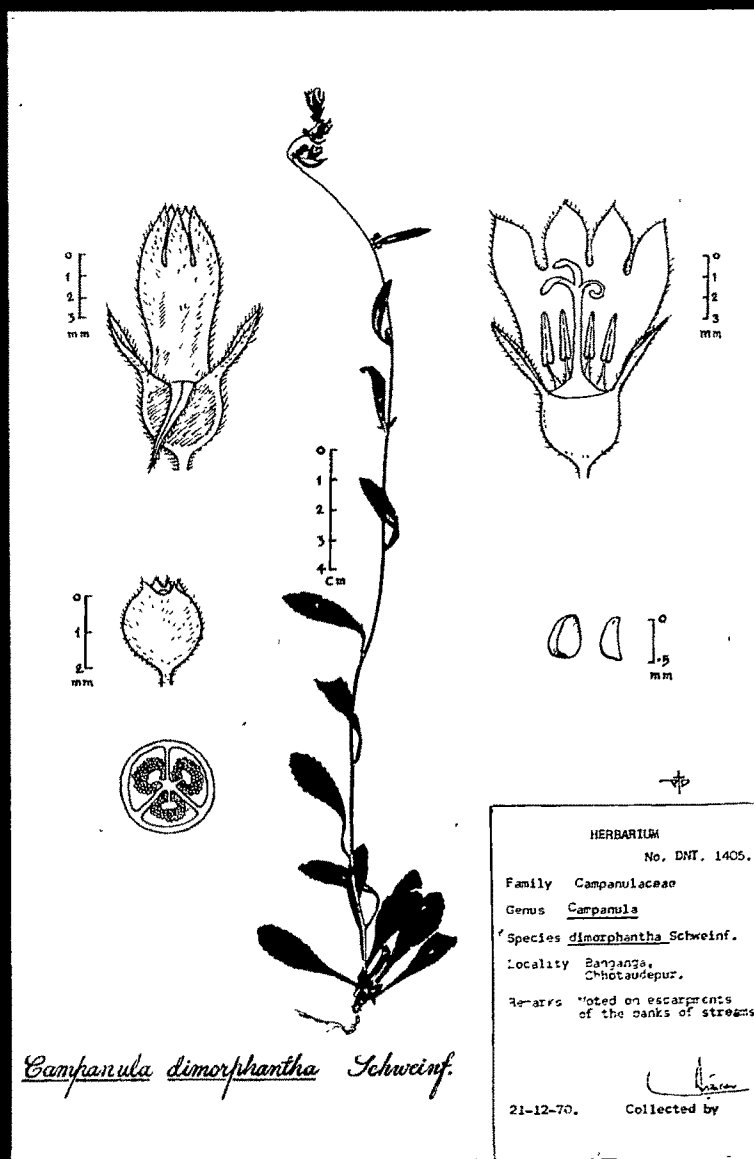
Imperfect flowers mentioned in the earlier descriptions have also been met with. (Fl. Fr. December - January). DNT.1405, 1469, 1473, 1529, 1536, 1550, 1834, 1909.

#### PLATE No. 52

The plants have been found to be restricted to steep escarpments of the banks of stream Banganga from Kadipani to Hampheshwar. They were noted growing along with Blumea, Cyathocline and Hemigraphis.

The different populations of the plant show morphological variations, which have been clearly brought out in the polygraphic study.

The plant is not mentioned in the Cooke's flora of the Presidency of Bombay. However, it has been collected by Blatter from Panchgani, Bell from Ambavadi in north Konkan and



Santapau from Purandhar. At Purandhar it was nowhere abundant but was spread all over the hill, in gardens and along the paths in December.

Although widespread in its distribution from Himalayas to central India, the plant has not been collected so far from any locality in Gujarat State.

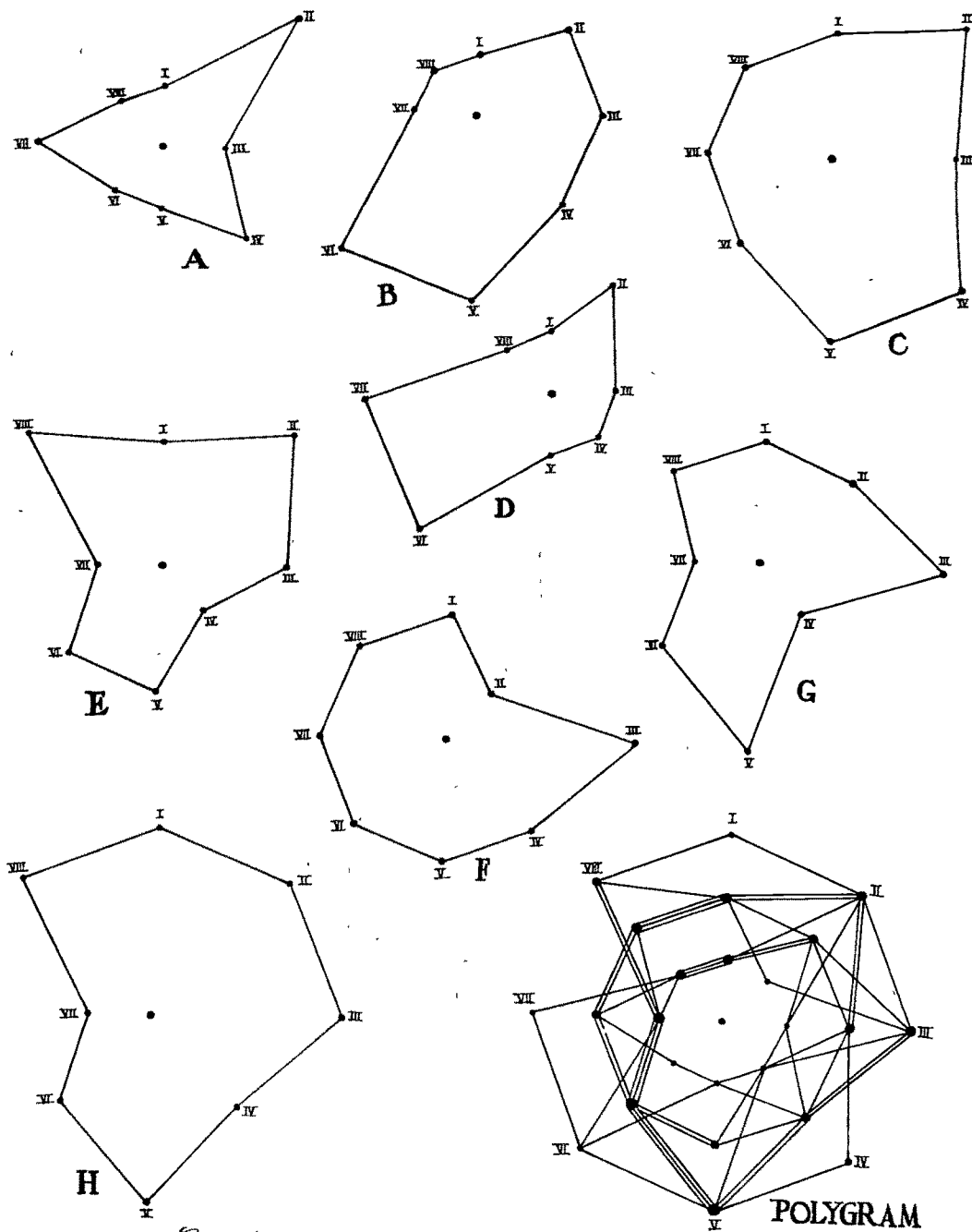
The nomenclature of the plant also deserves discussion. Babu (loc. cit.) has given the new name Campanula wallichii Babu for a species referred to as C. canescens Wall. ex DC. in majority of the Indian floras. According to him " the widely accepted binomial C. canescens Wall. ex DC. (1839) for this plant is unfortunately a later homonym of C. canescens Roth (1827) " and should be rejected in accordance with Art. 64 of the International Code of Botanical nomenclature (1966). The next available name C. benthamii Wall. is also invalid as it is a nomen nudum. The specific epithet spathulatum from Cephalostigma spathulatum is also not available as it has already been used previously for three different plants of the genus Campanula Linn. Considering the non-availability of a specific epithet for the plant, Babu (l. c.) chose to give the new name C. wallichii Babu. However, it may be noted that C. benthamii Wall. considered nomen nudum has been validated by Kitamura in Flora

Afghanistan in 1960. The creation of the new name by Babu, therefore, is unnecessary and contrary to the Code. According to C. Jeffrey of the Royal Botanic Gardens, England (personal communication - QG 1172, dated 28 June, 1973). " the tropical African species C. dimorphantha Schweinf. is almost certainly specifically identical with the Asiatic plants formerly known as C. canescens Wall. ex DC. and that the establishment of this synonymy would provide C. dimorphantha as an earlier correct name for the combined Taxon". The nomenclature of our plant, therefore, should be as adopted here.

### Morphological Characters

PLATE No. 53

	<u>Character</u>	<u>Variations</u>	<u>Index value</u>
I	Height of the plant	30 cm. or more	1
		between 10 to 30 cm.	3
		less than 10 cm.	5
II	Branching from the base	more than two	1
		usually two	3
		unbranched	5
III	Stem	distinctly grooved	1
		striate, not distinctly grooved	3
		cylindrical	5



*Campanula dimorphantha* Schweinf.



IV	Radical leaves	crowded	1
		sparse	3
		inconspicuous	5
V	Size of the leaves (Length x Breadth)	25 sq. cm. or more	1
		10 to 25 sq. cm.	3
		less than 10 sq. cm.	5
VI	Inflorescence	terminal, much branched	1
		terminal, sparsely branched	3
		terminal & axillary mixed	5
VII	Leaf margin	serrate	1
		crenate	3
		serrate-crenate	5
VIII	Size of flower	more than 9 mm.	1
		6 to 9 mm.	3
		upto 5 mm.	5

The polygraphic study reveals that the height of the plant so also the leaf size vary considerably in the various populations studied. However, the characters like the nature of the inflorescence and the size of the flower are fairly constant.

Wahlenbergia Schrad.

Wahlenbergia marginata (Thunb.) A. DC. Mon. Camp. 143, 1830;

Sant. 141.

Campanula marginata Thunb. Fl. Jap. 89, 1784.

Wahlenbergia gracilis Schrad. Blumenb. 38, in Obs. 1827;

A. DC. Mon. Camp. 142, 1830; FBI. 3: 429; C. 2: 133.

W. agrestis A. DC. Prodr. 7: 434; Wt. Ic. 1175; D. & G.

134.

A small, decumbent herb. Leaves sessile, linear-oblong, entire or distantly dentate with thick margins, alternate. Flowers blue (?), in lax, corymbose panicles; calyx persistent. Sepals linear spatulate, apiculate; petals shorter than the sepals, deeply divided or almost free; stamens 5, filaments very short, slightly dilated, not pilose as mentioned in the floras. Capsules turbinate, crowned with the straight calyx lobes. (Fl. Fr. February - April). DNT. 895.

PLATE No. 54

Rare; noted in moist places along the river banks at Hampheshwar.

The plant exhibits a number of characters, not properly brought out in Wight's Ic. t. 1175. The shape of the calyx and the nature of the filament are very much different in our population, raising doubts about the identity of the plant.

HERBARIUM

No. DNT. 895.

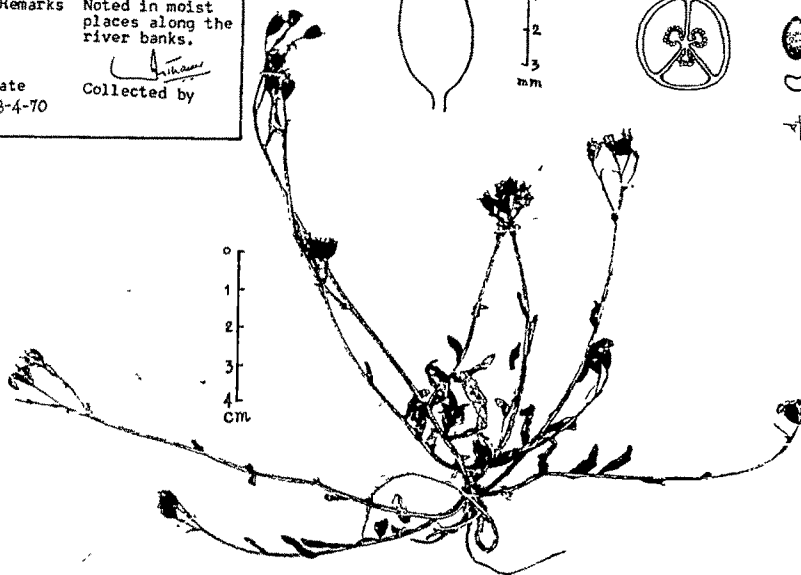
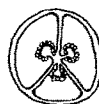
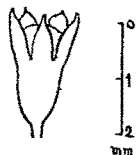
Family Campanulaceae  
Genus Wahlenbergia  
Species marginata (Thunb.)  
A. DC.

Locality Hampsheswar,  
Chhotaudapur.

Remarks Noted in moist  
places along the  
river banks.

Date  
18-4-70

Collected by  
*G. K. S.*



*Wahlenbergia marginata* (Thunb.) A. DC.

PLATE No. 54.

However, DNT. 895 tallies very well with Santapau No. 3913 collected from Khandala and housed in the Blatter Herbarium, Bombay.

# SAPOTACEAE

Calyx lobes 4-5; staminodes absent .....Madhuca

Calyx lobes 6-8; staminodes present :

Flowers trimerous .....Manilkara

Flowers tetramerous .....Mimusops

Madhuca J. F. Gmel.

Madhuca indica J.F.Gmel. Syst. Nat. 2: 799, 1791; Merrill, in JAA. 29: 190, 1948; Sant. 141; Fl. Delhi, 204; Fl. Mel. 203.

Bassia latifolia Roxb. Pl. Cor. 1: 20, t. 19, 1795; FBI. 3: 544; C. 2: 152; Fl. Dang, 56.

Madhuca latifolia (Roxb.) Macbride, in Contrib. Gray Herb. (N.S.) 3(53): 17, 1918.

A much-branched, large or medium-sized, deciduous tree. Leaves elliptic, ovate, acute, clustered at the end of branches. Flowers creamy, drooping, rusty-tomentose, in dense fascicles

near the end of the leafless branches. Fruit a berry, ovoid, fleshy. (Fl. Fr. January - May). DNT. 1744, 1933.

Very common and abundant throughout the area. Cultivated as well as wild.

Manilkara Adans (nom. cons.)

Fruit ovoid, 1 - 1.5 cm. across;

epicarp yellow, when ripe .....hexandra

Fruit globose, 4-5 cm. across;

epicarp rusty brown .....achras

Manilkara hexandra (Roxb.) Dubard, in Ann. Mus. Col. Marseille (ser. 3) 3: 9, 1915; Bor, Man. Ind. For. Bot. 235; Fl. Delhi, 205; Fl. Pavagadh, 135.

Mimusops hexandra Roxb. Pl. Cor. 1: 16, t. 15, 1795 & Fl. Ind. 1: 238; FBI. 3: 549; C. 2: 155.

A medium-sized, evergreen tree. Leaves elliptic or ovate-oblong, rounded or emarginate. Flowers white, axillary, solitary or in fascicles of 2-6. Fruit ovoid, yellow when ripe, 1-seeded. (Fl. Fr. September - January). DNT. 1841.

Cultivated, noted near habitations.

Manilkara achras (Mill.) Fosberg, in Taxon 13: 255, 1964;

Raizada, in Ind. For. 92(5): 316, 1966.

Sapota achras Mill. Gard. Dict. 1768.

Achras zapota Linn. Syst. Nat. (ed. 10) 2: 988, 1759

(A. zapota Linn. 1753); FBI. 3: 534; C. 2: 156; Bailey, Man. Cult. Pl. 790; Fl. Dang, 56; Fl. Delhi, 205.

An evergreen tree. Leaves oblong-lanceolate or elliptic-oblong, acute, crowned at the end of branches. Flowers white, long petioled. Fruit globose, with thin, rusty-brown epicarp. (Fl. Fr. February - March). DNT. 1839.

Cultivated for its edible fruit.

Mimusops Linn.

Mimusops elengi Linn. Sp. Pl. 349, 1753; Wt. Ic. t. 1586; FBI.

3: 548; Merr. Enum. 3: 288; C. 2: 155; Sant. 142; Fl. Delhi, 205.

A medium-sized, evergreen tree. Leaves elliptic-lanceolate, shortly acuminate. Flowers white, solitary or axillary. Fruit ovoid, epicarp yellow when ripe. (Fl. Fr. March - July). DNT. 891.

Cultivated, noted near habitation.

#### EBENACEAE

Diospyros Linn.

Diospyros melanoxylon Roxb. Pl. Cor. 1: 36, t. 46, 1795; FBI. 3:

564; C. 2: 159; Talb. 2: 174; Fl. Dang, 56; Fl. Pava-  
gadh, 135; Fl. Mel. 205.

A large or middle-sized, deciduous tree. Leaves elliptic-  
oblong, alternate, obtuse, coriaceous. Flowers dioecious, in  
axillary cymes. Fruit globose, with thick coriaceous calyx.  
(Fl. Fr. January - April). DNT. 117, 885.

Fairly common and abundant. Observed in association with  
Tectona, Lagerstroemia and Butea.

#### OLEACEAE

Shrubs .....Jasminum

Trees .....Schrebera

#### Jasminum Linn.

Flowers in terminal many-flowered  
umbels; leaves and calyx very hairy .....multiflorum

Flowers terminal but not in many-flowered  
umbels; leaves and calyx not hairy .....sambac

Jasminum multiflorum (Burm. f.) Andr. Bot. Rep. 8, t. 496,

1807; Bailey, Man. Cult. Pl. 799; Fl. Delhi, 208.

Nyctanthes multiflorum Burm. f. Fl. Ind. 5, t. 3, f. 1, 1768.

Jasminum pubescence Willd. Sp. Pl. 1: 37, 1797; FBI. 3:

592; C. 2: 173; Bor & Raizada, 219, f. 129, Pl. 78.

A scandent shrub. Leaves simple, ovate-cordate, acute. Flowers white, in many-flowered, terminal umbels; calyx lobes linear, long and hairy. (Fl. January - May). DNT. 930.

Cultivated; noted near habitation.

Jasminum sambac (Linn.) Ait. Hort. Kew 1: 8, 1789; C. 2: 172;

Bailey, loc. cit. 789; Bor & Raizada, 218, f. 128;

Fl. Delhi, 208.

Nyctanthes sambac Linn. Sp. Pl. 6, 1753.

A scandent, bushy shrub. Leaves glabrous, shining, thinly membranous, petiolate, elliptic or broadly ovate. Flowers white, fragrant; calyx lobes linear, long and glabrous. (Fl. January - May). DNT. 887.

Cultivated, noted near habitation.

Schrebera Roxb.

Schrebera swieteniioides Roxb. Pl. Cor. 2: 1, t. 101, 1798;

FBI. 3: 604; C. 2: 177; Talb. 2: 193, f. 388; Fl.

Dang, 57; Fl. Mel. 211.

A medium-sized, glabrous tree. Leaves imparipinnate, opposite; leaflets ovate, acute, rough. Flowers in terminal, dichotomous or trichotomous cymes. Capsule woody, dotted with white, scabrous specks; seeds winged. (Fl. Fr. April - May). DNT. 120.



Rare; noted on the slopes of hillocks at Hampsheshwar.

#### SALVADORACEAE

Salvadora Linn.

Salvadora persica Linn. Sp. Pl. 122, 1753; FBI. 3: 619; C. 2: 182; Fl. Delhi, 209.

A much-branched, small tree. Leaves opposite, entire, elliptic-lanceolate, obtuse. Flowers greenish-yellow, in axillary and terminal compound lax panicles. Fruit globose, red when ripe. (Fl. Fr. November - March). DNT. 611.

Commonly noted in hedges.

#### APOCYNACEAE

Herbs ..... Catharanthus

Shrubs or trees :

Plants armed with thorns ..... Carissa

Plants unarmed :

Leaves whorled ..... Nerium

Leaves alternate or opposite :

Leaves alternate :

Corolla yellow, funnel-shaped ....Thevetia

Corolla white, salver-shaped .....Plumeria

Leaves opposite :

Corolla with a corona of scales...Wrightia

Corolla without corona .....Holarrhena

Catharanthus G. Don

Leaves lanceolate, acute; flowers small,

1 cm. across, white .....pusillus

Leaves oblong or oblanceolate, obtuse;

flowers 2.5 - 3 cm. across, white or pink.....roseum

Catharanthus pusillus (Murr.) D. Don, Gen. Syst. 4: 95,

1837; Fl. Delhi, 211; Raizada, in Ind. For. 92(5):  
304, 1966.

Vinca pusilla Murr. in Act. Goett. 3: 66, t. 2, f. 1,

1773; FBI. 3: 640.

Lochnera pusilla K. Schum. in Pfam. 4(2): 145, 1895;

C. 2: 191; Raizada, in Ind. For. Rec. (N.S.) Botany  
5(1): 28.

An erect, much-branched, very variable in height, annual

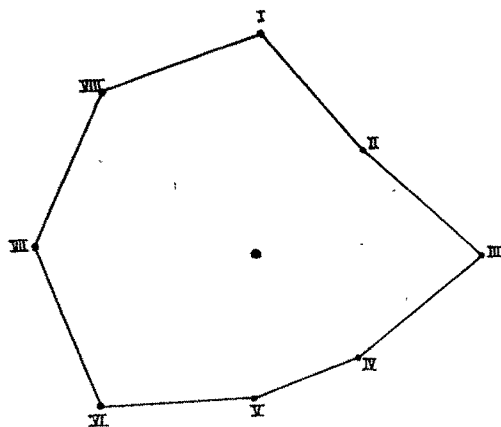
herb. Leaves linear-lanceolate to elliptic-lanceolate, acute, glabrous. Flowers white, small, axillary, solitary or in pairs. Follicles linear, pointed; seeds black, cylindric. (Fl. Fr. August - October). DNT. 137, 479, 1525, 1824.

Common and abundant in the area; observed growing in cultivated fields and on sandy river beds.

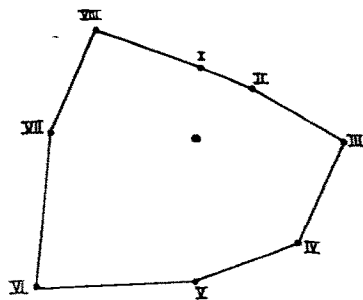
Morphological characters

PLATE No. 55

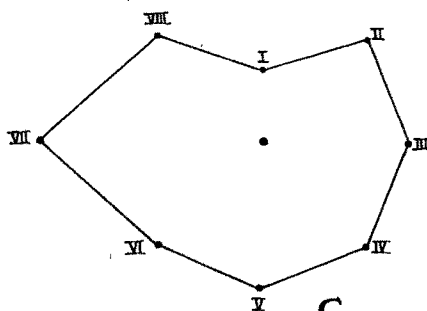
	<u>Characters</u>	<u>Variations</u>	<u>Index value</u>
I	Height of the plant	less than 20 cm.	1
		between 20 to 40 cm.	3
		more than 40 cm.	5
II	Branching of the stem	unbranched	1
		sparsely branched	3
		profusely branched	5
III	Internodal length	less than 15 mm.	1
		between 15 to 30 mm.	3
		more than 30 mm.	5
IV	Leaf shape	Linear	1
		linear-lanceolate	3
		elliptic-lanceolate	5
V	Lamina base	tapering into the petiole	1
			3
			5



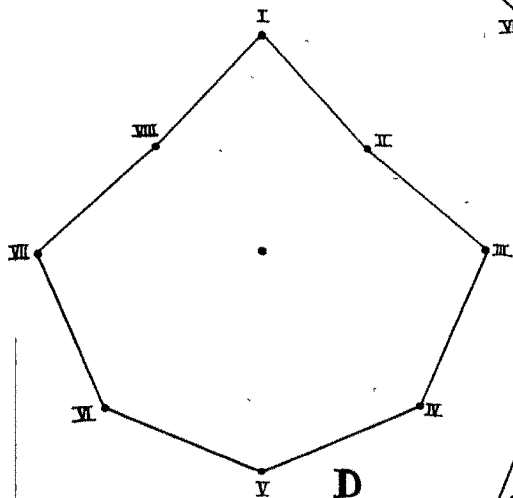
A



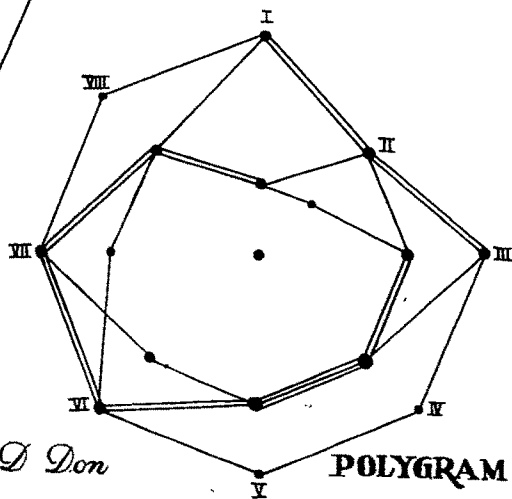
B



C



D



POLYGRAM

*Catharanthus pusillus* (Murr.) Don

		distinctly cuneate	3
		rounded	5
VI	Length of corolla	less than 5 mm.	1
	tube	between 5 to 7 mm.	3
		more than 7 mm.	5
VII	Length of the fruit	less than 30 mm.	1
		between 30 to 40 mm.	3
		more than 40 mm.	5
VIII	Number of seeds	less than 10	1
	per fruit	between 10 - 15	3
		more than 15	5

In order to understand the nature of variability, the different populations collected were subjected to polygraphic study, which reveals the presence of variations in vegetative characters. At the same time, it is evident that in reproductive characters the populations are most consistent. The different populations can, therefore, be considered as ecotypes showing variations within the species.

Catharanthus roseus (Linn.) G. Don, Gen. Syst. 4: 95, 1837;

Raizada, in Ind. For. 92(5): 304, 1966.

Vinca rosea Linn. Syst. Nat. (ed. 10) 944, 1759; Bor &

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 undershrub. Leaves opposite, oblong or oblanceolate. Flowers pink or white, in dense, axillary clusters or solitary. Follicles cylindric. (Fl. Fr. mostly throughout the year). DNT. 1934.

Cultivated for its beautiful flowers.

Carissa Linn. (nom. cons.)

Carissa congesta Wight, Ic. t. 1289, 1848; Sant. 145; Fl. Dang, 57; Fl. Pavagadh, 136.

Carissa carandus Graham, Cat. 116, 1839; FBI. 3: 630  
(pro parte); C. 2: 186 (non Linn.); Fl. Delhi, 213.

C. carandas var. congesta Bedd. For. Man. Fl. Syl. 157,  
1869; FBI. 3: 631.

An armed, scandent shrub. Leaves ovate, sub-acute or obtuse, shining. Flowers white, in terminal corymbose cymes. Berry ellipsoid, purplish-black. (Fl. Fr. January - May).  
DNT. 1775.

Observed at the foot of hillocks and near habitation.

Nerium Linn.

Nerium indicum Mill. Gard. Dict. n. 2, 1768; Sant. 133; Fl.

Dang, 57; Fl. Delhi, 215; Fl. Pavagadh, 138.

Nerium odorum Soland, in Ait. Hort. Kew 1: 297, 1789;

FBI. 3: 655; C. 2: 206; Bor & Raizada, 199, f. 118.

A large, evergreen shrub. Leaves in whorled, linear-lanceolate, acute. Flowers rose coloured, in terminal cymes. (Fl. January - March). DNT. 1935.

Cultivated; noted near habitation.

Thevetia Linn. (nom. cons.)

Thevetia peruviana (Pers.) Merr. in Philip. J. Sci. (Bot.) 9:

130, 1914 & Enum. 3: 331; Benthall, Trees Calc. 302;

Bailey, Man. Cult. Pl. 809; Sant. 150; Fl. Dang, 57;

Fl. Delhi, 214.

Cerbera peruviana Pers. Syn. 1: 267, 1805.

Thevetia neriifolia Juss ex Steud. Nom. 2: 680, 1841;

C. 2: 207; Bor & Raizada, 193, f. 194.

An evergreen, small tree with milky juice. Leaves linear, alternate, close together, acute, shining above. Flowers yellow, in terminal or axillary cymes. Drupe angular. (Fl. Fr. September - October). DNT. 672.

Cultivated near habitation.

Plumeria Linn.

Plumeria rubra L. forma acuminata (Ait.) Santapau & Irani, ex  
 Shah, in J. Univ. Bomb. 30: 35, 1961-62; Datta &  
 Majumdar, in Bull. Bot. Soc. Bengal 20(2): 98, 1966;  
 Raizada, in Ind. For. 92(5): 301, 1966.

Plumeria acuminata Ait. Hort. Kew (ed. 2) 2: 70, 1811;  
 Sant. 149.

P. acutifolia Poir. in Lamk. Encycl. Suppl. 2: 667, 1811;  
 FBI. 3: 641; C. 2: 205.

A small tree. Leaves obovate, shortly acuminate with  
 conspicuous, marginal vein. Flowers white, in terminal cymes.  
 (Fl. February - April). DNT. 932.

Cultivated near habitation.

Wrightia R. Br.

Leaves glabrous; follicles glabrous, slender.....tinctoria

Leaves tomentose; follicles stout,  
 rough with white tubercles .....tomentosa

Wrightia tinctoria R. Br. in Mem. Wern. Soc. 1: 73, 1809;  
 FBI. 3: 653; C. 2: 200; Talb. 2: 222, f. 400; Sant.  
 148; Fl. Dang, 58; Fl. Delhi, 216; Fl. Pavagadh,



137; Fl. Mel. 218.

A medium-sized tree. Leaves oblong or elliptic-ovate, glabrous. Flowers white, in lax, terminal dichotomous cymes. Follicles deep green, slender, glabrous. (Fl. Fr. March - October). DNT. 1353.

Rare; observed at the foot of hillock at Hampsheshwar.

Wrightia tomentosa Roem. & Schult. Syst. 4: 414, 1819; Wt. Ic.

t. 1296; FBI. 3: 653; C. 2: 199; Fl. Pavagadh, 137;

Fl. Mel. 217.

A small tree. Leaves elliptic-oblong, ovate, softly tomentose. Flowers yellowish-white, in terminal corymbose cymes. Follicles stout, with white tubercles, grooved on each side at the junction of the carpels. (Fl. Fr. June - October). DNT. 588.

Commonly observed at the foot of hillock and along roadsides.

Holarrhena R. Br.

Holarrhena antidysenterica (Linn.) Wall. Cat. 1672, 1829, nom.

nud.; G. Don, Gen. Syst. 4: 78, 1837; FBI. 3: 644;

C. 2: 195; Talb. 2: 217, f. 398; Sant. 131; Fl. Dang,

57; Fl. Delhi, 216; Fl. Pavagadh, 137; Fl. Mel. 216.

Nerium antidysentericum Linn. Sp. Pl. 209, 1753.

A small, deciduous tree. Leaves opposite, broadly ovate, elliptic, obtuse. Flowers white, in terminal corymbose cymes. Follicles narrow, cylindric, long. (Fl. Fr. June - December). DNT. 379, 804, 1704.

Common and abundant in the area.

#### ASCLEPIADACEAE

1. Filaments free from each side;  
pollen masses granular :
  2. Leaves elliptic-oblong or linear-lanceolate; corolla 1 cm. across .....Hemidesmus
  2. Leaves oblong-lanceolate; corolla more than 1 cm. across .....Cryptolepis
1. Filaments connate into a tube; pollen masses waxy :
  3. Anthers without a membranous appendage .....Leptadenia
  3. Anthers with a membranous appendage :
    4. Pollen masses pendulous :
      5. An erect shrub .....Calotropis
      5. A climber :
        6. Corona double; follicles echinate .....Pergularia
        6. Corona single; follicles not echinate :
          7. Leaves broadly ovate-cordate; corona a fleshy ring with truncate margin..Holostemma

7. Leaves linear; corona  
of five lobes .....Sarcostemma
4. Pollen masses erect or horizontal :
8. Corolla campanulate or salver-shaped :
9. Stem and leaves tomentose;  
corona lobes not subulate .....Marsdenia
9. Stem and leaves glabrous;  
corona lobes subulate to the  
inner face .....Telosma
8. Corolla rotate :
10. Corolla green, corona lobes  
fleshy, spreading adnate below  
the staminal column, free above...Dregea
10. Corolla not green, corona lobes  
tubercle-like, completely  
adnate to staminal column.....Tylophora

Hemidesmus R. Br.

Hemidesmus indicus (Linn.) Schultes, in Roem. & Schult. Syst.  
Vog. 6: 126, 1819; Wt. Ic. t. 594; FBI. 4: 5; C. 2:  
210; Sant. 150; Fl. Dang, 58; Santapau & Irani, in

Bot. Mem. Univ. Bomb. 4: 96, 1962; Fl. Mel. 221.

Periploca indica Linn. Sp. Pl. 211, 1753.

A perennial, prostrate or climbing shrub. Leaves opposite, elliptic-oblong or linear-lanceolate. Flowers greenish-yellow, small, in axillary, crowded, sub-sessile cymes. Follicles in pairs, divaricate, straight. (Fl. Fr. September - November). DNT. 365, 551.

Commonly observed as a climber on Lagerstroemia, Morinda and Holarrhena and as undergrowth in the forest.

Cryptolepis R. Br.

Cryptolepis buchanani Roem. & Schultes, Syst. 4: 409, 1819;

D. & G. 148; Wt. Ic. t. 494; FBI. 4: 5; C. 2: 210;

Talb. 2: 236; Sant. 151; Fl. Dang, 58; Santapau & Irani, loc. cit. 91.

A large, twining or trailing shrub. Leaves opposite, oblong-lanceolate, recurved, green above, white beneath. Flowers greenish-yellow, small, in axillary, lateral short paniculate cymes. Follicles rigid, divaricate. (Fl. Fr. June - October). DNT. 33, 1731.

Fairly common; noted in moist places as a climber on Holarrhena and Anogeissus.

Leptadenia R. Br.

Leptadenia reticulata (Retz.) Wt. & Arn. in Wight, Contrib.

47: 1834; Wt. Ic. t. 350; FBI. 4: 63; C. 2: 237;

Talb. 2: 260; Santapau & Irani, loc. cit. 60; Fl.

Delhi, 221; Fl. Pavagadh, 140.

Cynancum reticulatum Retz. Obs. 2: 15, 1781.

A twining shrub. Leaves opposite, ovate, acuminate, subcoriaceous. Flowers greenish-yellow, in lateral or subaxillary, drooping umbellate cymes. Follicles smooth, turgid. (Fl. Fr. April - July). DNT. 928, 1778.

Observed as a climber on hedges.

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; Gr. 120; D. & G. 149; FBI. 4: 17; C. 2:

214; Sant. 151; Santapau & Irani, loc. cit. 17; Fl.

Pavagadh, 139.

Asclepias gigantea Linn. Sp. Pl. 214, 1753.

A tall, shrub covered with soft hairs. Leaves sessile, ovate or obovate, cordate. Flowers purple, in umbellate cymes. Follicles fleshy. (Fl. Fr. March - October). DNT. 436.

Commonly noted on waste lands and along roadsides.

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; Fl. Delhi, 218; Fl. Pavagadh, 138.

Asclepias procera Ait. Hort. Kew (ed. 1) 1: 305, 1789.

An erect shrub. Leaves thick, opposite, ovate-oblong, elliptic. Flowers purple, in terminal and axillary, corymbose cymes. Follicles smooth, recurved. (Fl. Fr. March - August). DNT. 46.

Noted on waste lands along roadsides.

Pergularia Linn.

Pergularia daemia (Forsk.) Chiov. Result Sc. Miss. Stefan-

Paoli Somal. Ital. 1: 115, 1916; Blatter and MacCann; 528, 1933; Santapau & Irani, loc. cit. 74; Fl. Delhi, 218; Fl. Pavagadh, 140.

Asclepias daemia Forsk. Fl. Aeg.-Arab. 51, 1775.

Daemia extensa R. Br. in Mem. Wern. Soc. 1: 50, 1809;

Wt. Ic. t. 536; FBI. 4: 21; C. 2: 219; Talb. 2: 243.

A perennial, climber with hispid stem. Leaves broadly ovate, deeply cordate, acuminate, more or less pubescent above, usually velvety pubescent beneath. Flowers greenish-yellow, in axillary, lateral paniculate cymes. Follicles reflexed, echinate with soft spines. (Fl. Fr. August - February). DNT. 1423.

Commonly noted on hedges.

Holostemma R. Br.

Holostemma annulare (Roxb.) K. Schum. in Pfam. 4(2): 250, &

247, t. 71, 1895; Blatter & McCann, 529; Santapau &

Irani, loc. cit. 53, t. 8; Sant. 152; Fl. Mel. 224.

Asclepias annularia Roxb. Hort. Beng. 20, 1814 & Fl.

Ind. 2: 37, 1832.

Holostemma rheedei Wall. ex Gr. 121; Wt. Ic. t. 597;

D. & G. 148; FBI. 4: 21.

Holostemma rheedianum C. 2: 220, 1904 (non Spreng ).

An extensive twiner. Leaves membranous, petiolate, opposite, thick, ovate-oblong, acuminate. Flowers pinkish-red, in axillary, few-flowered, lax cymes; corolla rotate,

corona truncate, adnate to the staminal column. Follicles slender, cylindric. (Fl. Fr. July - August). DNT. 1150.

Commonly noted as a twiner on hedges near habitation.

Sarcostemma R. Br.

Sarcostemma secamone (Linn.) Bennet, in Ind. For. 95: 692, 1969.

Periploca secamone Linn. Mant. 2: 216, 1771.

Oxystelma esculentum (Linn. f.) R. Br. ex Schultes Syst.

Veg. 4: 89, 1820; FBI. 4: 17; C. 2: 216.

Periploca esculenta Linn. f. Suppl. 168, 1781.

Oxystelma secamone (Linn.) Karst. Dent. Fl. 1031, 1880 -  
1883; Santapau & Irani, loc. cit. 67.

A perennial twiner. Leaves thin, narrow, linear-lanceolate, deciduous. Flowers pale rose-coloured, large, in drooping, pedunculate, lateral sub-umbellate cymes. Follicles ovoid-lanceolate. (Fl. Fr. August - December). DNT. 192.

Noted on hedges as a climber.

Marsdenia R. Br.

Marsdenia tenacissima (Roxb.) Moon. Cat. Pl. Ceylon 21, 1824;

Wt. & Arn. in Wight, Contrib. 41, 1834; Wt. Ic. t.



590; FBI. 4: 35; C. 2: 230; Blatter & McCann, 531.

Asclepias tenacissima Roxb. Pl. Cor. 3: 35, t. 240,  
1819.

A large, twining shrub. Leaves broadly ovate, acuminate, densely and softly tomentose beneath. Flowers greenish-yellow, in dense, much-branched, compound pubescent cymes. Follicles ovoid-lanceolate, downy. (Fl. Fr. July - October). DNT.385,681.

Noted as a climber on Tectona, Lagerstroemia and Morinda.

Telosma Cov.

Telosma pallida (Roxb.) Craib, in KB. 418, 1911; Blatter & McCann, 531; Santapau & Irani, loc. cit. 83; Fl.Delhi, 219; Fl.. Pavagadh, 142.

Asclepias pallida Roxb. Fl. Ind. 2: 48, 1832.

Pergularia pallida Wt. & Arn. in Wight, Contrib. 42, 1834;  
Wt. Ic. t. 585; FBI. 4: 38; C. 2: 229; Talb. 2: 251.

A twining shrub. Leaves opposite, ovate, acuminate. Flowers pale-yellow, in umbellate, lateral cymes. Follicles lanceolate, terete. (Fl. Fr. July - September). DNT. 149.

Noted as a climber on hedges.

Dregea E. Mey (nom. cons.)

Dregea volubilis (Linn. f.) Benth. ex Hook. f. in FBI. 4: 46,

1883; Talb. 2: 254; Sant. 154; Santapau & Irani,  
loc. cit. 42, t. 6; Fl. Delhi, 219.

Asclepias volubilis Linn. f. Suppl. 170, 1781; Roxb.

Fl. Ind. 2: 36, 1832.

Marsdenia volubilis Cooke, Fl. Pres. Bomb. 2: 230, 1904;

Blatter & McCann, 531; Fl. Mel. 225.

Hoya viridifolia R. Br. in Mem. Wern. Soc. 1: 27, 1809;

Wt. Ic. t. 586; D. & G. 153.

A large, woody climber. Leaves broadly ovate, acuminate,  
 base cordate. Flowers numerous, yellowish-green, in lateral,  
 drooping umbellate cymes. Follicles in pairs, divaricate,  
 brown tomentose. (Fl. Fr. April - October). DNT. 650, 912, 1726.

Commonly observed on hedges.

Tylophora R. Br.

Stem erect .....fasciculata

Stem trailing along the ground .....rotundifolia

Tylophora fasciculata Ham. in Wight, Contrib. 50, 1834; D. & G.

151; Wt. Ic. t. 846; FBI. 4: 40; C. 2: 226; Talb. 2:

252; Blatter & McCann, 530; Sant. 153; Santapau &

Irani, loc. cit. 85.

An erect, perennial under-shrub. Stems several from rootstock. Leaves coriaceous, ovate or lanceolate, acute. Flowers light-brown, in lateral, simple or branched, umbellate cymes. Follicles solitary, fusiform. (Fl. Fr. July - October). DNT. 174.

Noted on the slopes of hillock on shallow soils.

Tylophora rotundifolia Ham. in Wight, Contrib. 50, 1834; FBI.

4: 43; C. 2: 227; Blatter & McCann, 530; Santapau & Irani, loc. cit. 86.

A perennial, trailing herb with a short woody rootstock. Leaves broadly ovate, oblong, rounded, glabrous above. Flowers pink, in many-flowered, umbellate, drooping cymes. (Fl. July - August). DNT. 77, 188.

PLATE No. 56

Noted in moist soils along streams and on the slopes of the hillocks among grasses.

#### LOGANIACEAE

Cynoctonum Gmel.

Cynoctonum mitreola (Linn.) Britton, in Mem. Torrey Bot. Club.

5: 258, 1894; Sant. 158; Santapau & Wagh, in BBSI.

5: 106, 1963; Raizada, in Ind. For. 92(5):307, 1966.

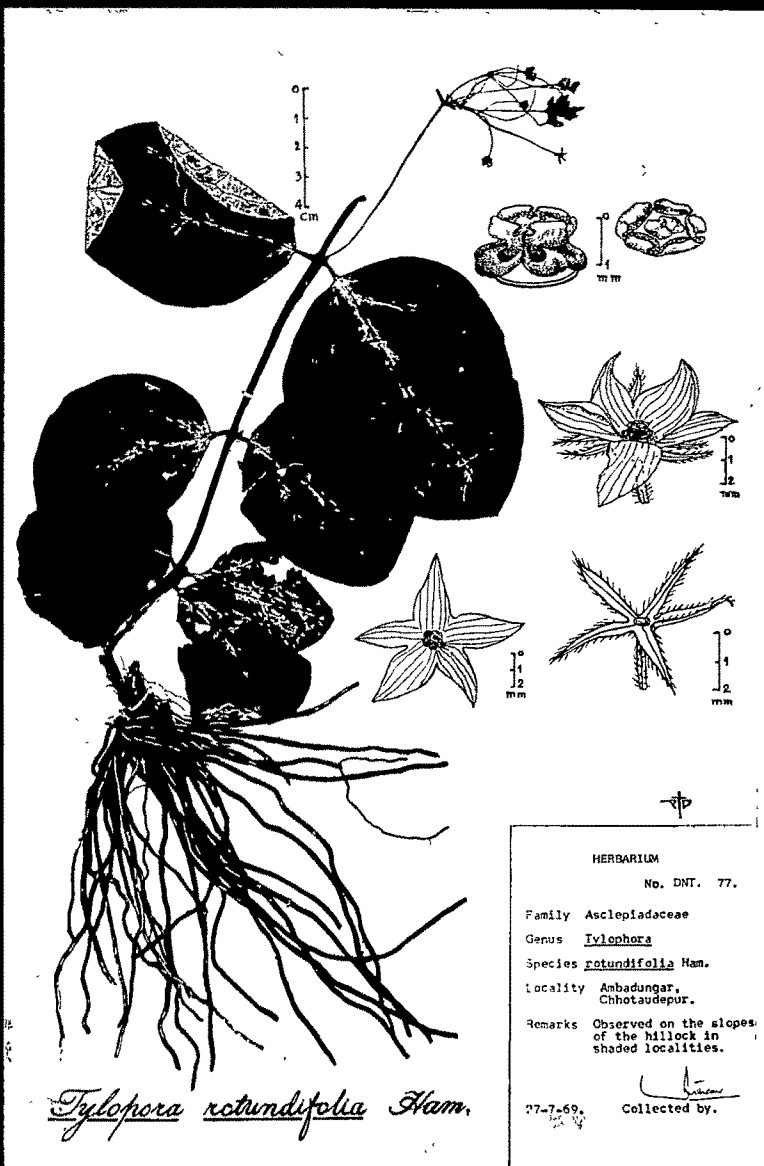


PLATE No. 56.

Ophiorhiza mitreola Linn. Sp. Pl. 150, 1753.

Mitreola oldenlandioides Wall. ex DC. Prodr. 9: 9, 1845;  
D. & G. 155; FBI. 4: 79; C. 2: 246.

An erect, annual herb. Leaves membranous, opposite, acute, oblong. Flowers in axillary and terminal dichotomous cymes. Capsule wedge-shaped. (Fl. Fr. August - September). DNT. 1481.

Noted on steep slopes of the hillocks in shade and near water.

#### NYCTANTHACEAE

Nyctanthes Linn.

Nyctanthes arbor-tristis Linn. Sp. Pl. 6, 1753; D. & G. Suppl. 51; FBI. 3: 603; C. 2: 176; Sant. 144; Fl. Delhi, 279; Fl. Mel. 210.

An erect shrub with quadrangular branches. Leaves ovate, acuminate, scabrid. Flowers creamy-white, in small heads, in terminal, trichotomous cymes. Capsules compressed, orbicular. (Fl. Fr. September - December). DNT. 418.

Commonly noted near habitation and along the river banks.

#### 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.

Exacum pedunculare Arn. in Ann. Sc. Nat. Ser. 2, 11:  
176, 1839; Wt. Ic. t. 336.

An erect, annual herb with much-branched, quadrangular stem. Leaves sub-sessile, lanceolate. Flowers blue, in terminal, much-branched cymes. Capsule globose. (Fl. Fr. December - April). DNT. 900, 1417.

Rare; noted in muddy soil in the shade of Polygonum and Saccharum on the river banks at Hampheshwar.

Enicostema Blume (nom. cons.)

Enicostema hyssopifolium (Willd.) Verdoorn, in Bothalia 7:  
462-463, 1961; Backer, Fl. Java 2: 439, 1965.

Exacum hyssopifolium Willd. Sp. Pl. 1: 640, 1798.

Enicostema littorale Bl. Bijdr. 848, 1826; FBI. 4: 101;  
C. 2: 255; Fl. Dang, 59.

Enicostema verticillatum (Linn.) Engl. Pflanzenw. Ost.-  
Afr. 6: 313, 1895; Fl. Delhi, 223; Fl. Pavagadh, 143.

A perennial glabrous herb. Leaves sessile, opposite, linear-oblong, obtuse. Flowers white, sessile, in axillary clusters all along the stem. Capsule subglobose. (Fl. Fr. May - October). DNT. 54, 414, 1149.

Fairly common; observed as a weed in cultivated fields.

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; Fl.  
Pavagadh, 144.

C. lawii Wight, Ic. t. 1327, 1848 ( non Clarke).

A slender, much-branched herb with obtusely, quadrangular stem. Leaves membranous, sessile, broadly ovate, acute. Flowers pink, numerous, in lax, paniculate cymes. Capsule membranous. (Fl. Fr. July - February). DNT. 351, 844, 1408.

Common along the banks of rivers and streams.

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. (Fl. Fr. October - December). DNT. 591, 1360, 1628.

Fairly common on moist, shallow soils on rocks near streams and rivers.

#### MENYANTHACEAE

Nymphoides Medic.

Nymphoides cristatum (Roxb.) O. Kuntze, Rev. Gen. Pl. 429,  
1891; Sant. 162; Subramanyam, in Aquat. Angios. 24,  
f. 16; Fl. Delhi, 224.

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. Flowers white, in clusters at the base of petiole; corolla lobes with a median crest and a tuft of white hairs



round the throat. (Fl. February - April). DNT. 836.

Noted in shallow waters in ditches.

#### HYDROPHYLLACEAE

Hydrolea Linn.

Hydrolea zeylanica (Linn.) Vahl, Symb. Bot. 2: 46, 1791; Wt.

Ic. t. 601; FBI. 4: 133; C. 2: 263; Sant. 163; Fl.

Dang, 60; Fl. Delhi, 224.

Nana zeylanica Linn. Sp. Pl. 226, 1753.

An annual herb with decumbent stem, rooting at lower nodes. Leaves linear-lanceolate, acute. Flowers blue, numerous, in short racemes. Capsule ovoid, oblong. (Fl. Fr. October - November). DNT. 1351, 1368.

Noted in moist muddy soils on the river banks and in ditches along forest roads.

#### BORAGINACEAE

Ovary entire or slightly 4-lobed;  
style terminal :

Flowers in scorpioid cymes or

spikes, white ..... Heliotropium

Flowers not as above :

A prostrate herb; flowers yellow .....Coldenia

An erect herb; flowers pink .....Rotula

Ovary deeply 4-lobed; style subterminal.....Trichodesma

Heliotropium Linn.

Corolla lobes acuminate .....subulatum

Corolla lobes not acuminate :

  Anthers free, not connate by  
  their connectives :

    Calyx lobes short, less than  $\frac{1}{3}$  the  
    length of the tube; nutlets rounded...supinum

    Calyx lobes long, more than  $\frac{1}{3}$  the  
    length of the tube; nutlets acute  
    at the apex .....ovalifolium

  Anthers connate by their produced  
  connectives .....marifolium

Heliotropium subulatum Hochst. ex DC. Prodr. 9: 528, 551,  
1845; Fl. Delhi, 226.

H. zeylanicum Clarke, in FBI. 4: 148, 1883 (non Lamk.);  
Wt. Ic. t. 892; C. 2: 274.

An erect, much-branched, hairy herb. Leaves narrowly lanceolate, acute. Flowers greenish-yellow, sessile, in elongate spikes. Nutlets 4. (Fl. Fr. October - April). DNT. 1732.

Rare; noted as a weed in cultivated fields.

Heliotropium ovalifolium Forsk. Fl. Aeg.-Arab. 38, 1775; FBI.

4: 150; C. 2: 278; Sant. 165; Fl. Dang, 61; Shah, in Ind. For. 89(4): 289, 1963; Fl. Pavagadh, 147.

H. coromandelianum Retz. Obs. 2: 9, 1781; D. & G. 171; Wt. Ic. t. 1388.

A decumbent herb with hispid stem and branches. Leaves elliptic, obovate, clothed with appressed silky hairs. Flowers white, in scorpioid cymes. Nutlets pubescent, acute at the apex. (Fl. Fr. May - September). DNT. 1766.

Noted as a weed in cultivated fields.

Heliotropium supinum Linn. Sp. Pl. 130, 1753; D. & G. 171;

Wt. Ic. t. 1387; FBI. 4: 149; C. 2: 275; Sant. 165; Fl. Dang, 61; Fl. Delhi, 225; Fl. Pavagadh, 147.

A prostrate, softly, densely villous herb. Leaves ovate, elliptic or sub-orbicular, obtuse. Flowers white, villous, in simple or forked spikes. Nutlets margined, rounded. (Fl. Fr. January - February). DNT. 31.

Observed on waste lands and along roadsides.

Heliotropium marifolium Retz. Obs. 2: 8, 1781; H. Riedl. Wien.

in Fl. Iranica 15(48): 16, 1967; Wt. Ic. t. 1390;

FBI. 4: 152; C. 2: 280.

Heliotropium scabrum Retz. Obs. 2: 8, 1781; Fl. Pavagadh,  
148.

A much-branched, decumbent herb. Leaves ovate-lanceolate, covered with appressed hairs. Flowers white, in short axillary and terminal bracteate spikes. Nutlets subglobose. (Fl. Fr. July - September). DNT. 169.

Commonly observed on dry open grounds.

Coldenia Linn.

Coldenia procumbens Linn. Sp. Pl. 125, 1753; Gr. 135; D. & G.

171; FBI. 4: 144; C. 2: 271; Sant. 164; Fl. Delhi, 225;

Fl. Pavagadh, 148.

A prostrate, hairy herb with trailing stem. Leaves crisped, obovate-oblong, coarsely serrate. Flowers white or pale-yellow, small, axillary, solitary. Drupe pyramidal, 4-lobed. (Fl. Fr. January - June ). DNT. 1821.

Noted on waste land and in ditches along roadsides.

Rotula Lour.

Rotula aquatica Lour. Fl. Coch. 121, 1790; Robinson, in Phil.

Journ. Sci. 4: 693; Sant. 164; Fl. Dang, 61.

Rhabdia lycioides Mart. Nov. Gen. & Spec. 2: 137, 1826;

FBI. 4: 145; C. 2: 275; Fl. Mel. 230.

A small, much-branched shrub. Leaves sessile, alternate, often fascicled, rounded, entire, small. Flowers pink, solitary, at the apices of branchlets. (Fl. October - December). DNT.1413, 1911.

PLATE No. 57

Noted on the river banks at Hampsheshwar.

Trichodesma R. Br. (nom. cons.)

Calyx rounded at the base .....zeylanicum

Calyx cordate or hastate at the base :

  Anthers included, connivent but free .....sedgewickianum

  Anthers exserted, combined into a

  long pointed cone .....indicum

Trichodesma zeylanicum (Burm. f.) R. Br. Prodr. 496, 1810;

FBI. 4: 154; C. 2: 282; Fl. Dang, 61; Fl. Pavagadh, 146.

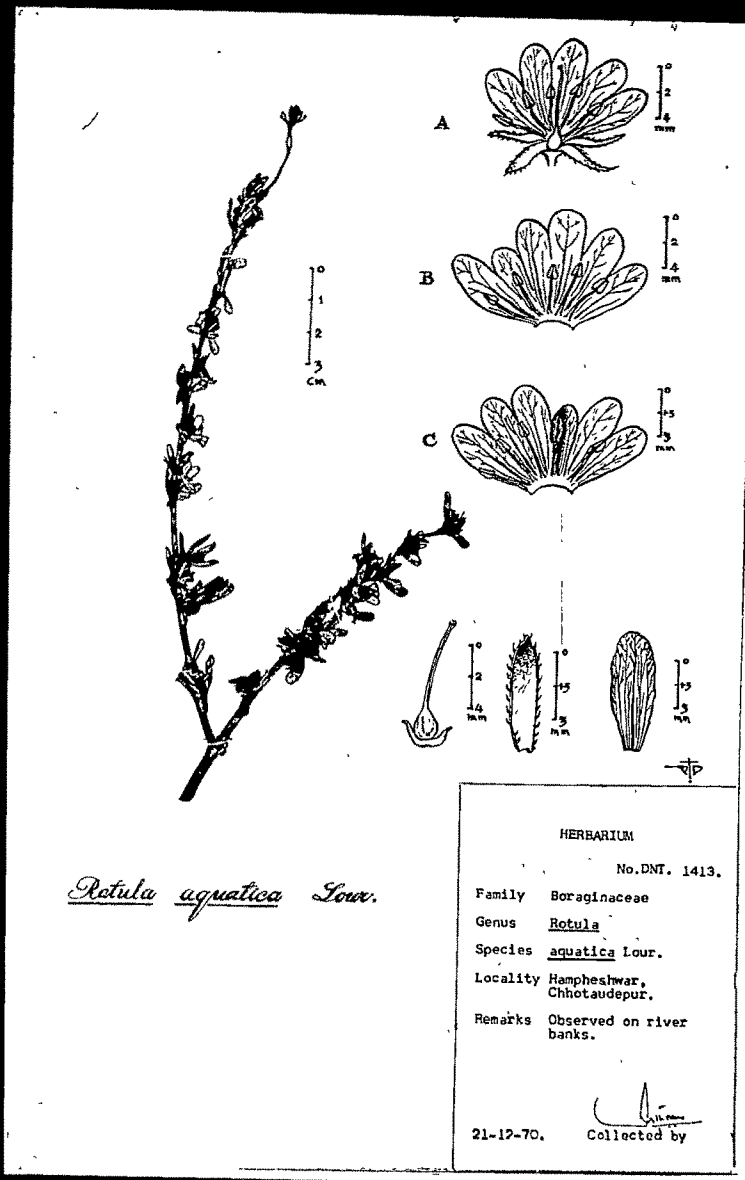


PLATE No. 57.

Borago zeylanica Burm. f. Fl. Ind. 41, 1768; Linn. Mant.  
202, 1771.

An annual, erect herb, covered with appressed hairs.  
Leaves oblong-lanceolate, acute, clothed with hairs. Flowers  
blue or violet-blue, solitary or in leaf-opposed cymes; calyx  
rounded at the base. (Fl. Fr. December - April). DNT. 958,  
1444, 1601.

Noted along roadsides and as a weed in cultivated fields.

Trichodesma sedgwickianum Banerji, in Bull. Bot. Soc. Bengal,  
16: 10, 1962; Sant. 165.

T. amplexicaule DC. Prodr. 10: 172, 1846.

T. indicum var. amplexicaulis Cooke, in Fl. Pres. Bomb.  
2: 282.

An erect, hairy herb. Leaves variable, broadly ovate,  
subacute or obtuse, clothed with hairs. Flowers blue, solitary  
or in leaf-opposed cymes; anthers included. (Fl. Fr. August -  
December). DNT. 51, 1075.

Noted on waste land and along roadsides.

Trichodesma indicum R. Br. Prodr. 496, 1810; FBI. 4: 153;  
C. 2: 281; Fl. Dang, 61.

An erect, annual herb. Leaves sessile, lanceolate, oblong,

subacute. Flowers blue or pale-violet, solitary or in leaf-opposed cymes; calyx cordate or hastate at the base. (Fl. Fr. August - October). DNT. 487, 1075.

Observed as a weed in cultivated fields.

#### EHERATIACEAE

Cordia Linn.

Cordia dichotoma Forst. f. Prodr. 18, 1786; Merr. Enum. 3: 373; Sant. 163; Fl. Dang, 60; Fl. Delhi, 227; Fl. Pavagadh, 145; Fl. Mel. 228.

Cordia obliqua Willd. Phytogr. 4, t. 4, 1794; FBI. 4: 137 (excl. vars.).

C. latifolia Roxb. Fl. Ind. 2: 330, 1824; D. & G. 173.

C. myxa auct. plur.; C. 2: 265 (non Linn.).

A moderately sized tree. Leaves alternate, broadly ovate, obtuse, entire or the margins more or less sinuate-dentate, glabrous. Flowers white, polygamous, in large, lax; terminal and axillary pedunculate cymose panicles. Drupe ovoid,



shining pinkish cream coloured when ripe. (Fl. Fr. March - April). DNT. 931.

Cultivated near habitation.

#### CONVOLVULAGEAE

Pollen grains echinate :

Fruit indehiscent :

Corolla funnel-shaped .....argyreia

Corolla salver-shaped .....Rivea

Fruit dehiscent (if indehiscent, thin  
and fragile-walled), capsular; corolla  
complanate .....Ipomoea

Pollen grains not echinate :

Style entire, stigma usually 2 :

Stigma lobes elongate; flowers  
white or rose-coloured .....Convolvulus

Stigma 2, globose; flowers yellow .....Merremia

Style two, free or partly united below :

Prostrate herb; flowers blue .....Evolvulus

An erect, xerophytic herb;

flowers white .....Cressa

Argyreia Linn.

Corolla rose-coloured, 2-3 cm. long;

ovary 2-celled .....strigosa

Corolla pink, 6-8 cm. long; ovary 4-celled..sericea

Argyreia strigosa (Roth) Santapau & Patel, in Trans. Bose

Res. Inst. Calc. 22: 41, 1958; Raizada, in Ind. For.

92(5): 302, 1966; Fl. Dang, 62; Fl. Mel. 234; Thaker

& Sabnis, in JMSUB. 19 & 20 (3): 42, 1970-1971.

Ipomoea strigosa Roth, Nov. Pl. Sp. 113, 1821.

Lettsomia setosa Roxb. Hort. Beng. 13: 1814, nom. nud.

& Fl. Ind. 2: 80, 1824; Wt. Ic. t. 1360; FBI. 4: 194;

C. 2: 330.

Argyreia setosa (Roxb.) Choisy, in Mem. Soc. Phys.

Geneve 6: 425, 1833; Raizada, in Ind. For. Rec. (N.S.)

Botany 5(1): 6, 1959.

A large climber, branches and stem strigose hairy. Leaves broadly ovate, acuminate, cordate at the base, sparsely hairy. Flowers rose-coloured, in densely hairy corymbose cymes; sepals densely strigose; petals densely strigose outside. Fruit ovoid, red. (Fl. Fr. August - October). DNT. 1331.

## PLATE No. 58

Observed as a climber in the forest.

Argyreia sericea Dalz. in D. & G. Bomb. Fl. 169, 1861;

FBI. 4: 188; C. 2: 326; Fl. Mel. 233.

A large, silky climber. Leaves broadly ovate, acuminate, silvery white beneath. Flowers pink, in capitate or sub-capitate cymes; bracts foliaceous, ovate-oblong, silky. Berry orange. (Fl. Fr. August - October). DNT. 1000, 1059, 1067.

Observed as a climber in hedges and in the forest.

Rivea Choisy

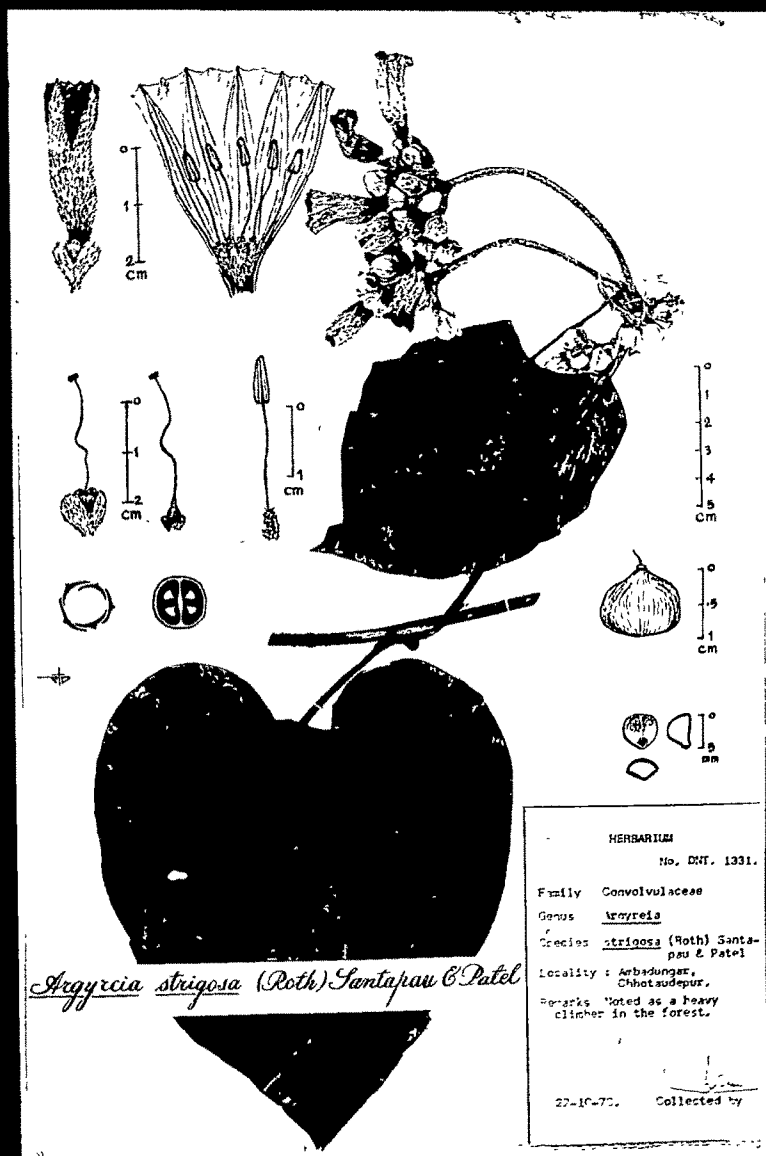
Rivea hypocrateriformis Choisy, in Mem. Soc. Phys. Geneve 6:

408, 1833; FBI. 4: 184; C. 2: 323; Talb. 2: 282, f.

427; Fl. Delhi, 231; Fl. Pavagadh, 150; Fl. Mel. 232.

A large climber with terete stem. Leaves orbicular, obtuse, appressedly silky hairy beneath. Flowers white or muddy-white, axillary, solitary, peduncles sometimes 2- to many-flowered. Fruit globose. (Fl. Fr. August - December). DNT. 401, 1029, 1158.

Commonly noted as a climber on hedges.



Ipomoea Linn.

## 1. Flowers scarlet red :

2. Leaves entire .....hederifolia2. Leaves pinnately divided .....quamoclit

## 1. Flowers not scarlet red :

3. Corolla tubular or salver-shaped; stems

muricate, peduncle thickened below

the fruit .....muricata

3. Corolla campanulate or infundibuliform;

stems and peduncles not as above :

4. Plants floating or amphibious .....aquatica

## 4. Plants terrestrial :

5. Large erect or ascending shrub;

stems hollow .....fistula

5. Twiners, climbers or trailers;

stems not hollow :

6. Leaves entire ( rarely lobed

in I. arachnosperma ) :

7. Outer sepals sagittate or

cordate at the base .....sinensis

- 7. Outer sepals not as above :
  - 8. Flowers in sessile or sub-sessile axillary heads :
    - 9. Flowers pink; capsule hairy .....eriocarpa
    - 9. Flowers white; capsule glabrous...sindica
  - 8. Flowers in pedunculate, 1-few-flowered cymes :
    - 10. Leaves silvery-white, woolly beneath .....arachnosperma
    - 10. Leaves not as above :
      - 11. Flowers whitish-yellow with purple centre; sepals acute..obscura
      - 11. Flowers white or pale-purple, without purple centre; sepals obtuse .....sepiaria
- 6. Leaves lobed or compound :
  - 12. Flowers in many-flowered, pedunculate heads .....pes-tigridis
  - 12. Flowers in lax, 1-3-flowered cymes.....nil

Ipomoea hederifolia Linn. Syst. Nat. (ed. 10) 925, 1759; Verdc.  
in Fl. Trop. E. Afr. 132, 1963; Sant. 169.

I. angulata Lamk. Encycl. 1: 464, 1791; Oost. in Blumea  
3: 553, 1940; Santapau, in JBNHS. 47: 349, 1947; Oostr.  
in Fl. Mal. Ser. I, 4(4): 481, t. 54, 1953.

I. coccinea Clarke, in FBI. 4: 199, 1883 (non Linn.)

Quamoclit coccinea Cooke, Fl. Pres. Bomb. 2: 330 (non  
Moench.).

An annual, glabrous, twiner. Leaves ovate-cordate, margin  
entire, angular or obscurely lobed. Flowers red with exerted  
stamens, in axillary or terminal cymes. Capsule glabrous.  
(Fl. Fr. September - December). DNT. 1332.

Observed on hedges.

Ipomoea quamoclit Linn. Sp. Pl. 159, 1753; FBI. 4: 199; Oostr.  
loc. cit. 482; Sant. 169.

Quamoclit vulgaris Choisy, in Mem. Soc. Phys. Hist. Nat.  
Geneve 6: 434, 1833; C. 2: 331.

A slender, glabrous, annual twiner. Leaves pinnatisect.  
Flowers scarlet-red, in one to few-flowered, axillary cymes.  
Capsule ovoid. (Fl. Fr. September - January). DNT. 1420.

Cultivated.

Ipomoea muricata (Linn.) Jacq. Hort. Schoenbr. 3: 40, t.

323, 1898 (non Cav. 1799); FBI. 4: 197; Oostr. loc. cit. 481; Santapau, loc. cit. 349; Verdc. loc. cit. 130; Fl. Delhi, 233.

Convolvulus muricatus Linn. Mant. 44, 1767.

Calonyction muricatum G. Don, Gen. Syst. 4: 264, 1837;  
C. 2: 322.

A climbing shrub with muricate stems. Leaves ovate, acuminate, entire. Flowers rose purple, in axillary, 1-5-flowered cymes; pedicels greatly thickened below the fruit. Capsule globose, apiculate. (Fl. Fr. August - November). DNT. 1118.

Fairly common; noted on hedges as a climber.

Ipomoea aquatica Forsk. Fl. Aeg.-Arab. 44, 1775; FBI. 4: 210;

C. 2: 315; Santapau, loc. cit. 346; Oostr. loc. cit. 473, f. 47-8; Fl. Dang, 62; Verdc. loc. cit. 113; Fl. Pavagadh, 153.

A trailing, aquatic herb, usually floating on water surface, sometimes occupies the muddy banks, rooting at nodes. Leaves elliptic, ovate-oblong, glabrous, acute. Flowers purple-pink, in 1-few-flowered peduncles. Capsule ovoid, glabrous. (Fl. Fr. November - February). DNT. 1608.

Observed on the river banks and in roadside ditches.



Ipomoea fistulosa Mart. ex Choisy, in DC. Prodr. 9: 349,  
1845; Shah, in Journ. Univ. Bomb. 30(3 & 5): 36, 1962.

I. carnea Auct. non Jacq. 1760; C. 2: 321; Bor & Raizada  
6, f. 5; Fl. Dang, 63; Fl. Delhi, 234.

A large, erect shrub with milky juice and fistular stems. Leaves large, ovate, cordate, acuminate. Flowers large, pink, in lax, dichotomous, axillary and terminal cymes. (Fl. October - January). DNT. 503.

Cultivated.

Ipomoea sinensis (Desr.) Choisy, in Mem. Soc. Phys. Geneve 6 :  
459, 1833; Verdc. in KB. 204, 1958; Raizada, in Ind.  
For. 92(5): 314, 1966.

Convolvulus sinensis Desr. in Lamk. Encycl. 3: 557, 1792.

Ipomoea calycina (Choisy) Clarke, in FBI. 4: 201; C. 2:  
311 (non Messn. 1868).

Aniseia calycina Choisy, Convolv. Orient. in Mem. Soc.  
Phys. Geneve 6: 482, 1834; Gr. 250; Wt. Ic. t. 833;  
D. & G. 163.

A slender, annual, twiner with villous stems. Leaves ovate, cordate, acute-acuminate. Flowers white, axillary, 1-3 together; outer sepals sagittate. Capsule ovoid, pointed,

glabrous; seeds villous. (Fl. Fr. August - December). DNT.  
531, 633, 1801.

Common and locally abundant; noted on hedges and in outskirts of foresta as a climber.

Ipomoea eriocarpa R. Br. Prodr. 484, 1810; FBI. 4: 204; C. 2: 312; Oostr. loc. cit. 462, t. 35; Verdc. loc. cit. 91; Fl. Delhi, 235; Fl. Pavagadh, 153.

A slender, twining herb, clothed with appressed hairs. Leaves ovate-oblong, acute, base cordate with rounded bases. Flowers pink, axillary, on short peduncles. Capsule globose, hairy; seeds glabrous. (Fl. Fr. August - November). DNT. 362, 1348, 1838.

Observed as a climber on hedges and on roadside annuals, such as Cassia, Achyranthus and Triumfetta.

Ipomoea sindica Stapf, in KB. 346, 1894; C. 2: 313; Fl. Delhi, 236; Fl. Pavagadh, 153.

A slender, hairy, twining herb. Leaves triangular to oblong-hastate, acute. Flowers white or pinkish-white, solitary or in few-flowered, axillary, sessile heads. Capsule globose, glabrous. (Fl. Fr. August - December). DNT. 344, 467, 1606.

Observed as a climber on hedges and also in the forests.

Ipomoea arachnosperma Welw. Apont. Phyto-Geogr. 588, 1858;

Maheshwari, Illust. Fl. Delhi, 9.

Ipomoea pilosa Sweet, Hort. Brit. 289, 1827; FBI. 4:213;

C. 2: 313; Fl. Delhi, 236.

An annual, twiner with long, spreading hairs. Leaves broadly ovate, cordate, acuminate, white woolly beneath. Flowers pink or rose purple, in lax cymes; calyx densely hairy. Capsule sub-globose. (Fl. Fr. August - December). DNT. 1335, 1800, 1879.

Commonly seen in the hedges throughout the area.

Ipomoea obscura (Linn. f.) Ker-Gawl. Bot. Reg. 3, t. 239, 1817;

FBI. 4: 209; C. 2: 317; Santapau, loc. cit. 347; Oostr.

loc. cit. 471, f. 44; Verdc. loc. cit. 116; Fl. Delhi,

236; Fl. Pavagadh, 152.

Convolvulus obscurus Linn. Sp. Pl. (ed. 2) 220, 1762.

An annual, twining herb. Leaves broadly ovate, acuminate, entire. Flowers white, small, axillary, solitary or a few in dichasial cymes. Capsule globose or ovoid. (Fl. Fr. September - February). DNT. 663, 1634.

Common on hedges.

Ipomoea sepiaria Koenig 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 & loc. cit. 117;  
 Raizada, in Ind. For. 92(5): 314, 1966.

A perennial, twining herb. Leaves ovate, acute, entire, with broad sinus and rounded lobes. Flowers white, bluish-purple or pale purple, in sub-umbellate, axillary, pedunculate cymes. Capsule ovoid; seeds minutely hairy. (Fl. Fr. August - April). DNT. 658.

Observed as a climber on hedges.

Ipomoea pes-tigridis Linn. Sp. Pl. 162, 1753; FBI. 4: 204;  
 C. 2: 320; D. & G. 165; Wt. Ic. t. 836; Santapau,  
loc. cit. 348; Oostr. in Blumea 3: 504, 1940 &  
loc. cit. 46, f. 40; Sant. 171; Fl. Dang, 64; Fl.  
 Delhi, 237; Fl. Pavagadh, 152; Fl. Mel. 235.  
I. pestigridis var. hepatifolia 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. (Fl. Fr. August - December) DNT. 363, 967, 1875.

Common and abundant during the monsoon throughout the area.

Ipomoea nil (Linn.) Roth, Cat. Bot. 1: 36, 1797; Oostr. in Blumea 3: 497, 1940; Santapau, loc. cit. 348; Oostr. loc. cit. 465; Sant. 170; Fl. Dang, 63; Fl. Delhi, 238; Verdc. loc. cit. 113.

Convolvulus nil Linn. Sp. Pl. 219, 1762.

Ipomoea hederacea Clarke, in FBI. 4: 199, 1883; C. 2: 321 (non Jacq.).

A large twiner with hairy stems. Leaves ovate-cordate, generally 3-lobed. Flowers blue or purple, large, showy, axillary. Capsule sub-globose, glabrous. (Fl. Fr. September - November). DNT. 1006, 1802.

Observed as a climber on hedges and on undershrubs in the forests.

Convolvulus Linn.

A twining or trailing herb; leaves  
oblong, hastate .....arvensis

A prostrate or suberect herb;

leaves linear, lanceolate .....microphyllus

Convolvulus arvensis Linn. Sp. Pl. 153, 1753; FBI. 4: 219;

C. 2: 303; Santapau, loc. cit. 343; Sant. 168; Fl.

Delhi, 239.

A twining or trailing herb. Leaves oblong, hastate.

Flowers pink, axillary, solitary; peduncle 2-3 cm. long.

Capsule globose. (Fl. Fr. December - February). DNT. 1062, 1593.

Noted in cultivated fields and on hedges.

Convolvulus microphyllus Sieb. ex Spreng, Syst. 1: 611, 1825;

Wt. Ic. t. 1367; FBI. 4: 218; C. 2: 301; Fl. Pava-

gadh, 155.

A prostrate or suberect herb. Leaves linear lanceolate,

sessile, villous on both sides. Flowers white or pink,

axillary, solitary. Capsule sub-globose, smooth. (Fl. Fr.

August - October). DNT. 1053, 1350.

Observed on waste lands and in cultivated fields.

Merremia Dennst.

Leaves palmately compound .....aegyptia

Leaves simple :

Leaves reniform .....gangetica

Leaves linear, oblong to ovate with  
usually 3 toothed apex and dilated  
at the base into toothed auricles....tridentata

Merremia aegyptia (Linn.) Urb. Symb. Antill. 4: 505, 1910;

Oostr. loc. cit. 448; Santapau, loc. cit. 345.

Ipomoea aegyptia Linn. Sp. Pl. 162, 1753.

I. pentaphylla Jacq. Collect. 2: 297, 1788; FBI. 4:202.

Merremia pentaphylla Hall. f. in Engler, Bot. Jahrb.

16 : 552, 1893; C. 2: 308.

A twining annual, clothed with long, spreading hairs.  
Leaves pentafoliolate; leaflets broadly lanceolate, acuminate.  
Flowers white to pale-purple, in few-flowered, fulvous-hairy  
cymes; sepals densely hairy. Capsule glabrous, ovoid. (Fl.Fr.  
August - October). DNT. 506, 1341, 1817.

Commonly noted on hedges.

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. Cent. 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; D. & G. 164; FBI. 4: 206.

A much-branched, prostrate herb, often rooting at nodes. Leaves ovate-cordate, reniform. Flowers yellow, in axillary, 2-3-flowered clusters. Capsule globose. (Fl. Fr. September - December). DNT. 429, 590, 1402.

Observed in wet and moist places; on river banks, on open waste lands and in cultivated fields.

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.

Convolvulus tridentatus Linn. Sp. Pl. 157, 1753.

Ipomoea tridentata Roth, in Roem. & Schult. Arch. Bot. 1(3): 38, 1798; FBI. 4: 205.

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. (Fl. Fr. August - October).

DNT. 329, 715.

Noted as a weed in cultivated fields and in open dry places.

Evolvulus Linn.

Evolvulus alsinoides Linn. Sp. Pl. 392, 1762; FBI. 4: 220;

C. 2: 296; Santapau, loc. cit. 340; Sant. 168; Verdc.

loc. cit. 18; Fl. Delhi, 230; Fl. Pavagadh, 154.

Convolvulus alsinoides Linn. Sp. Pl. 157, 1753.

A spreading, much-branched, hairy, annual herb. Leaves linear-ovate, clothed with appressed hairs. Flowers bright blue, solitary or in pairs on axillary peduncles. Capsule thin, 2-4-valved. (Fl. Fr. July - November). DNT. 373.

Very common as a weed in cultivated fields and among grasses.

Cressa Linn.

Cressa cretica Linn. Sp. Pl. 223, 1953; FBI. 4: 225; C. 2:

296; Fl. Delhi, 230; Fl. Pavagadh, 154.

A small, much-branched, erect herb. Leaves small, sub-

sessile, ovate, densely silky hairy. Flowers white, in small clusters in the axils of upper leaves; stamens exserted. Capsule ovoid. (Fl. Fr. April - July). DNT. 917 A.

Observed on waste lands and as a weed in cultivated fields.

#### CUSCUTACEAE

##### Cuscuta Linn.

Style 1, short, stout; stigma

thick and fleshy .....reflexa

Style 2, distinct, slender;

stigma capitate .....chinensis

Cuscuta reflexa Roxb. Pl. Cor. 2: 3, t. 104, 1798; FBI. 4:

225; C. 2: 292; Oostr. in Blumea 3: 70, 1938;

Santapau, in JBNHS. 47: 339, 1947; Sant. 167; Santapau

and Patel, in JBNHS. 54: 712, 1957; Fl. Delhi, 230;

Fl. Pavagadh, 149.

A leafless, twining, yellow to yellowish-green, total parasite. Flowers pale white, solitary or in umbellate clusters; style 1, short; stigma thick and fleshy. (Fl. Fr. December - April). DNT. 1452, 1619.

Common on hedges and on small trees.

Cuscuta chinensis Lamk. in Encycl. Method 2: 229, 1786; FBI.  
4: 226; Wt.Ic. t. 1373; C. 2: 293; Santapau, loc.cit.  
339; Chavan & Sabnis, in Sci. & Cult. 25: 544, 1960.

A leafless, twining, parasitic annual. Flowers white, in pedunculate cymes; styles 2, distinct. (Fl. Fr. September - November). DNT. 984.

Noted as a parasite on Triumfetta, Cassia and Xanthium along roadsides and forest paths.

#### SOLANACEAE

Calyx inflated, greatly enlarged and enclosing the fruit :

Flowers yellow, solitary .....Physalis

Flowers greenish-yellow, in clusters.....Withania

Calyx not greatly enlarged and never completely enclosing the fruit :

Fruit a capsule :

Flowers terminal, in panicles;

corolla lobes induplicate,

valvate; fruit not spiny .....Nicotiana

Flowers axillary, solitary; corolla

lobes plicate; fruit spiny .....Datura

Fruit a berry :

Flowers axillary, solitary or

in 2-3 together .....Capsicum

Flowers in axillary or extra-axillary,

cymes or panicles :

    Anthers opening by a pore or slit at

    or near the apex .....Solanum

    Anthers opening by long slits .....Lycopersicon

### Physalis Linn.

Physalis minima Linn. Sp. Pl. 183, 1753; FBI. 4: 238; C. 2: 340; Santapau, in JBNHS. 47: 657, 1948; Sant. 174; Fl. Dang, 65; Fl. Delhi, 241; Fl. Pavagadh, 160.

(  
An erect, annual herb. Leaves ovate, acute, shallowly toothed, thin. Flowers yellow, solitary, axillary on short, deflexed pedicels. Berry covered by enlarged calyx. (Fl. Fr. July - February). DNT. 73, 513, 1033, 1650.

Commonly observed as a weed of waste places, banks of rivers and in cultivated fields.

Withania Pauq. (nom. cons.)

Withania somnifera (Linn.) Dunal, in DC. Prodr. 13(1): 453,  
1852; FBI. 4: 239; C. 2: 341; Santapau, loc. cit.  
657; Fl. Delhi, 241; Fl. Pavagadh, 160.

Physalis somnifera Linn. Sp. Pl. 182, 1753; Wt. Ic. 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). DNT.1767.

Commonly noted as a weed of waste lands and along roadsides.

Nicotiana Linn.

Cultigen; flowers reddish or rosy .....tabacum

Naturalized herbs; flowers pale pink.....plumbaginifolia

Nicotiana tabacum Linn. Sp. Pl. 180, 1753; FBI. 4; 245; C. 2:  
346; Santapau, loc. cit. 660; Sant. 176; Fl. Dang, 65;  
Fl. Delhi, 242; Fl. Pavagadh, 162.

An erect, large, viscid annual. Leaves large, oblong-  
lanceolate, sessile, acuminate. Flowers rose or reddish,

pedicillate, in terminal panicles. Capsule ovate. (Fl. Fr. October - February). DNT. 544, 1533.

Cultivated.

Nicotiana plumbaginifolia Viv. Elench. Pl. Hort. Dinegro. 26, t. 5, 1802; Haines, 2: 647; Chavan & Sabnis, in JBNHS. 57(2): 446, 1960; Fl. Delhi, 242; Thaker & Sabnis, in JMSUB. 19 & 20( 3 & 4): 42, 1970-1971.

An erect, glandular, annual herb. Leaves oblong-elliptic. Flowers pale pink, in lax racemes. Fruit a capsule. (Fl. Fr. April - June). DNT. 1718.

Rare; observed in sandy soils on the river banks at Hampsheshwar.

Datura Linn.

Datura metel Linn. Sp. Pl. 179, 1753; Santapau, loc. cit. 657; Sant. 174; Fl. Dang, 65; Fl. Delhi, 243; Fl. Pavagadh, 161.

D. fastulosa Linn. Syst. Nat. (ed. 10) 2: 932, 1759; FBI. 4: 242; C. 2: 343; Wt. Ic. t. 1396.

D. alba Nees, in TLS. 17: 73, 1837; Wt. Ic. t. 852; D. & G. 174.

D. fastulosa var. alba Clarke, in FBI. 4: 243, 1883.

A tall, shrubby plant. Leaves alternate, ovate, acute, sinuate, oblique at the base. Flowers white or dirty white, in large, axillary, solitary. Capsule sub-globose, spiny. (Fl. Fr. August - October). DNT. 571, 1045.

Noted on waste lands and on river banks.

Capsicum Linn.

Capsicum annuum Linn. Sp. Pl. 188, 1753; C. 2: 347; Santapau, loc. cit. 661; Bailey, Man. Cult. Pl. 873; Fl. Dang, 65; Fl. Delhi, 248.

A small, glabrous herb. Leaves ovate, acute, tapering at the base. Flowers white, axillary, solitary or 2-3 together, drooping. Berry many-seeded. (Fl. Fr. August - November). DNT. 664.

Cultivated.

Solanum Linn.

Plants armed with prickles :

Berries yellow :

Herbs, prostrate or ascending .....surattense

Shrubs or undershrubs :

Flowers hermaphrodite; berry

less than 1 cm. in diameter .....indicum

Male flowers in a raceme, females

solitary; berry 2-3 cm. in

diameter .....incanum

Berries deep purple .....melongena

Plants unarmed :

Anthers minute; 1.3 to 1.4 mm. long;

style less than 2 mm. long .....roxburghii

Anthers larger, 1.6 to 2.4 mm. long;

style more than 2 mm. long :

Corolla lobes white, with median,

purple stripe or stripes; style

pubescent upto  $\frac{2}{3}$  its length .....purpureilineatum

Corolla lobes white, without median

purple stripe or stripes; style

pubescent upto  $\frac{1}{2}$  its length .....nigrum

Solanum surattense Burm. f. Fl. Ind. 57, 1768 (excl. Syn.

Pluk. & Raj.); Sant. 173; Fl. Delhi, 245; Fl.

Pavagadh, 159.



Solanum xanthocarpum Schrad. & Wendl. Sert. 1: 8, t. 2,  
1795; FBI. 4: 236; C. 2: 335; Santapau, loc. cit. 653.

A prostrate or ascending, prickly undershrub. Prickles large, straight, yellow. Leaves ovate, elliptic, pinnately lobed. Flowers bluish-purple, in extra-axillary, few-flowered cymes. Berries globose, yellow. (Fl. Fr. June - September).  
DNT. 1004.

A common weed of waste lands, fallow fields and roadsides.

Solanum indicum Linn. Sp. Pl. 187, 1753 pro max. parte; D. & G.  
174; Wt. Ic. t. 346; FBI. 4: 234; C. 2: 336; Santapau,  
loc. cit. 653; Sant. 173; Fl. Dang, 66; Fl. Delhi, 245.

An erect, much-branched undershrub. Prickles large, stems purple, covered with minute stellate hairs. Leaves ovate, slightly lobed, slightly prickly along the midrib. Flowers blue-purple, in extra-axillary cymes, hermaphrodite. Berry globose, less than 1 cm. in diameter, yellow. (Fl. Fr. August - December).  
DNT. 435.

Observed along roadsides and on waste lands.

Solanum incanum Linn. Sp. Pl. 188, 1753; C. 2: 337; Fl.  
Pavagadh, 159.

Solanum sanctum Linn. Sp. Pl. (ed. 2) 269, 1762.

S. coagulans Forsk. Fl. Aeg.-Arab. 47, 1775; FBI.4:236.

A branched, prickly shrub, densely clothed with soft stellate hairs. Prickles stout, yellow. Leaves ovate-elliptic, sinuately lobed. Flowers purple, in extra-axillary cymes. Berries globose, 2-3 cm. in diameter, yellow. (Fl. Fr. July - September). DNT. 27, 985, 1073, 1472.

Commonly noted along roadside ditches and along forest paths.

Solanum melongena Linn. Sp. Pl. 186, 1753; FBI. 4: 235; C. 2: 336; Santapau, loc. cit. 655; Sant. 173; Fl. Dang, 66; Fl. Pavagadh, 246.

An erect, much-branched, diffuse herb or undershrub with or without prickles. Leaves ovate, sinuate or lobed, grey-tomentose. Flowers violet-purple, in cymes. Berries deep purple, rounded, oval, cylindric. (Fl. Fr. July - October). DNT. 665.

Cultivated for its edible fruits.

Solanum roxburghii Dunal, in DC. Prodr. 13(1): 57, 1852; Heiser, Jr. et al. in American Naturalist 99(909): 472, 1965; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 42, 1970-1971.

An annual, not branched from the base. Leaves deltoid-ovate,

truncate at the base, distantly toothed. Flowers white with central, yellow-green star; in sub-umbellate racemes; anthers small 1.3 to 1.4 mm. long, filament pubescent; style less than 2 mm. long, slightly exceeding the anther, pubescent  $\frac{1}{2}$  its length. Berries globose, shining, becoming red or orange on maturity; seeds 25 or less per berry. (Fl. Fr. August - January). DNT. 543, 1581, 1736, 1752.

Common weed of waste lands and cultivated fields.

Solanum purpureilineatum Sabnis & Bhatt, in BBSI. 12(1-4): 258, f. 1, 1970.

An erect, annual herb, sparingly branched from the base, without basal rosettes. Leaves ovate, glabrous, sinuate or lobed. Flowers white, with a dark purple, median stripe, in extra-axillary, few-flowered, pedunculate corymbose cymes; anthers more than 2 mm. long; style 3 to 3.5 mm. long, equalling the anthers, pubescent upto  $\frac{1}{2}$  its length. Berries globose, green becoming orange-red on maturity; seeds 25-32 with 2-3 stone grains per berry. (Fl. Fr. September - January). DNT. 1811, 1849.

Rare; observed as a weed along roadsides and cultivated fields at Hampheshwar.

Solanum nigrum Linn. Sp. Pl. 186, 1753; FBI. 4: 229; C. 2: 332;

Santapau, loc. cit. 652; Sant. 172; Fl. Dang, 66;  
Fl. Delhi, 245; Fl. Pavagadh, 158.

Solanum rubrum Mill. Gard. Dict. n. 4, 1768; Wt. Ic. 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  $\frac{1}{2}$  its length. Berries globose, shining or dull green when young, becoming black at maturity; seeds 30-40 per berry. (Fl. Fr. August - January). DNT. 1819.

Rare; noted as a weed in cultivated fields at

Solanum roxburghii and S. nigrum have been separated following the computer-based taxonomic analysis by Heiser, Jr. et al. loc. cit... Probably the two species have so far been lumped under the name Solanum nigrum Linn. It is, therefore, essential that all the Indian material of this complex be properly scrutinised in the light of the work of Heiser, Jr. et al.

Lycopersicon Mill.

Lycopersicon lycopersicum (Linn.) Airy Shaw, in Willis Dict.

(ed. 7) 398, 1966; Santapau, & Janardhanan, 35.

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;

Fl. Pavagadh, 159.

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). DNT. 337.

Cultivated; also noted in wild condition on the top of the hillock and along forest path at Ambadungar.

#### SCROPHULARIACEAE

1. Plants aquatic or marsh-loving :

2. Flowers axillary, solitary;

perfect stamens 4 ..... Bacopa  
(in part)

2. Flowers axillary, in lax racemes;

perfect stamens 2 ..... Veronica

1. Plants terrestrial :

3. Leaves all alternate or whorled :

- 4. Corolla subrotate, yellow, tube short...Verbascum
- 4. Corolla throughout bearded, white .....Scoparia
- 3. Leaves all opposite or the lower only :
  - 5. Leaves pinnatisect or pinnatifid :
    - 6. Leaves pinnatisect; flowers rose  
or purple .....Sopubia
    - 6. Leaves pinnatifid; flowers white ....Sutera
  - 5. Leaves not as above :
    - 7. Corolla spurred; capsule opening  
by apical pores .....Kickxia
    - 7. Corolla not spurred; capsules  
opening by valves :
      - 8. Stamens 2, perfect, the 2  
lower staminodes .....Lindernia  
(in part)
      - 8. Stamens 4, perfect, included :
        - 9. Flowers yellow :
          - 10. Calyx segments equal.....Lindenbergia
          - 10. Calyx segments unequal.....Bacopa  
(in part)

9. Flowers white, light purple or  
violet purple :

11. Flowers white :

12. Leaves linear, scabrous; calyx  
distinctly ribbed, scabrous.....Striga

12. Leaves mostly radical, obovate-  
spathulate; calyx not ribbed,  
glabrous .....Mazus

11. Flowers violet purple or light purple:

13. A viscidly pubescent herb;  
flowers violet-purple .....Stemodia

13. Glabrous herb; flowers light purple:

14. Flowers sessile, bracteoles  
present .....Buchnera

14. Flowers pedicelled;  
bracteoles absent .....Lindernia  
(in part)

Bacopa Aubl. (nom. cons.)

Flowers pale blue-purple; leaves entire.....monnieri

Flowers yellow; leaves serrate .....procumbens

Bacopa monnieri (Linn.) Pennell, in Proc. Acad. Nat. Sc.

Philad. 98: 94, 1946; Santapau, in JBNHS. 49: 30,  
1950; Sant. 177; Fl. Dang, 66; Fl. Delhi, 253;  
Fl. Pavagadh, 166.

Lysimachia monnieri Linn. Cent. Pl. 2: 9, 1756.

Moniera cuneifolia Michaux, Fl. Bor. Amer. 2: 22, 1803  
(Monniera); C. 2: 356.

Herpestis monniera Benth. Scroph. Ind. 30, 1835; FBI. 4:  
272; Gr. 144.

A prostrate, succulent herb, rooting at nodes. Leaves  
ovate-oblong, obtuse, glabrous. Flowers pale blue-purple,  
axillary, solitary. Capsule ovoid or globose, glabrous. (Fl.  
Fr. August - March). DNT. 1112.

Very common in small patches in damp, muddy soil along  
river banks.

Bacopa procumbens (Mill.) Greenm. in Publ. Field. Columb. Mus.

Bot. 2: 261, 1907; Baëker, in Fl. Java 2: 507, 1965;  
Raizada, in Ind. For. 94(6): 436, 1968; Thaker, in  
Ind. For. 97(1): 1971.

Erinus procumbens Mill. Gard. Dict. ed. 8 no. 6.

Herpestis chamaedryoides H.B.K. Nov. Gen. et Sp. 2: 369,  
1815; Prain, 2: 570.



A glabrous, sub-erect herb. Leaves ovate, serrate, sub-acute. Flowers yellow axillary, solitary; sepals unequal, connate below. Capsule globose or ovoid. (Fl. Fr. January - May). DNT. 893, 1561, 1899.

PLATE No. 59

Rare; observed on the river banks at Hampsheshwar.

It is a tropical American weed, probably introduced into this country through the port of Calcutta after 1897. It has been reported to be fairly common in Bengal by Prain in his 'Bengal Plants'. Subsequently it has been collected from various parts of U.P., Bihar and Orissa. According to C. Saldanha, the plant has been reported by him from Bombay and is also found in Chickmagalur, Coorg, Hassan district of Mysore State, in the Nilgiris as well as in many parts of India (personal communication). In the Maharashtra - Gujarat region, the plant has been collected as a garden weed in Bombay and Nagpur. The plant is not reported from any locality in Gujarat State.

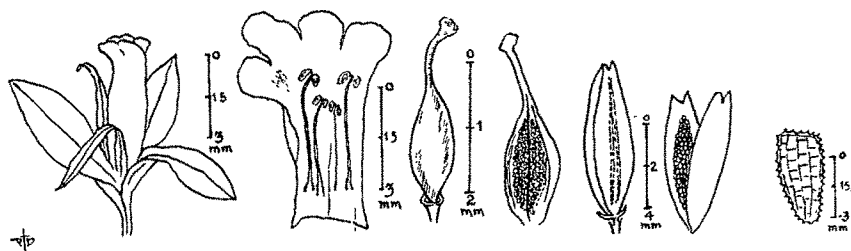
Veronica Linn.

Veronica anagallis-aquatica Linn. Sp. Pl. 12, 1753; FBI. 4: 293;

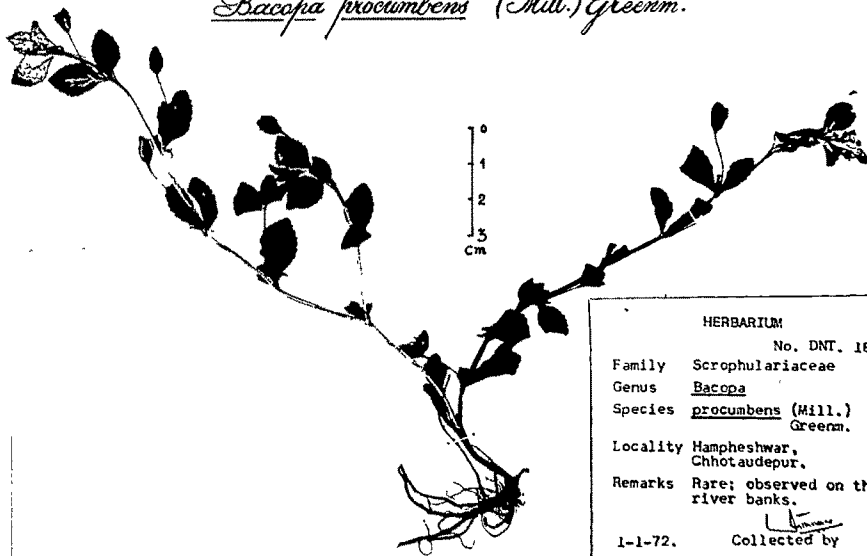
C. 2: 373; Santapau, loc. cit. 41; Fl. Dang, 69; Fl.

Delhi, 255; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4):

43, 1970 - 1971.



*Bacopa procumbens* (Mill.) Greenm.



HERBARIUM  
No. DNT. 1889  
Family Scrophulariaceae  
Genus Bacopa  
Species procumbens (Mill.)  
Greenm.  
Locality Hampheshwar,  
Chhotaudapur.  
Remarks Rare; observed on the  
river banks.  
1-1-72. Collected by L. J. Green

An erect, succulent, glabrous herb. Leaves sessile or the lowest petiolate, oblong-lanceolate or linear-oblong. Flowers white, in axillary, lax-slender racemes. Capsule orbicular to oblong, emarginate. (Fl. Fr. January - April). DNT. 874, 1560, 1721, 1904.

Noted on moist, sandy soil on the river banks.

Verbascum Linn.

Verbascum chinense (Linn.) Santapau, Fl. Puran. 90, 1958;

Sant. 177; Fl. Delhi, 249; Fl. Pavagadh, 163.

Scrophularia chinensis Linn. Mant. 2: 250, 1771.

Celsia coromandeliana Vahl, Symb. Bot. 3: 79, 1794; Wt.

Ic. t. 1406; FBI. 4: 251; C. 2: 352.

An erect, pubescent, annual herb. Leaves radical and cauline; radical leaves lyrate; cauline ones smaller. Flowers yellow, in simple or branched terminal racemes. Capsule subglobose, glabrous. (Fl. Fr. December - April). DNT. 871, 1576, 1892.

Commonly observed in moist situations on the muddy banks of rivers and streams.

Scoparia Linn.

Scoparia dulcis Linn. Sp. Pl. 116, 1753; FBI. 4: 289; C. 2:

383; Santapau, loc. cit. 47; Sant. 165; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 43, 1970-1971.

A small, branched herb. Leaves opposite and whorled. Flowers white, axillary, solitary or 2-3 together; corolla throat bearded. Capsule orbicular-oblong. (Fl. Fr. January - February). DNT. 1887.

Rare; noted on the river banks at Hampheshwar.

Sopubia Buch.-Ham.

Sopubia delphinifolia (Roxb.) G. Don, Gen. Syst. 4: 560, 1837; FBI. 4: 302; C. 2: 378; Gr. 145; D. & G. 182; Santapau, loc. cit. 45; Sant. 184; Fl. Dang, 68; Fl. Pavagadh, 168.

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). DNT. 498, 655.

Commonly noted on grassy banks of river, along roadsides and in cultivated fields.

Sutera Roth

Sutera dissecta (Del.) Walp. Repert. 3: 271, 1844; Santapau,

loc. cit. 28; Sant. 177; Fl. Dang, 68; Fl. Pavagadh, 164.

Copraria dissecta Del. Fl. Egy. 95, t. 32, f. 2, 1812.

Sutera glandulosa Roth, Nov. Pl. Sp. 291, 1821; Wt. Ic. t. 858; FBI. 4: 258; C. 2: 355.

An erect or diffuse, glandular, pubescent herb, branching from the base. Leaves pinnatifid, segments toothed and cut. Flowers white, small, axillary, solitary or upper most in racemes. Capsule viscidly pubescent. (Fl. Fr. January - April). DNT. 876, 1559, 1719, 1896.

Fairly common; observed in moist and muddy soils on the river banks.

Kickxia Dumort.

Plants hairy; leaves not hastate; corolla hairy ....incana

Plants glabrous; leaves hastate; corolla glabrous...ramosissima

Kickxia incana (Wall.) Pennell, Scroph. West. Himal. 59, 1943; Santapau, loc. cit. 27; Fl. Pavagadh, 163.

Linaria incana Wall. Pl. As. Rar. 2: 43-44, 1831; Benth. in DC. Prodr. 10: 270, 1846; FBI. 4: 252.

L. cabulica Benth. in DC. Prodr. 10: 270, 1846; C. 2: 354.

A slender, hairy herb, branching from the base, pendulous. Leaves small, ovate. Flowers yellow; corolla hairy. Capsule ovoid. (Fl. Fr. August - February). DNT. 586, 1022.

Rare; observed on steep escarpments at Mahudabari.

Kickxia ramosissima (Wall.) Janchen, in Oest. Bot. Zeitscher  
82: 152, 1933; Santapau, loc. cit. 27; Fl. Pavagadh, 164.

Linaria ramosissima Wall. Pl. As. Rar. 2: 43, t. 153, 1831;  
FBI. 4: 251; C. 2: 353.

A much-branched, slender herb. Leaves variable in size, alternate, triangular, hastate at the base. Flowers yellow, axillary, solitary; corolla glabrous. Capsule ovoid or subglobose. (Fl. Fr. August - May). DNT. 1422, 1851.

Commonly observed on the slopes of the hillocks and on the escarpments in moist localities.

Lindenbergia Lehm.

Lindenbergia muraria (Roxb.) P. Bruchl. in 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. Hort. Berol. 95, t. 48, 1831, p.p.; FBI. 4:  
262; C. 2: 379.

L. indica (Linn.) Kuntze, Rev. Gen. 462, 1891; Santapau, loc. cit. 45; Fl. Dang, 67; Fl. Delhi, 252; Fl. Pavagadh, 165.

An erect, glandular-hairy, annual herb. Leaves ovate, cuneate, serrate. Flowers yellow, axillary, solitary or at times 2 together; calyx densely villous. Capsule hairy. (Fl. Fr. August - February). DNT. 575.

Commonly observed on the escarpments of hillocks, on old walls.

Striga Lour.

Striga angustifolia (Don) Saldanha, in BBSI. 5: 70, 1963; Sant. 184; Fl. Pavagadh, 167.

Buchnera angustifolia Don, Prodr. Fl. Nep. 91, 1825.

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; Fl. Dang, 68; Fl. Delhi, 251.

An erect, sparingly branched herb. Leaves linear, sessile, scabrid. Flowers white, in lax or interrupted, erect spikes; calyx ribbed, scabrous. Capsule oblong-ellipsoid. (Fl. Fr. July - December). DNT. 388, 455, 1387.

Observed as a weed in cultivated fields and open grasslands.

Mazus Lour.

Mazus pumilus (Burm. f.) van Steenis in Nova Guinea n.s. 9:

31, 1958; Backer, in Fl. Java 2: 505, 1965; Sant.

185; Raizada, in Ind. For. 94(6): 445, 1968; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 1970 - 1971.

Lobelia pumila Burm. f. Fl. Ind. 186, t. 60, f. 3, 1784.

Lindernia japonica Thunb. Merr. Fl. Manila 423, 1912 &

Enum. 3: 432, 1923; Raizada, in Ind. For. 84(8): 495, 1958.

Mazus rugosus Lour. Fl. Cochinch. 385, 1790; FBI. 4: 259; C. 2: 383.

A small, glabrous herb. Leaves opposite, obovate-spathulate or oblong, irregularly crenate. Flowers white, with purple tinge, in terminal racemes. Capsule sub-globose. (Fl. Fr. January - February). DNT. 1584.

Rare; observed in moist soils on the river banks at Hampheshwar.

Stemodia Linn. (nom. cons.)

Stemodia viscosa Roxb. Pl. Cor. 2: 33, t. 163, 1798; Wt. Ic. t.



1408; FBI. 4: 265; C. 2: 359; 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, acute, serrulate. Flowers violet-purple, axillary, solitary, or in terminal, few-flowered racemes. Capsule glabrous, ovoid-oblong. (Fl. Fr. October - March). DNT. 649, 1929.

Commonly observed as a weed in cultivated fields.

Buchnera Linn.

Buchnera hispida Buch.-Ham. in D. Don, Prodr. Fl. Nep. 91,  
1825; Wt. Ic. t. 1413; FBI. 4: 298; C. 2: 373; Sant.  
181; Fl. Dang, 67.

An erect, hairy, annual herb. Leaves sessile, toothed, oblong; upper leaves linear-lanceolate. Flowers light purple, sessile, distantly arranged in terminal spikes. Capsule oblong, shorter than calyx. (Fl. Fr. October - December). DNT. 446, 1445.

Observed on the slopes of the hillocks along with grasses.

Lindernia All.

Perfect stamens 4; capsule equalling or shorter than the calyx :

Leaves elliptic-lanceolate; flowers  
in terminal racemose .....multiflora

Leaves ovate, flowers usually axillary,  
solitary .....crustacea

Perfect stamens 2; capsule longer than  
the calyx :

Leaves parallel nerved; staminodes bilobed...parviflora

Leaves penni-nerved; staminodes entire :

Leaves sharply, deeply and closely  
serrate; flowers in lax, terminal  
racemes, white or pinkish blue .....ciliata

Leaves shortly and distantly serrate;  
flowers in axillary racemes, purple  
violet .....oppositifolia

Lindernia multiflora (Roxb.) Mukerjee, in J. Ind. Bot. Soc.

24: 131, 1945; Santapau, et al. in JBNHS. 55: 481,  
1958; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 43,  
1970 - 1971.

Torenia multiflora Roxb. Fl. Ind. 3: 96, 1832.

Vandellia multiflora G. Don, Gen. Syst. 4: 549, 1838;

FBI. 4: 240.

An erect, much-branched, annual herb. Leaves opposite, elliptic-sub-acute, serrate, 4x1.5 cm. long, sub-sessile. Flowers pinkish-blue, in axillary or terminal, lax racemes. Capsule sub-globose. (Fl. Fr. August - October). DNT. 1106.

PLATE No. 60

Rare; observed only once in shallow soil near water at Bunjer. Santapau et al. loc. cit. recorded its occurrence at Waghai, Dangs.

Lindernia crustacea (Linn.) F. Mueller, Cens. Austr. Pl. 97, 1882; Mukerjee, loc. cit. 130; Sant. 179; Fl. Dang, 67; Fl. Delhi, 252.

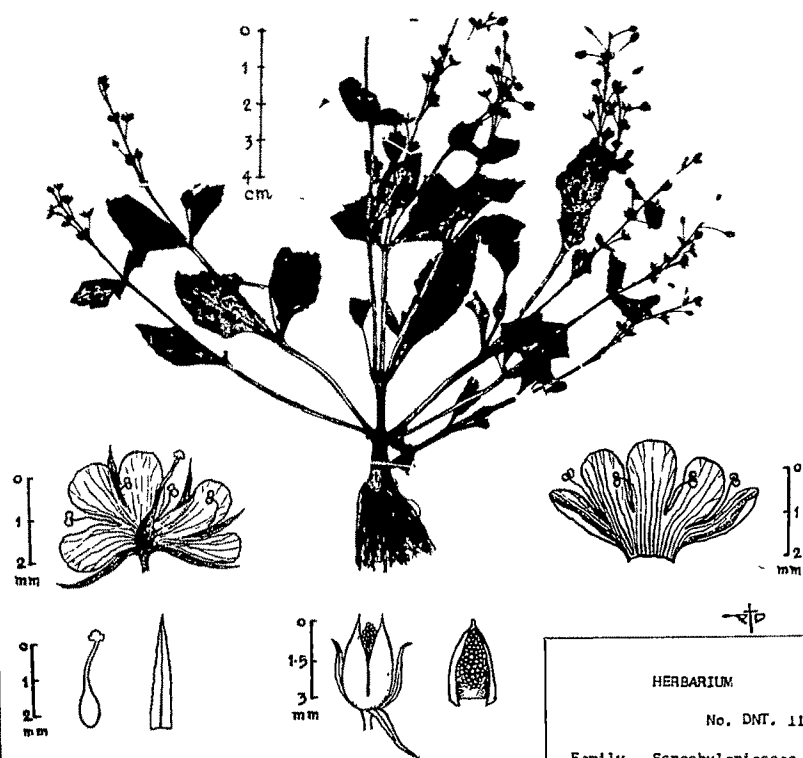
Capraria crustacea Linn. Mant. 87, 1767.

Vandellia crustacea Benth. Scroph. Ind. 35, 1835; Wt. Ic. t. 863; FBI. 4: 279; C. 2: 366.

A small, diffuse, glabrous herb. Leaves ovate, sub-acute, 1x.7 cm. long, sub-sessile, serrate, opposite. Flowers purplish, in axillary and sub-racemose at the end of branches. Capsule ellipsoid-oblong, obtuse. (Fl. Fr. August - October). DNT. 609, 1162.

Commonly observed on the river banks in muddy soil.

Lindernia parviflora (Roxb.) Haines, Bot. Bih. & Or. 635, 1922;



*Lindernia multiflora* (Roxb.) Mukerjee

HERBARIUM

No. DNT. 1106

Family Scrophulariaceae

Genus *Lindernia*

Species *multiflora* (Roxb.)  
Mukerjee

Locality Bunjer,  
Chhotaudepur.

Remarks Observed near water.

29-8-70.

Collected by

PLATE No. 60.

Mukerjee, loc. cit. 132; Santapau, loc. cit. 38; Sant. 180; Fl. Dang, 67; Fl. Delhi, 253.

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, diffusely branched, glabrous herb. Leaves parallel nerved, opposite, sessile, thin, ovate-lanceolate to elliptic, obtuse, Flowers white, in axillary and terminal racemes; staminodes bilobed. Capsule ovoid-oblong, longer than the calyx. (Fl. Fr. August - January). DNT. 1055, 1908.

Observed in moist places on the river banks.

Lindernia ciliata (Colsm.) Pennell, in J. Arn. Arb. 24: 253, 1943; Mukerjee, loc. cit. 133; Santapau, loc. cit. 39; Sant. 180; Fl. Pavagadh, 166.

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; C. 2: 369.

A small, erect, diffusely branched, annual herb. Leaves sessile, penninerved, opposite, oblong, obtuse, closely and strongly, spinous-serrate. Flowers white or pinkish blue, in lax, terminal racemes. Capsule narrowly oblong, acute, longer

than the calyx. (Fl. Fr. August - October). DNT. 392, 608, 1035.

Commonly noted in moist situations along river banks and streams.

Lindernia oppositifolia (Retz.) Mukerjee, loc. cit. 134;  
Santapau, loc. cit. 40; Fl. Pavagadh, 167.

Gratiola oppositifolia Retz. Obs. 4: 8, 1786.

Bonnaya oppositifolia Spr. Syst. 1: 41, 1825; Gr. 143;  
D. & G. 179; FBI. 4: 286; C. 2: 370.

A small, erect, much-branched, annual herb. Leaves sessile, linear-oblong, obtuse, shallowly and distantly serrate. Flowers pinkish-violet, solitary, axillary or upper in racemes. Capsule glabrous, narrowly oblong. (Fl. Fr. August - October). DNT. 391, 613, 1103.

Commonly observed in moist soil along river banks and ditches.

#### OROBANCHACEAE

Orobanche Linn.

Orobanche cernua Loefl. var. nepalensis DC. Prodr. 11: 33, 1847;  
Santapau & Wagh, in BBSI. 5: 107, 1963; 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, in an elongated spike; bracts ovate, acuminate. Capsule ellipsoid, scarcely exceeding the calyx. (Fl. Fr. December - February). DNT. 1850.

A total parasitic weed; more commonly observed on the roots of Nicotiana tabacum.

#### GESNERIACEAE

Didymocarpus Wall. (nom. cons.)

Didymocarpus pygmaea Clarke, in Hook. f. FBI. 4: 345, 1884;  
Santapau & Saldanha, in JBNHS. 53: 213, f. 4, 1955;  
Fl. Pavagadh, 169.

Rottlera pygmaea O. Kuntze, Rav. Pl. 2: 476, 1891.

A small, delicate herb with short stem. Leaves at the apex of stem, usually only one hairy, thin, sessile, entire, obtuse, cordate, ovate to ovate-oblong. Flowers white, axillary, in cymes. (Fl. September - October). DNT. 1096, P & T. 214.

Noted on moist shaded places on the escarpments at Bunjer and Ambadungar.

Leaves usually solitary, but two or more smaller ones are borne on a prolongation of the stem which are noted in our specimens.

#### LENTIBULARIACEAE

Utricularia Linn.

Utricularia inflexa Forsk. var. stellaris (Linn. f.) Taylor,  
in KB. 18: 189, 1964.

Utricularia stellaris Linn. f. Suppl. 86, 1781; FBI. 4:  
328; Wt. Ic. t. 1587; C. 2: 389; Subramanyam, Aquat.  
Angios. 33, f. 23, 1962.

A sub-merged, aquatic herb, suspended in water by a whorl of floats about the middle of peduncles. Leaves in whorls, pinnately divided into capillary segments; each pinna with a small, ovoid bladder near its base. Flowers yellow, in slender, erect, few-flowered racemes. Capsule globose, circumcissile. (Fl. Fr. August - March). DNT. 837.

Observed in ditches along roadsides.

#### BIGNONIACEAE

Perfect stamens 5; capsule 6-10 cm. broad, flat.....Oroxylum



Perfect stamens 4; capsule 1-3 cm. broad :

Pinnae less than 1 cm. broad .....Jacaranda

Pinnae more than 1 cm. broad :

Calyx spathaceous .....Dolichandrone

Calyx not spathaceous :

Flowers white; capsule slightly  
curved, rough with numerous large  
irregular hard tubercles .....Radermachera

Flowers dull purple; capsule  
straight, cylindric, somewhat  
rough with elevated whitish  
specks .....Stereospermum

Oroxylum Vent.

Oroxylum indicum (Linn.) Vent. Dec. Gen. Nov. 9, 1808;

FBI. 4: 378; C. 2: 401; Talb. 2: 306; Sant. 190;

Fl. Dang, 69.

Bignonia indica Linn. Sp. Pl. 625, 1753; Gr. 125.

A medium-sized tree. Leaves very large, 2-3 pinnate with  
opposite pinnae; leaflets 2-4 pairs, ovate, acuminate, base

rounded. Flowers purple, in large racemes. Capsule flat, 6-10 cm. broad, woody; seeds winged. (Fl. Fr. June - October). DNT. 657, 1014.

Commonly noted at the foot of the hillocks and along forest paths.

Jacaranda Juss.

Jacaranda mimosifolia D. Don, in Bot. Reg. t. 631, 1822 & Edinb. N. Phil. Jour. 264, 1823; Sandwith, in KB. 456, 1953; Fl. Delhi, 259.

J. ovalifolia R. Br. in Bot. Mag. t. 2327, 1822.

A middle-sized tree. Leaves paripinnate; leaflets many, small, acuminate, 4 to 5 mm. broad. Flowers light-blue, in loose pyramidal panicles. (Fl. April - May). DNT. 848.

Cultivated as an ornamental tree at Mining office, Ambadungar.

Dolichandrone Seem.

Dolichandrone falcata Seem. var. lawii (Seem.) Haines, in Bot.

Bih. & Ori. 658, 1922; Sant. 191; Fl. Dang, 69;

Thaker & Sabnis, in JMSUB. 19 & 20(3& 4): 43, 1970-1971.

Dolichandrone lawii Seem. in Journ. Bot. 8: 380, 1870;

FBI. 4: 380.

D. falcata Cooke, Fl. Pres. Bomb. 2: 329, 1904 (non Seem.)

A large, deciduous tree. Leaves opposite, simple pinnate, imparipinnate; leaflets opposite, obovate, acuminate. Flowers white, in terminal, few-flowered racemes; calyx spathaceous. Capsule smooth, slightly compressed, valves woody. (Fl. Fr. March - May). DNT. 863, 1728.

Only restricted along the river banks of Narmada and adjoining hilly forest areas.

Radermachera Zoll. & Moritz.

Radermachera xylocarpa (Roxb.) K. Schum. in Pfam. 4(3b): 243, 1895; C. 2: 333; Sant. 192; Fl. Mel. 246; Thaker & Sabnis, in JMSUB. 19 & 20(3 & 4): 43, 1970 - 1971.

Bignonia xylocarpa Roxb. Fl. Ind. 3: 108, 1832; Gr. 125; D. & G. 159; Wt. Ic.tt. 1335, 1336.

A middle-sized tree. Leaves bipinnate; leaflets 2-4 pairs, opposite, elliptic-oblong, acute, entire. Flowers white, in dense, compound, erect panicles. Capsule sub-cylindric, slightly curved, rough with numerous, large, irregular hard tubercles; seeds with a membranous wing at each end. (Fl. Fr. April - September). DNT. 1090, 1413, 1701.

## PLATE No. 61

Rare; only one tree noted on way to Ambadungar village.

Stereospermum Cham.

Stereospermum suaveolens DC. Prodr. 9: 211, 1845; Wt. Ic. t. 1342; FBI. 4: 382; C. 2: 406; Talb. 2: 314; Fl. Mel. 245.

Bignonia suaveolens Roxb. Fl. Ind. 3: 104, 1832; Gr. 125.

A large tree. Leaves simple pinnate; leaflets 3-4 pairs, elliptic, rounded. Flowers fragrant, dull-purple, in lax, dichotomous, viscidly hairy panicles; calyx viscidly hairy. Capsule straight, cylindric, rough with white, elevated specks. (Fl. Fr. March - April). DNT. 862.

Rare; noted at the foot of hillocks at Banganga.

## PEDALIACEAE

Sesamum Linn.

Sesamum indicum Linn. Sp. Pl. 634, 1753; D. & G. 161; FBI. 4: 387; C. 2: 413; Sant. 193; Fl. Dang, 70; Fl. Delhi, 262; Fl. Pavagadh, 172.

An erect, annual herb. Leaves lanceolate, entire, lower



PLATE No. 61.

Radermachera xylocarpa (Roxb.) K. Schum.

often 3-lobed. Flowers pink, axillary, solitary, with conspicuous, vesicular glands at base. Capsule erect, oblong, valvular. (Fl. Fr. August - November). DNT. 458, 639.

Cultivated for its oil-yielding seeds.

#### MARTYNIACEAE

Martynia Linn.

Martynia annua Linn. Sp. Pl. 618, 1753; Fl. Dang, 70; Raizada, in Ind. For. Rec. (N.S.) Botany 5(1): 29, 1958; Fl. Delhi, 263.

M. diandra Glox. Obs. Bot. 14, t. 1, 1785; Gr. 127; C.2: 414.

A tall, rough undershrub. Leaves large, opposite, broadly ovate-cordate, sticky, long-petioled. Flowers rose-coloured, diandrous, drooping, in a lax terminal, glandular-sticky racemes. Fruit large, hard with two prominent hooks. (Fl. Fr. August - November). DNT. 468.

Commonly observed in waste places and along roadsides during monsoon.

#### ACANTHACEAE

1. Scapigerous, stemless herb; leaves radical....Elytraria

1. Plants with stems and cauline leaves :
  2. Corolla without an upper lip, lower lip large, expanded, 3-lobed .....Blepharis
  2. Corolla 2-lipped or with 5 sub-equal lobes :
    3. Corolla lobes twisted in bud :
      4. Corolla distinctly 2-lipped :
        5. Stamens 4; seeds 8-10 per capsule .....Hygrophila
        5. Stamens 2; seeds 20 or more per capsule .....Hemiadelphis
      4. Corolla sub-equally 5-lobed or two posterior lobes more connate :
        6. Ovules more than two in each cell; capsule 6 or more seeded:
          7. Flowers large, axillary, solitary or 2-3 together...Dipteracanthus
          7. Flowers in clusters on contracted cymes or racemes :
            8. Inflorescence a capituliform

- compound spike, surrounded by 4,  
large, ovate bracts .....Gantelbua
  - 8. Inflorescence a simple spike  
surrounded by narrow bracts .....Hemigraphis
  - 6. Ovules 2 in each cell; capsule 4  
or less seeded .....Carvia
- 3. Corolla lobes imbricate in bud :
  - 9. Ovules 2 or rarely one in each cell :
    - 10. Corolla not distinctly 2-lipped :
      - 11. Calyx 4-partite; bracteoles  
large .....Barleria
      - 11. Calyx 5-partite; bracteoles  
linear or very small :
        - 12. Stamens 2 .....Eranthemum
        - 12. Stamens 4 .....Neuracanthus
    - 10. Corolla distinctly 2-lipped :
      - 13. Stamens 4, didynamous .....Lepidagathis
      - 13. Stamens 2 :
        - 14. Flowers in spikes :



15. Bracts with scarious margins,  
 2 or 4 rowed, if 4 rowed,  
 dimorphic .....Rungia
15. Bracts in cylindric or 4-farious  
 spikes, homomorphic :
16. Herbs; anther cells, at least the  
 lower with a basal spur-like  
 appendage .....Justicia
16. Shrubs; anther cells, apiculate,  
 not spurred at the base .....Adhatoda
14. Flowers in 1-few-flowered cymes :
17. Flowers in axillary clusters; bracts  
 oblong-ovate, cuspidate .....Dicliptera
17. Flowers in trichotomous cymes or lax,  
 panicles; bracts linear, acute or  
 mucronate .....Peristrophe
9. Ovules 3 or more in each cell :
18. Flowers in unilateral racemes without  
 axillary cladodes .....Indonessiella
18. Flowers in dense clusters on spikes in  
 the midst of axillary cladodes .....Haplanthus

Elytraria Michaux (nom. cons.)

Elytraria acaulis (Linn. f.) Lindau, in Pfam. 1: 304, 1897;

Santapau, in Bot. Mem. Univ. Bomb. 2: 11, 1951; Fl.

Delhi, 265; Fl. Pavagadh, 174.

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, crenate. Flowers white, in long bracteate spikes. Fruit an ovoid capsule. (Fl. Fr. June - November). DNT. 624.

Observed on waste lands and along roadsides.

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; Fl.

Delhi, 266; Fl. Pavagadh, 174.

Acanthus maderaspatensis Linn. Sp. Pl. 892, 1753.

Blepharis boerhaviaefolia Pers. Syn. Pl. 2: 180, 1806;

Gr. 160; D. & G. 192; Wt. Ic. t. 458; FBI. 4: 487;  
C. 2: 424.

A prostrate, hairy herb with creeping rootstock 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 or solitary; bracts retrosely hairy. Capsule 2-seeded. (Fl. Fr. August - December). DNT. 532, 1462, 1803.

Commonly observed on the slopes of the hillocks and in shaded localities along forest paths.

Blepharis repens (Vahl) Roth, Nov. Pl. Sp. 321, 1821; Rao, in BBSI. 10(Suppl. 2): 59, 1969.

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; Fl. Delhi, 267.

A prostrate, hispid herb. Leaves 4 at each node, subsessile, whorled, unequal in size, oblong, obtuse, thick. Flowers blue, solitary, axillary. Capsule ellipsoid, included, 2-seeded. (Fl. Fr. October - January). DNT. 1761.

Rare; observed in moist, shaded localities along slopes of river banks at Kawant.

Hygrophila R. Br.

Hygrophila auriculata (Schum.) Heine, in KB. 16(2): 172, 1962;  
Sant. 194; Fl. Pavagadh, 175; Raizada, in Ind. For.  
92(5): 312, 1966.

Barleria auriculata Schum. in Schumach. & Thonn. Beskr.  
Guin. Pl. 285, 1827.

Astercantha longifolia (Linn.) Nees. in Wall. Pl. As. Rar.  
3: 40, 1832; D. & G. 189; Wt. Ic. t. 449; C. 2: 428;  
Santapau, loc. cit. 17; Fl. Delhi, 267.

Hygrophila spinosa Anders. in Thwait. Enum. 225, 1860;  
FBI. 4: 408.

An erect, stout, marsh-loving annual. Leaves sparsely  
hispid on both sides, sessile, lanceolate, whorled, with sharp,  
straight, yellow spines. Flowers purplish-blue, in sessile,  
axillary whorls. Capsule linear-oblong. (Fl. Fr. October -  
December). DNT. 1335.

A gregarious weed found in ditches and in marsh places  
along roadsides.

Hemiadelphis Nees

Hemiadelphis polyspermus Nees, in Wall. Pl. As. Rar. 3: 80,  
1832; Wt. Ic. t. 1492; Bremek. in Dansk. Bot. Arkiv.  
20: 66, 1961; Sant. 195.

Justicia polysperma Roxb. Hort. Beng. 3, 1814, nom. nud.

& Fl. Ind. 1: 119, 1832.

Hygrophila polysperma (Roxb.) T. Anders. in JLS. 9: 456, 1867; FBI. 4: 406; C. 2: 429; Fl. Dang, 73; Santapau, loc. cit. 19; Fl. Delhi, 269; Fl. Pavagadh, 175.

A small, much-branched, procumbent herb. Leaves oblong-ovate; sessile. Flowers small, white or pale-blue, in dense terminal spikes; fertile stamens 2. Capsule narrowly oblong, hairy at the apex. (Fl. Fr. September - April). DNT. 1355.

Observed in moist places along river banks and water streams.

Dipteracanthus Nees emend. Bremek.

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; Fl. Delhi, 273; Fl. Pavagadh, 176.

Ruellia prostrata Poir. in Lam. Encycl. 6: 348, 1804; FBI. 4: 411.

R. prostrata var. dejecta Clarke, in FBI. 4: 412, 1884; C. 2: 431.

A straggling or prostrate, much-branched herb. Leaves elliptic-obovate or oblanceolate, sparsely hairy. Flowers

pale-violet or pale-blue, solitary, axillary or 2-3-together.  
Capsule pubescent, clavate. (Fl. Fr. June - November). DNT.423.

Observed in shaded localities during monsoon.

Gantelbua Bremek.

Gantelbua urens (Heyne ex Roth) Bremek. in Mat. Mon. Strob. 148,  
1944; Santapau, loc. cit. 28; Fl. Dang, 73.

Ruellia urens Heyne ex Roth, Nov. Pl. Sp. 302, 1821.

Hemigraphis dura T. Anders. in Journ. Linn. Soc. 9: 461,  
1876; FBI. 4: 422; C. 2: 433.

A procumbent, densely bristly herb. Leaves oblong, obtuse, hispid with a short petiole. Flowers light blue, in dense, many-flowered heads, densely clothed with white and yellowish-brown hairs; calyx densely hairy. Capsule linear-oblong, pointed. (Fl. Fr. January - February). DNT. 1751.

Observed along roadside ditches in dry localities.

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.

Hemigraphis latebrosa (Heyne ex Roth) Nees, in DC. Prodr. 11,

723, 1847; Wt. Ic. 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, ellipsoid or suborbicular. (Fl. Fr. September - February). DNT. 1407, 1517, 1751.

Commonly observed on the elevated banks of rivers, on escarpments of hillocks and as an undergrowth of forests.

Carvia Bremek.

Carvia callosa (Nees) Bremek. in Mat. Mon. Strob. 187, 1944;

Santapau, loc. cit. 46; Sant. 199; Fl. Pavagadh, 177.

Strobilanthes callosus Nees, in Wall. Pl. As. Rar. 3:

85, 1832; FBI. 4: 451; C. 2: 444.

S. grahminus Wight, Ic. t. 1520, 1850; D. & G. 188.

An erect, undershrub or shrub with rigid, rough stems. Leaves opposite, elliptic-lanceolate, acute-acuminate, crenate, more or less hairy beneath. Flowers purple with white limb, axillary, in simple or branched ovoid, pedunculate, subtetragonal spikes; calyx segments leathery, elliptic-lanceolate, obtuse. Capsule obovoid, acute. (Fl. Fr. September - February). DNT. 1860, P & T. 183.

Fairly common; noted as an undergrowth of forests at Ambadungar and Handevdungar.

Gregarious, luxuriant flowering was noted at Ambadungar on Chikhli side in September, 1968 ( P & T 183). The plants are said to be gregariously flowering once in twelve years.

Barleria Linn.

Plants armed; flowers orange-yellow .....prionitis

Plants unarmed; flowers blue or purple-blue :

Bracteoles with scarious, ciliate  
margins; seeds smooth .....prattensis

Bracteoles with ciliate, distantly toothed  
margins; seeds silky hairy .....cristata

Barleria prionitis Linn. Sp. Pl. 636, 1753; FBI. 4: 482; Wt. Ic.  
t. 452; C. 2: 457; Santapau, loc. cit. 57; Sant. 201;  
Fl. Dang, 71; Fl. Pavagadh, 179.

An erect, armed, shrub or undershrub. Leaves ovate, elliptic, bristle-tipped. Flowers yellow, sessile, solitary; bracts and bracteoles bristle-tipped. Capsule ovoid, 2-seeded. (Fl. Fr. August - April). DNT. 565.

Observed on the escarpments of hillocks along the streams



and as an undergrowth of forests.

Barleria prattensis Santapau, in KB. 487, 1949 & loc. cit. 62;  
Sant. 202; Fl. Dang, 71; Fl. Pavagadh, 179.

An erect, suffruticose herb with glabrous, more or less quadrangular stems and branches. Leaves ovate, entire, membranous. Flowers rosy-purple, axillary, solitary, opposite; bracts leafy. Capsule glabrous; 4-seeded. (Fl. Fr. August - September). DNT. 393, 460, 1201, 1825.

Fairly common; observed in shaded localities near streams and as an undergrowth of forests.

Cooke in his Flora of the Presidency of Bombay 2: 461 has mentioned a plant under the name B. montana Nees, the real B. montana Nees is a Madras plant. Our common plant species is B. prattensis. For details please refer to Santapau (loc. cit.).

Barleria cristata Linn. Sp. Pl. 636, 1753; FBI. 4: 488; C. 2: 460; Santapau, loc. cit. 59; Sant. 201; Fl. Delhi, 274.

An erect or diffuse undershrub. Leaves elliptic-oblong, acute, abruptly tapering at the base, hairy on both sides. Flowers bluish-purple, in axillary and terminal spikes; bracts large, with distinctly toothed, ciliate margins. Capsule ellipsoid, 4-seeded. (Fl. Fr. October - December). DNT. 1401.

Observed in shaded localities as an undergrowth of forests.

Eranthemum Linn.

Eranthemum roseum (Vahl) R. Br. Prodr. 477, 1810; D. & G. 195;  
Santapau, loc. cit. 34; Sant. 197; Fl. Pavagadh, 177;  
Fl. Mel. 252.

Justicia rosea Vahl, Enum. 1: 165, 1804.

Daedalacanthus roseus Anders. in TLS. 9: 487, 1867; FBI. 4:  
419; C. 2: 439.

An erect shrub with quadrangular stem. Leaves long-petioled, lanceolate or oblong-lanceolate, acuminate. Flowers light-blue drying to brick-red, in lax, axillary and terminal spikes; bracts linear, leafy. Capsule clavate, glabrous. (Fl. Fr. November-January ).DNT. 1325, 1392, 1511.

Fairly common; observed along forest paths and as an undergrowth of forests.

Neuracanthus Nees

Neuracanthus sphaerostachys (Nees) Dalz. in Kew. Journ. Bot. 2:  
140, 1850; FBI. 4: 491; C. 2: 465; Santapau, loc. cit.  
66; Sant. 203; Fl. Dang, 74; Fl. Pavagadh, 179.

Lepidagathis sphaerostachya Nees, in DC. Prodr. 11: 254,  
1847.

Neuracanthus lawii Wight, Ic. t. 1530, 1850.

An erect, annual herb. Leaves sessile, ovate or elliptic-lanceolate, thick. Flowers blue or violet, in dense, sub-globose, short, axillary spikes; bracts broadly ovate, hairy. Capsule ovoid, glabrous. (Fl. Fr. November - January). DNT. 1325, 1392, 1511.

Fairly common; observed as an undergrowth of forests.

Lepidagathis Willd.

Flowers arranged in spikes, either terminal  
or axillary, not at the base of stem .....cuspidata

Flowers arranged in masses at the base  
of stem or on rootstock :

Bracts hairy, spinous-pointed; calyx  
4-partite, hairy on both surfaces .....cristata

Bracts glabrous with recurved apical spine;  
calyx 5-partite, glabrous on outer surface ....trinervis

Lepidagathis cuspidata (Wall.) Nees, in Wall. Pl. As. Rar.

3: 97, 1832; FBI. 4: 519; C. 2: 474; Santapau, loc. cit.  
73; Sant. 205; Fl. Dang, 73; Fl. Pavagadh, 180; Fl. Mel.  
251.

Ruellia cuspidata Wall. Cat. 2405, 1830.

An erect undershrub. Leaves oblong-lanceolate, acuminate. Flowers white with dark purple lines, in terminal and axillary spikes; bracts spinous pointed. Capsule ovoid-lanceolate, acute. (Fl. Fr. December - March). DNT. 1871.

Observed as an undergrowth of forests.

Lepidagathis cristata Willd. Sp. Pl. 3: 400, 1801; Gr. 160;

D. & G. 191; Wt. Ic. t. 455; FBI. 4: 516; C. 2: 470;

Santapau, loc. cit. 71; Fl. Delhi, 266.

A perennial plant with woody rootstock and slender quadrangular branches. Leaves linear-lanceolate, sessile. Flowers white, dotted with brown and purple spots, in sessile spikes arranged at the base in globose, radical heads; bracts and calyx spinous-mucronate. Capsule ovoid, glabrous. (Fl. Fr. September - January). DNT. 370.

Observed on the plains along with grassea and along forest paths.

Lepidagathis trinervis Nees, in Wall. Pl. As. Rar. 3: 96, 1832;

FBI. 4: 517; C. 2: 471; Fl. Pavagadh, 181.

A perennial plant with woody rootstock. Leaves sessile, linear, acute, scabrid. Flowers dirty white with purple tinge, in sessile, ovoid spikes, arranged at the base in globose,

radical heads; bracts glabrous with recurved, cuspidate spines. Capsule ovoid-lanceolate, compressed. (Fl. Fr. November - December). DNT. 466.

Observed along the forest paths.

Rungia Nees

Bracts dimorphic, not conspicuously winged .....pectinata

Bracts homomorphic, conspicuously winged .....repens

Rungia pectinata (Linn.) Nees, in DC. Prodr. 11: 469, 1847; Wt.

Ic. t. 1547; Santapau, loc. cit. 77; Sant. 206; Fl.

Dang, 75; Fl. Delhi, 269; Fl. Pavagadh, 181.

Justicia pectinata Linn. Amoen. Acad. 4: 299, 1759; Gr. 165.

Rungia parviflora Nees var. pectinata Clarke, in FBI. 4:

550, 1855; C. 2: 478.

R. parviflora Nees var. muralis Clarke, in FBI. 4: 550,

1855; C. 2: 479.

An erect, or scandent, glabrous herb. Leaves elliptic or oblong-lanceolate, acute. Flowers light blue, in axillary or terminal, sessile spikes; bracts dimorphic. Capsule compressed, ovoid. (Fl. Fr. October - January). DNT. 375, 1858.

Commonly noted in roadside ditches in moist places and along forest paths.

Santapau, loc. cit. considers the two varieties of Clarke as seasonal forms of the same plant. Accordingly R. pectinata includes both the varieties.

Rungia repens (Linn.) Nees, in Wall. Pl. As. Rar. 3: 110, 1832;

D. & G. 196; Wt. Ic. t. 465; FBI. 4: 549; C. 2: 480;

Santapau, loc. cit. 78; Sant. 206; Fl. Delhi, 270.

Justicia repens Linn. Sp. Pl. 15, 1753; Gr. 165.

An erect or suberect herb at times rooting at first few nodes. Leaves elliptic-lanceolate, acute. Flowers light-blue, in sessile terminal, one-sided spikes; bracts homomorphic, conspicuously winged. Capsule compressed. (Fl. Fr. August - December). DNT. 626, 636, 1123.

Observed along roadsides, forest paths and in hedges.

Justicia Linn.

Bracts and bracteoles as long as or longer  
than the calyx; spikes stout, broad .....procumbens  
var. simplex

Bracts and bracteoles shorter than the  
calyx; spikes slender .....diffusa

Justicia procumbens var. simplex (D. Don) Yamazaki, in Hara,  
Fl. East. Himalaya 302, 1966.

Justicia simplex D. Don, Prodr. Fl. Nep. 11, 1825; FBI.

4: 539; C. 2: 490; Santapau, loc. cit. 89; Fl. Dang, 73; Fl. Delhi, 271; Fl. Pavagadh, 183.

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). DNT. 402, 416, 1807, 1816.

Commonly observed along forest paths and as a weed in cultivated fields.

Justicia diffusa Willd. Sp. Pl. 87, 1789; FBI. 4: 538; C. 2:

489; Santapau, loc. cit. 87; Fl. Delhi, 271; Fl. Pavagadh, 184.

Rostellaria diffusa Nees, in Wall. Pl. As. Rar. 3: 100, 1832; D. & G. 193.

An erect, much-branched herb. Leaves ovate to elliptic-lanceolate. Flowers pale-purple, in axillary and terminal narrow spikes; bracts shorter than calyx. Capsule oblong, glabrous. (Fl. Fr. July - October). DNT. 24.

Observed among grasses on plains and as a weed in cultivated fields.

Adhatoda Nees

Adhatoda vasica Nees, in Wall. Pl. As. Rar. 3: 103, 1832 &  
 in DC. Prodr. 11: 387, 1847; FBI. 4: 540; C. 2: 492;  
 Santapau, loc. cit. 92; Sant. 210; Fl. Dang, 70; Fl.  
 Delhi, 271; Fl. Pavagadh, 184.

A tall, much-branched, shrubby plant. Leaves ovate or elliptic-lanceolate, acuminate. Flowers white, with purple stripes, in dense axillary, peduncled spikes at the end of branches; bracts conspicuous; anther cells apiculate, not spurred at the base. (Fl. Fr. March - May). DNT. 844 A.

Occasionally cultivated.

Dicliptera 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 micranthes 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, cuspidate. Capsule ellipsoid, compressed. (Fl. Fr. October - February). DNT. 474, 1478.

Commonly observed along forest paths and roadside ditches.

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; Fl. Delhi, 269; Fl. Pava-gadh, 185.

Dianthera bicalyculata Retz. in Act. Holm. 297, t. 9, 1775.

An erect, much-branched herb or undershrub. Stems and branches angled. Leaves ovate, acuminate, glabrous above. Flowers pink, in trichotomously brached lax, spreading panicles. Capsule pointed, narrow. (Fl. Fr. September - December). DNT. 1467.

A common weed of waste places and as an undergrowth of forests.

Indonessiella Sreemadhavan

Indonessilella echioides (Linn.) Sreemadh. in Phytologia 16 : 466, 1968.

Justicia echioides Linn. Sp. Pl. 16, 1753; Roxb. Fl. Ind.

1: 118, 1832; Gr. 164.

Andrographis echiioides (Linn.) Nees, in Wall. Pl. As.

Rar. 3: 117, 1832; FBI. 4: 505; C. 2: 451; Santapau,  
loc. cit. 51; Fl. Delhi, 268; Fl. Pavagadh, 178.

An erect, annual herb. Stems quadrangular, clothed with spreading hairs. Leaves linear-oblong or sub-elliptic. Flowers whitish, dotted with rose-purple spots, arranged in lax, terminal and axillary, unilateral racemes forming a panicle. Capsule elliptic, lanceolate. (Fl. Fr. July - December). DNT. 91, 384, 1111.

Fairly common; noted along roadsides and steep escarpments of hillocks.

Haplanthus Nees

Bracteoles longer than the calyx; axillary  
cladodes exceeding 2.5 cm. long .....verticillaris

Bracteoles shorter than the calyx; axillary  
cladodes shorter than 2.5 cm. ....tentaculatus

Haplanthus verticillaris (Roxb.) Nees, in DC. Prodr. 11: 513,  
1847; FBI. 4: 506; C. 2: 452; Santapau, loc. cit. 51;  
Sant. 200; Fl. Pavagadh, 178.

Justicia verticillata Roxb. Fl. Ind. 1: 135, 1836; Gr. 165.

An erect, annual herb. Leaves ovate, acuminate, pubescent. Axillary cladodes quadrangular with 2 spinous teeth at the apex. Flowers pale-blue, in the midst of cladodes, forming dense spikes. Capsule glabrous, oblong, compressed. (Fl. Fr. August - October). DNT. 1509.

Observed as an undergrowth of forests on the slopes of hillocks.

Haplanthus tentaculatus Nees, in DC. Prodr. 11: 513, 1847;

D. & G. 197; FBI. 4: 507; C. 2: 453.

A slender, annual herb. Leaves ovate, acuminate. Axillary cladodes not exceeding 2.5 cm. long. Flowers pale-blue, sessile, in the midst of cladodes; bracteoles subulate. Capsule oblong, pointed. (Fl. Fr. August - December). DNT. 1867.

Noted along with grasses near streams.

#### VERBENACEAE

Inflorescence racemose :

Creeping herbs; flowers pale pink .....Phyla

Shrubs or undershrubs; flowers orange .....Lantana

Inflorescence cymose :

Corolla nearly regular; stamens equal .....Tectona

Corolla irregular; stamens didynamous :

Leaves compound, 3-5-foliolate .....Vitex

Leaves simple :

Flowers yellow .....Gmelina

Flowers white .....Clerodendrum

Phyla Lour.

Phyla nodiflora (Linn.) Greene, in Pittonia 4: 46, 1889; Sant.

211; Fl. Dang, 75; Fl. Delhi, 276; Fl. Pavagadh, 185.

Verbena nodiflora Linn. Sp. Pl. 20, 1753.

Lippia nodiflora A. Rich. in Michaux, Fl. Bor. Amer. 2:

15, 1803; D. & G. 198; Wt. Ic. t. 1463; FBI. 4: 563;

C. 2: 499.

A prostrate, creeping herb, rooting at nodes. Leaves opposite, sub-sessile, spathulate to obovate, cuneate and entire below, serrate above. Flowers pink, in dense, globose, long-peduncled, axillary heads, elongating later into long spikes. Fruit globose-oblong, dry. (Fl. Fr. April - October). DNT. 37, 424, 842.

Very common in moist situations, along river banks and roadside ditches.

Lantana Linn.

Lantana camara Linn. var. aculeata (Linn.) Moldenke, in  
Torreya 34: 9, 1934; Sant. 211; Fl. Delhi, 277; Fl.  
Pavagadh, 186.

Lantana 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 minute prickles on the branches.  
Leaves opposite, ovate, crenate-serrate, scabrid. Flowers  
orange, in short, pedunculate, capitate spikes. Fruit drupaceous.  
(Fl. Fr. August - January). DNT. 1039.

Cultivated; also noted wild in hedges.

Tectona Linn. f. (nom. cons.)

Tectona grandis Linn. f. Suppl. 151, 1781; FBI. 4: 570; C. 2:  
503; Sant. 212; Fl. Dang, 75; Fl. Delhi, 280; Fl.  
Pavagadh, 186; Fl. Mel. 262.

A large, deciduous tree. Branches quadrangular, channelled,  
stellately hairy. Leaves large, entire, elliptic or obovate,  
lower surface covered with grey-stellate tomentum. Flowers  
white or muddy-white, in large, erect terminal, cymose panicles.

Drupe 4-lobed, enclosed in inflated, bladdery calyx. (Fl. Fr. August - October). DNT. 87, 680.

Fairly common. A dominant tree species of the forest.

Vitex Linn.

Vitex negundo Linn. Sp. Pl. 638, 1753; FBI. 4: 583; Wt. Ic. t. 519; C. 2: 508; Sant. 213; Fl. Dang, 75; Fl. Delhi, 281; Fl. Pavagadh, 187; Fl. Mel. 265.

A large shrub or a small tree. 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). DNT. 94, 421, 585, 1032.

Fairly common; observed in riverbeds, especially on way to Hampheshwar.

Gmelina Linn.

Gmelina arborea Roxb. Hort. Beng. 46, 1814, nom. nud. & Pl. Cor. 3: 42, t. 246, 1815; Wt. Ic. t. 1470; FBI. 4: 581; C. 2: 504; Talb. 2: 348, f. 451; Fl. Dang, 75; Fl. Delhi, 282; Fl. Mel. 263.

A deciduous tree. Young parts covered with pale yellow

tomentum. Leaves broadly ovate, acuminate, entire. Flowers yellow, in paniculate cymes. Drupe obovoid, smooth. (Fl. Fr. March - May). DNT. 854.

Rare; observed at the foot of hillocks at Moti Chikhli.

Clerodendrum Linn.

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 phlomoides Linn. f. Suppl. 292; 1781; Gr. 157; D. & G. 200; Wt. Ic. t. 1473; FBI. 4: 590; C. 2: 511; Fl. Delhi, 283; Fl. Pavagadh, 187.

A large shrub or a small tree. Leaves ovate, acute, crenate. Flowers whitish, in axillary and terminal, dichotomous, paniculate cymes. Drupe black. (Fl. Fr. August - February). DNT. 673, 1064, 1587.

Commonly noted in hedges.

#### LAMIACEAE

1. Stamens straight or descending, not declinate :

2. Perfect stamens 2, connective

- produced, slender .....Salvia
2. Perfect stamens 4, didynamous :
3. Posterior pair of stamens  
the longer .....Nepeta
3. Anterior pair of stamens the longer :
4. Corolla 5-fid, distinctly 2-lipped;  
upper lip of corolla flat, not  
hooded .....Anisomeles
4. Upper lip of corolla hooded :
5. Flowers orange-red; upper lip  
of corolla longer than the  
lower .....Leonotis
5. Flowers white; upper lip of  
corolla shorter than the lower..Leucas
1. Stamens declinate :
6. Attachment of nutlets slightly oblique  
to the outer side .....Lavendula
6. Attachment of nutlets basilar :
7. Lower lip of corolla conspicuously  
concave or boat-shaped :



8. Filaments free; flowers in  
dense spike .....Anisochilus
8. Filaments connate below; flowers  
in distinct whorls .....Coleus
7. Lower lip of corolla flat or nearly so :
9. Calyx deflexed in fruit, upper lobe  
recurved, margins decurrent on the  
tube .....Ocimum
9. Calyx sub-erect or declinate in  
fruit, upper lobe not recurved,  
margins not decurrent .....Basilicum

Salvia Linn.

Salvia plebeia R. Br. Prodr. 501, 1810; D. & G. 209; FBI. 4:

655; C. 2: 577; Mukerjee, Lab. Ind. Empire, 111, 1959 ;  
Sant. 219; Fl. Dang, 77; Fl. Delhi, 288.

An erect, branched, obtusely quadrangular, annual herb.  
Leaves oblong-lanceolate, obtuse, irregularly crenate. Flowers  
bluish-white, small, in panicled, compact, spicate racemes;  
stamens 2; connective produced, slender. Nutlets ovoid, smooth,  
minute. (Fl. Fr. February - May). DNT. 883, 1714, 1722.

Commonly observed in moist localities along the river banks.

Nepeta Linn.

Calyx teeth aristate .....hindostana

Calyx teeth not aristate .....bombaiensis

Nepeta hindostana (Heyne ex Roth) Haines, Bot. Bihar & Orissa 2: 781, 1922; Mukerjee, loc. cit. 133; Fl. Delhi, 290; Fl. Pavagadh, 192.

Glechoma hindostana Heyne ex Roth, Nov. Sp. Pl. 258, 1821.

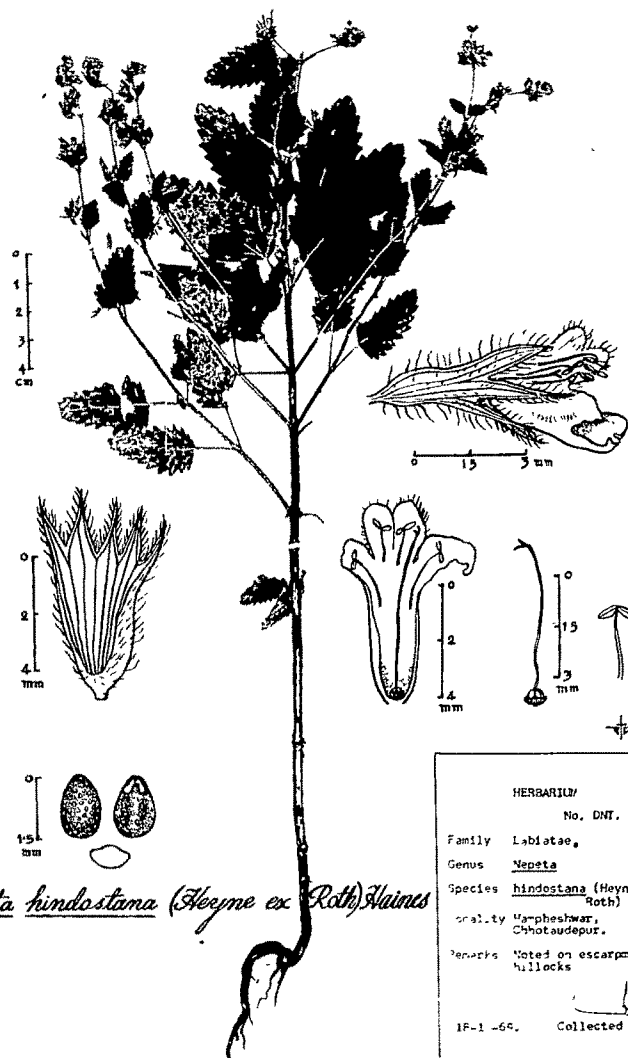
Nepeta ruduralis Buch.-Ham. ex Hook. f. in FBI. 4: 661, 1885; C. 2: 556.

An erect, annual herb. Stem and branches obtusely quadrangular, with soft, minute, white hairs. Leaves rounded, ovate, crenate. Flowers bluish-purple, in axillary, pedunculate cymes; calyx teeth aristate, laxly pubescent. Nutlets oblong, brown. (Fl. Fr. October - January). DNT. 579.

PLATE No. 62

Noted on escarpment and in crevices of rocks at Hampeshwar.

Nepeta bombaiensis Dalz. in D. & G. Bomb. Fl. 209, 1861; FBI. 4: 661; C. 2: 473; Mukerjee, loc. cit. 133; Fl. Pavagadh, 193.



*Nepeta hindostana* (Heyne ex Roth) Haines

HERBARIUM  
No. DNT. 579.  
Family Labiatae,  
Genus *Nepeta*  
Species *hindostana* (Heyne ex Roth) Haines  
Locality Nagpheswar,  
Chotaudepur.  
Remarks Noted on escarpments &  
hillsides  
1F-1-66. Collected by *L. Haines*

An erect, annual herb. Stem and branches villous, obtusely quadrangular. Leaves rounded, ovate, crenate. Flowers bluish-white, in axillary panicled, spicate racemes; calyx teeth not aristate. Nutlets narrowly ellipsoid. (Fl.Fr. August - January). DNT. 1411, 1476, 1854, 1857.

Commonly observed on steep banks of streams at the foot of hillocks.

Anisomeles R. Br.

Flowers purple or bluish-purple .....indica

Flowers white .....heyneana

Anisomeles indica (Linn.) Kuntze, Rev. Gen. 512, 1891;

Mukerjee, loc. cit. 152; Fl. Dang, 76; Fl. Delhi, 289;

Fl. Pavagadh, 190.

Nepeta indica Linn. Sp. Pl. 571, 1753.

Anisomeles ovata R. Br. in Ait. f. Hort. Kew, 3: 364,

1811; Wt. Ic. t. 865; FBI. 4: 672; C. 2: 543.

An erect herb or undershrub with quadrangular branches. Leaves ovate, crenate-dentate, cordate, acute. Flowers purple or bluish-purple, crowded in whorls forming interrupted, spicate inflorescence. Nutlets black, smooth, polished; seeds

smooth, shining. (Fl. Fr. August - February). DNT. 420, 457, 1510, 1835, 1880.

Fairly common; observed along forest paths as an undergrowth.

Anisomeles heyneana Benth. in Wall. Pl. As. Rar. 1: 59, 1830; FBI. 4: 672; C. 2: 543; Mukerjee, loc. cit. 152; Sant. 219; Fl. Pavagadh, 191.

A tall, erect herb. Leaves thin, elliptic-lanceolate, entire or slightly serrate, long-petioled. Flowers white, in pedunculate, few-flowered cymes. Nutlets black. (Fl. Fr. August - January). DNT. 1410.

Observed as an undergrowth of forests.

Leonotis Pers.

Leonotis nepetaefolia (Linn.) R. Br. in Ait. Hort. Kew, 3: 409, 1811; Gr. 153; D. & G. 212; Wt. Ic. t. 867; FBI. 4: 691; C. 2: 555 ('nepetifolia'); Mukerjee, loc.cit. 185; Fl. Dang, 76; Fl. Pavagadh, 192.

Phlomis nepetaefolia Linn. Sp. Pl. 586, 1753.

An erect, stout herb or undershrub. Leaves ovate, acute, coarsely serrate. Flowers orange-scarlet, in axillary, globose,

many-flowered whorls; bracts linear, deflexed, spine-tipped.  
 Nutlets oblong, obovoid. (Fl. Fr. December - January). DNT.  
 1856.

Observed on the slopes of the hillocks.

Leucas R. Br.

Calyx tube bent, mouth oblique :

Calyx mouth much produced below .....urticaefolia

Calyx mouth produced above :

Calyx mouth villous within :

Bracts 2-3 cm. long, imbricate, forming  
 an involucre; calyx teeth short, un-  
 equal, upper longer than the lower ....capitata

Bracts 1 cm. long, neither imbricate  
 nor forming an involucre; calyx teeth  
 equal, long, slender .....nutans

Calyx mouth not villous within .....aspera

Calyx tube straight, mouth never oblique :

Whorls 2-4-flowered; stem slender,  
 procumbent .....biflora

Whorls 5-many-flowered :

Calyx teeth 2.5 mm. long, unequal;

tube straight .....stricta

Calyx tube 1 mm. long, subequal;

tube slightly bent .....zeylanica

Leucas urticaefolia R. Br. Prodr. 504, 1810; Wt. Ic. t. 1451;

FBI. 4: 680; C. 2: 547 (urticifolia); Mukerjee, loc.

cit. 166; Fl. Delhi, 290.

An erect, hairy herb. Leaves ovate, coarsely toothed, acute. Flowers white, in many-flowered, dense, distant, globose whorls; calyx mouth oblique, much-produced below; bracts linear or subulate-lanceolate, ciliate. Nutlets obovoid-oblong, trigonous. (Fl. Fr. September - January). DNT. 542, 1340, 1827, 1837.

Fairly common; observed as a weed in cultivated fields.

Leucas capitata Desf. in Mem. Mus. Par. 11: 8, t. 4, 1824;

Shrinivasan and Agrawal, in BBSI. 5: 86, 1961.

Leucas cephalotes Spreng. Syst. 2: 743, 1825; Gr. 153;

D. & G. 211; Wt. Ic. t. 337; FBI. 4: 689; C. 2: 549;

Mukerjee, loc.cit. 168; Fl. Dang, 76; Fl. Delhi, 289.

An erect, stout, hairy herb. Leaves ovate-lanceolate, crenate-serrate. Flowers white, in large, dense, globose,

terminal whorls; bracts large membranous, large, forming an involucre; calyx mouth villous within. Nutlets brown, smooth. (Fl. Fr. July - February). DNT. 107, 380, 477, 1625.

Fairly common; observed as a weed in cultivated fields.

Leucas nutans Spreng. Syst. 2: 743, 1825; FBI. 4: 688; C. 2: 550; Mukerjee, loc. cit. 169.

A small, annual herb with hairy, grooved stem. Leaves oblong, lanceolate, hairy, gland-dotted. Flowers white, in axillary and terminal, many-flowered whorls. Nutlets narrowly oblong-ellipsoid. (Fl. Fr. August - October). DNT. 1016.

Rare; observed along with grasses near a stream at Banganga.

Leucas aspera (Willd.) Spreng. Syst. 2: 743, 1825; FBI. 4: 690; C. 2: 548; Mukerjee, loc. cit. 166; Fl. Dang, 76; Fl. Delhi, 290; Fl. Pavagadh, 191.

Phlomis aspera Willd. in Link, Enum. Pl. Hort. Berol. 2: 621, 1822.

An erect or diffuse, much-branched, annual herb. Leaves sessile, linear-oblong, obtuse. Flowers white, sessile, in axillary and terminal whorls; bracts linear, hispid; calyx mouth not villous within, oblique. Nutlets oblong. (Fl. Fr.



July - December). DNT. 106, 223, 1814.

A common weed of cultivated and fallow fields.

Leucas biflora R. Br. Prodr. 504, 1810; Wt. Ic. t. 866; FBI.

4: 683; C. 2: 553; Mukerjee, loc. cit. 180; Fl. Dang, 76; Fl. Pavagadh, 192.

A straggling or prostrate herb. Leaves ovate-elliptic, obtuse, coarsely and distantly serrate. Flowers white, usually 2 in the axils; calyx tube straight. Nutlets oblong, trigonous. (Fl. Fr. October - January). DNT. 1532.

Observed in moist places near streams.

Leucas stricta Benth. in Wall. Pl. As. Rar. 1: 61, 1829; FBI.

4: 688; C. 2: 551; Mukerjee, loc. cit. 170; Sant. 219.

An erect, slender, hispidly hairy herb. Leaves sessile, linear or linear-oblong, entire, narrowed at the base. Flowers white, sessile, in terminal, many-flowered whorls. Nutlets smooth, oblong, brown. (Fl. Fr. August - October). DNT. 162, 340, 483, 518, 1152.

Fairly common; observed along roadsides and as a weed in cultivated fields.

Leucas zeylanica R. Br. Prodr. 504, 1810; Wt. Ic. t. 176; FBI.

4: 689; C. 2: 549; Mukerjee, loc. cit. 171; Fl.Dang, 77.

An erect, much-branched herb with long hairs. Stems hispid, grooved, Leaves sub-sessile, linear-lanceolate, serrate. Flowers white, in terminal whorls; bracts linear, spinescent; calyx teeth short, sub-equal. Nutlets obovoid-oblong, truncate, shining. (Fl. Fr. August - December). DNT. 1109, 1446, 1932.

Commonly observed as a weed in cultivated fields.

Lavandula Linn.

Lavandula bipinnata (Roth) O. Kuntze, Rev. Gen. Pl. 521, 1891; Mukerjee, loc. cit. 65.

Bisteropogon bipinnatus Roth, Nov. Sp. 255, 1821.

Lavandula burmanii Benth. Lab. Gen. et Sp. 151, 1833; Wt. Ic. t. 1438; FBI. 4: 631; C. 2: 534.

A slender, erect herb. Leaves sub-sessile, deeply pinnatisect, lobes linear, entire, sub-acute. Flowers blue, in simple spike. Nutlets oblong-ellipsoid, smooth. (Fl. Fr. October - January). DNT. 462, 1485.

Commonly observed at the foot and slopes of hillocks.

Anisochilus Wall.

Anisochilus carnosus Wall. Pl. As. Rar. 2: 18, 1831; FBI.

4: 627; C. 2: 532; Mukerjee, loc. cit. 58; Fl.

Delhi, 288.

An erect, annual herb. Leaves broadly ovate, obtuse, crenate. Flowers pale-purple, in dense, cylindrical spikes; calyx oblique. Nutlets suborbicular, compressed, polished. (Fl. Fr. July - December). DNT. 439, 1018, 1153.

Commonly observed in shallow soils near water.

Coleus Lour.

Coleus amboinicus Lour. Fl. Cochinch. 2: 372, 1790; C.2: 531.

C. aromaticus Benth. in Wall. Pl. As. Rar. 2: 15, 1831;

FBI. 4: 625.

A perennial herb. Stem ascending, simple or branched, quadrangular, clothed with soft hairs. Leaves sessile or shortly petiolate, obovate, fleshy, crenate. Flowers pale-purple, in distant whorls. (Fl. March - May). DNT. 1764.

Cultivated near habitation.

Ocimum Linn.

Calyx large, glabrous within .....sanctum

Calyx small, villous within :

Pedicels shorter than the calyx .....canum

Pedicels as long as or longer than

the calyx .....basilicum var.  
thyrsiflora

Ocimum sanctum Linn. Mant. 1: 85, 1767; FBI. 4: 609; C. 2:

521; Mukerjee, loc. cit. 19; Sant. 216; Fl. Dang, 77;  
Fl. Delhi, 287; Fl. Pavagadh, 189.

An erect, much-branched, annual herb. Leaves elliptic-oblong, acute, entire. Flowers purplish-pink, in dense whorls; bracts nearly as long as broad; lower calyx teeth longer than upper lip. Nutlets broad, ellipsoid, smooth. (Fl. Fr. October - December). DNT. 492.

Cultivated.

Ocimum canum Sims. in Bot. Mag. t. 2452, 1824; FBI. 4: 607;

C. 2: 521; Mukerjee, loc. cit. 17; Sant. 216.

O. americanum Linn. Sp. Pl. 833, 1753 (non Jacq.); Fl.

Dang, 77; Fl. Delhi, 286; Fl. Pavagadh, 189.

A much-branched, annual herb. Leaves elliptic-lanceolate, acute, entire or subcrenate. Flowers white, in whorls, on erect, lax racemes; bracts stalked, elliptic-lanceolate with

ciliate margins. Nutlets ellipsoid, black. (Fl.Fr. July - January). DNT. 74, 350, 417, 1496.

Fairly common; observed as a weed in cultivated fields.

Ocimum basilicum Linn. var. thyrsiflora Benth. Lab. Gen. & Sp. 5, 1833; FBI. 4: 608; C. 2: 523.

A small, much-branched herb with purple, quadrangular stem. Leaves opposite, ovate, acute. Flowers pink or purple, in whorls, closely arranged on the axis. (Fl. Fr. July - December). DNT. 1049.

Cultivated.

Basilicum Moench.

Basilicum polystachyon (Linn.) Moench, Meth. Suppl. 143, 1802; Kuntze, Rev. Gen. Pl. 2: 512, 1891 (B. polystachyum); Bennet, in Ind. For. 95(9): 629, 1969.

Ocimum polystachyon Linn. Mant. 2: 567, 1771.

Moschosma polystachyon (Linn.) Benth. in Wall. As. Rar. 2: 13, 1831; FBI. 4: 612; C. 2: 527; Fl. Dang, 77; Fl. Pavagadh, 190.

An erect, much-branched, annual herb with quadrangular stem. Leaves thin, ovate, acuminate, irregularly crenate-serrate.

Flowers pale-pink, in large axillary or terminal racemes or panicles. Nutlets brown, smooth, broadly ellipsoid, compressed. (Fl. Fr. August - December). DNT. 1363.

Rare; observed as a weed in cultivated fields at Randi.

Bennet (loc. cit.) remarks, " The genus Basilicum Moench. (1802) based on Ocimum polystachyon Linn. is prior to Moschosma Reichb. (1897) ". Hence, the genus Basilicum being older has priority over Moschosma. The nomenclatural change is thus justified.