

CHAPTER 5

RESULTS AND

DISCUSSION

Enumeration of Plants in GNPS

For the sake of convenience, Bentham and Hooker's order (*Genera Plantarum*, 1862-1883) has been followed Cooke (*Flora of the Presidency of Bombay*, 1958).

The keys provided in the present work are largely based on macroscopic characters and they are artificial. An attempt has been to make the keys as dichotomous as possible.

The nomenclature adopted in the present work is the one used in authentic taxonomic literature published in India and abroad and is consistent with the rules of International Code of Botanical Nomenclature (Stafleu, 1972). When the name other than the one appearing in Hooker's *Flora of British India* has been adopted, the basionym, on which the newer name is based, has also been given showing the date of the latter so that the names adopted are in conformity with the Rule of Priority.

The genera within a family and species within a genus are arranged alphabetically as a matter of convenience. The key to the families, each species is provided with a short but diagnostic description, followed by a note on its habitat, relative abundance and flowering and fruiting time. The vernacular names as they have appeared in the works on the flora of different parts of the state.

Artificial Key to the Families

Embryo with 2 cotyledons (rarely one by reduction). Vascular bundles of the stem usually arranged in a single ring; cambium usually present. Leaves usually reticulately veined. Flowers typical 5- to 4-merous.

Class I DICOTYLEDON

Embryo with one cotyledon. Vascular bundles of the stem usually scattered; cambium usually absent. Leaves usually parallel veined. Flowers typically 3-merous.

Class II MONOCOTYLEDON

Class I DICOTYLEDON

Petals free; flowers dichlamydeous.

Subclass I Polypetalae

Calyx of distinct sepals; ovary superior or immersed in the disk:

Torus small or elongated, not expanded

Group I Thalamiflorae

Torus thickened or expanded into a fleshy disk.

Group II Disciflorae

Calyx of united sepals; ovary usually included in calyx tube or inferior

Group III Calyxiflorae

Petals united

Subclass II Gamopetalae

Perianth generally calycine, single or absent.....

Subclass III Monochlamydae

Subclass Polypetalae

Group 1 Thalamiflorae

1. Stamens numerous (15 or more):
 2. Carpel free, usually many but some times reduce to one:
 3. Habit terrestrial:
 4. Leaves notes as above:
 5. Leayes exstipulate, speals and petals valvate; thalamus not elngate; fruit fleshy..... **ANNONACEAE**
 3. Habit aquatic..... **NYMPHAEACEAE**
 2. Carpels two or more, synoarpous; ovary uni-to multilocular:
 6. Flowers actinomorphic; ovary not as above:
 7. Ovary rasied on a gynophore; if sessile, leaves compund **CAPPARACEAE**
 7. Ovary sessile; leaves simple, entire, or lobed:
 8. Plants usually with yellow or milky sap : flowers bright- yellow or red: petals present :
 9. Herbs : leaves not palmately or digitately divided : sepals 2-3; fruit a capsule, dehiscing by apical pores or valves..... **PAPAVERACEAE**
 - Sepals 4-5, deciduous; plants foetid or not; fruits valvular with deshicent capsule..... **CLEOMACEAE**
 8. Plants without sap; petals absent; flowers pale greenish- yeallow..... **FLACOURTIACEAE**
 10. Placentation free central or basal central..... **PORTULACACEAE**
 10. Placentation usually axile sometimes basal :
 11. Stamens monadelphous; anthers 1-2 celled:
 12. Anthers one-celled:
 13. Mostly herbs or shrubs, rarely trees; fruit a dehiscent capsule or of indehiscent cocci; carpels 5- many; pollen rough; leaves mostly simple..... **MALVACEAE**
 12. Anthers 2- celled..... **STERCULIACEAE**
 11. Stamens distinct, arising from a raised or contracted torous; anthers 2-celled..... **TILIACEAE**
 1. Stamens few (non more than 10) :
 14. Carpels free, 3 or 1 ; twining or sarmenotsc, rarely trailing
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-
- shrubs..... **MENISPERMACEAE**
14. Carpels united, herbs, shrubs or trees;
15. Flowers zygomorphic :
16. Sepals 5, two inner enlarged, petaloid; stamens 8, filaments united for their lower half into a split sheath; placentation axile..... **POLYGALACEAE**
15. Flowers actinomorphic :
10. Placentation parietal :
17. Leaves scale-like; seeds plumose or winged ... **TAMARICACEAE**
17. Leaves well developed; seeds not as above:
18. Petals not cruciform; stamens if 6, not tetradynamous; disc never in the form of glands..... **CAPPARACEAE**
18. Petals cruciform; stamens if 6, not tetradynamous; disc never in the form of glands..... **CAPPARACEAE**
10. Placentation free- central;
19. Sepals 2, petals 4-5; leaves fleshy; ovary superior or $\frac{1}{2}$ inferior..... **PORTULACACEAE**
10. Placentation axile or sometimes basal:
20. Leaves alternate; sepals valvate; plants stellately hairy:
21. Stamens monadelphous, antheriferous throughout its length; stamens united at base only, fruit not prickly ... **STERCULIACEAE**
21. Stamens distinct ... **TILIACEAE**

Group II Disciflorae

1. Placentation parietal; fruit a 3-valved, elongated, pod-like capsule ... **MORINGACEAE**
2. Flowers zygomorphic :
3. Flowers spurred; anthers syngenesious; leaves simple, alternate or opposite, at times basal marginal teeth glandular ... **BALSAMINACEAE**
3. Flower not spurred; anthers free; leaves ternately compound, leaflet teeth not glandular ... **SAPINDACEAE**
2. Flowers actinomorphic :
4. Ovary syncarpous but styles 5, free or if 1, with 5 linear, stigmatose branches :
5. Usually woody, twining or sarmentose; fruit winged ... **MALPIGHIACEAE**
6. Leaves compound :
7. Herbs; fruit a capsule ... **OXALIDACEAE**
4. Ovary syncarpous but styles more or less connate or solitary (seldom carpels
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free e.g. *Buchanania* in *Anacardiaceae*):

8. Plants usually climbing or twining :
9. Petals absent; flowers not as above :
10. Inflorescence usually leaf – opposed, often tendrillar; species usually tendril bearing; leaves simple or compound ... **VITACEAE**
11. Fruit indehiscent winged or not seeds exarillate ... **RHAMNACEAE**
11. Fruit a dehiscent capsule, not winged; seeds arillate ... **CELASTRACEAE**
8. Herbs, shrubs or trees; if twining, plants armed :
12. Leaves aromatic, gland-dotted ... **RUTACEAE**
12. Leaves not gland – dotted :
13. Stamens monadelphous ... **MELIACEAE**
14. Plants usually with acrid resinous juice; stem bearing resinous passages ... **ANACARDIACEAE**
15. Leaves simple :
16. Plants usually armed with prickles; flowers in axillary fascicles; ovule one in each loculus ... **RHAMNACEAE**
17. Stamens 4 – 5; calyx not accrescent ... **CELASTRACEAE**
15. Leaves compound :
18. Leaves bifoliolate; plants armed ... **BALANITACEAE**
19. Plants resinous; leaves gland – dotted; ... **BURSERACEAE**
20. Trees; ovule one in each loculus :
21. Flowers regular; styles 2 – 5, connate; ovary lobed; fruit winged, 1-seeded ... **SIMARUBACEAE**
21. Flowers irregular; style 1, simple, sometimes divided above; ovary not lobed; fruit 2 – 3 lobed drupe ... **SAPINDACEAE**
20. Herbs or undershrubs; ovules 2 in each loculus; ovary angled or winged ... **ZYGOPHYLLACEAE**

Group III Calyciflorae

1. Leaves mostly compound, rarely simple;
2. Stipules when present, not adnate to the petiole; carpel 1; fruit legume :
3. Flowers papilionaceous ... **PAPILIONACEAE**
3. Flowers zygomorphic but not papilionaceous ... **CAESALPINIACEAE**
2. Stipules adnate to the petiole; carpels many, free; fruit an achene **ROSACEAE**
1. Leaves simple; fruit a capsule, achene, drupe, berry, nut or schizocarpie :
4. Plants always tendril – bearing :
5. Flowers unisexual; ovary inferior ... **CUCURBITACEAE**
5. Flowers bisexual; ovary superior ... **PASSIFLORACEAE**

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4. Plants ctendrillar :
 6. Habit aquatic :
 6. Habit terrestrial :
 8. Stamens usually indefinite :
 9. Leaves usually much reduced or O; succulent plants with jointed, prickley phylloclades ... **CACTACEAE**
 10. Calyx free from the ovary (i.e. ovary superior) :
 11. Petals oresebt, episepalous and crumpled in bud; margins crisped, erose or fimbriate; leaves not fleshy; ovules on axile placentation; shrubs or trees ... **LYTHRACEAE**
 11. Petals absent; if present not as above fleshy; ovules basal; herbs or undershrubs ... **AIZOACEAE**
 10. Calyx more or less adnate to the ovary (i.e. ovary inferior) :
 12. Leavves alternate, without intramarginal nerves and not glandular punctate
 13. Ovary one-celled ... **ALANGIACEAE**
 14. Locules or the ovary superposed; flowers red or orange coloured; fruit a berry with hard, woody rind ... **PUNICACEAE**
 14. Ovary 4 – loculate; flowers white; fruit a fibrous drupe ... **LECYTHIDACEAD**
 12. Leaes opposite, glandular – punctate, with intra – marginal nerves ... **MYRTACEAE**
 8. Stamens usually definite, not more than 10 :
 15. Ovary inferior or $\frac{1}{2}$ - inferior :
 16. Not halophytic species; leaves alternate, if opposite then exstipulate; fruit and seeds not as above :
 17. Flowers in simple or compound umbels; foliage aromatic; petiole sheathing; fruit or 2 indehiscent, dorsally or laterally compressed mericarps ... **APIACEAE**
 18. Herbs :
 19. Capsule trigonous
 20. Capsule 4 – 5 celled linear – cylindric or obcylindric ... **ONAGRACEAE**
 18. Trees, shrubs or woody climbers ... **COMBRETACEAE**
 15. Ovary superior :
 21. Soft-wooded tree with latex; leaves Palmately fid-to partite, with long, hollow petiole; petals united..... **CARICACEAE**
 21. herbs or undershrubs without latex; leaves not as above; petals free :
 22. Flowers usually yellow; placentation parietal
 22. Flowers never pure yellow; placentation axile or basal :
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23. Petals absent; seeds reniform, variously striate, rugulose, or muriculate
24. Fruit a 3-5-valved capsule or of 2-5, 1-seeded cocci... **MOLLUGINACEAE**
24. Fruit transversely dehiscent; petiole oftendilated at base forming pouch.....
AIZOACEAE
23. petals usually present (rarely minute or absent and then leaves not fleshy);
seeds not reniform, smooth.... **LYTHRACEAE**

Subclass II Gamopetalae

1. Ovary completely inferior or -inferior :
2. Inflorescence an involucre head; calyx absent or of variously modified pappus; anthers united in a ring around the style; ovary 1-celled....
ASTERACEAE
2. Inflorescence various, but not as above; calyx usually present anthers free -----
out in a ring around the style: ovary 2- or more-celled :
3. Leaves opposite; stipules inter-or intra-petiole.... **RUBIACEAE**
1. Ovary superior :
6. Leafless, non-green root or stem parasites :
7. Stem parasites.. **CUSCUTACEAE**
7. Root parasites :
8. Placentation parietal...
8. Placentation axile.... **SCROPHULARIACEAE**
6. Green plants, not parasites or carnivorous :
9. Seeds boat shaped
9. Seeds not boat shaped :
10. Carpels more than 2 :
11. Flowers usually unisexual: stamens inserted on the receptacle...
EBENACEAE
11. Flowers bisexual; stamens inserted on the corolla :
12. Trees, shrubs or woody twiners; style one; ovary 1-celled or 2-8-celled; calyx without stipitate glands:
13. Plants with milky juice; leaves not gland-dotted; corolla 4-8-lobed; stamens as many as corolla lobes and opposite to them staminodes; ovary 2-8-celled...
SAPOTACEAE
12. Herbs or shrubs; styles 5; or if one, then with 5, terminal stigmatose branches;
ovary-one celled; calyx often with stipitate glands.. **PLUMBAGINACEAE**
10. Carpels 2 (rarely 3-4 and then plants aquatic):
14. Plants with milky latex or greenish-yellow sap :
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15. Pollen masses not agglutinated into pollinia; style one; anthers sagittate; stigma hour-glass-shaped or dumbbell-shaped.. **APOCYNACEAE**
15. Pollen masses agglutinated into wax-like masses or pollinia; style usually 2; anthers and stigma not as above :
16. Filaments untied; anthers with horny wings.... **ASCLEPIADACEAE**
16. Filaments free; anthers without horny wings... **PERIPLOCACEAE**
14. Plants without milky-latex or greenish-yellow sap :
17. Flowers aetinomorphic :
18. Inflorescence usually second or one-sided cymes :
19. Fruit a capsule; ovules indefinite in each loculus..
20. Herbs or undershrubs; style entire or shortly 2-lobed... **BORAGINACEAE**
20. Trees or shrubs; style once forked or style 2... **EHRETIACEAE**
18. Inflorescence not as above :
21. Leaves usually alternate :
22. .Plants erect or diffuse, but not twining; ovary 2-celled; ovules many in each loculus on swollen placentas.. **SOLANACEAE**
22. Chiefly twining at times trailing, diffuse or erect; ovary 2-celled; ovules 2 in each loculus or 4-celled with one ovule in each loculus....
- CONVOLVULACEAE**
21. Leaves opposite or at least lower ones opposite :
23. Stamens 2... **OLEACEAE**
23. Stamens 4-5 :
24. Trees or shrubs; very rarely herbs and then stipules small or reduced to a transverse line :
26. Plants without such tementum; intraxylary phloem present in wood...
- LOGANIACEAE**
23. Herbs, seldom undershrubs :
27. Ovary 1-celled :
28. Placentation free central; stamens opposite the petals..
28. Placentation parietal; stamens lternate with petals.... **GENTIANACEAE**
27. Ovary 2-celled; placentation axile
17. Flowers zygomorphic :
29. Leaves usually compound; if simple, seeds winged; fruit elongated....
- BIGNONIACEAE**
29. Leaves usually simple; fruit not elongated seeds not winged :
30. Flowers with conspicuous bracts and bracteoies; bracts seldom absent; stem often with swollen joints... **ACANTHACEAE**
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30. Flowers without bracts and bracteoles or bracts and bracteoles inconspicuous;
stem not nodes :

31. Flowers with extra-floral glands at base of pedicels :

32. Placentation axile; fruit a capsule or indehiscent and spinous...

PEDALIACEAE

32. Placentation parietal; fruit with hooked prongs....

MARTYNIACEAE

31. Flowers without extra-floral glands at base of pedicels :

33. Ovules 1 or 2 in each cell :

34. Inflorescence a verticillaster; style gynobasic; plants aromatic...

LAMIACEAE

34. Inflorescence not as above; style terminal plants not aromatic :

35. Plants maritime with pneumatophores; branches prominently nodes or
articulate; placentation free germination viviparous

35. Plants not as above; branches not nodose; placentation axile; seed germination
after separation from parent plant...

VERBENACEAE

33. Ovules many in each loculus :

36. Placentation axile....

SCROPHULARIACEAE

1. Placentation parietal

Subclass III Monochlamydae

1. Ovary superior :

2. Flowers bisexual :

3. Perianth absent

3. Perianth present :

2. Plants parasitic, leafless; anthers with valvular dehiscence

2. Plants not parasitic; anther not as above :

5. Leaves with ochreate stipules.....

POLYGONACEAE

5. Leaves exstipulate :

6. Trees; leaves bipinnatisect....

PROTEACEAE

6. Herbs, undershrubs, woody stragglers or twining; leaves entire or slightly lobed :

7. Perianth petaloid :

8. Herbs or shrubs or straggling but not twining; flowers in heads, cymes, or
umbels; stamens circinately involute in bud; perianth constricted at base
forming a perigone, enclosing ovary....

NYCTAGINACEAE

8. Herbaceous twiners; flowers in spikes, racemes or panicles; perianth and
stamens not as above

7. Perianth not petaloid; if petaloid, bracts and bracteoles scarious :

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9. Bracts and bractoles scarious.... **AMARANTHACEAE**
2. Flowers unisexual or polygamous :
10. Trees or Shrubs :
11. Ovary 3-celled.... **EUPHORBIACEAE**
11. Ovary 1-celled :
12. Calyx absent; flowers in erect or pendulous, catkins or spikes :
13. Leaves much reduced, scale-like; stamen 1; ovary 1-celled; ovules 2, basal; fruit 1-seeded, samaroid nuts crowded into woody cone; seeds not hairy....
- CASUARINACEAE**
13. Leaves well developed; fruit not as above; stamens 2 or more; ovary 1 celled with 2-4 parietal or basal placentas; fruit a capsule; seeds hairy
12. Calyx present, 4-8-lobed; inflorescence various, cymose, spike or hypanthodium :
14. Plants with milky-juice; anthers infixed in bud; leaves not oblique at base; fruit commonly multiple... **MORACEAE**
14. Plants with watery-sap anthers erect in bud; leaves oblique at base; fruit a smara nut or drupe..... **ULMACEAE**
10. Herbs :
15. Aquatics; leaves verticillate, dichotomously cleft into filiform, minutely toothed lobes; stamens 20-30 with 2-toothed or truncate connective
16. Ovary 3-celled **EUPHORBIACEAE**
16. Ovary 1-celled :
17. Leaves extipulate :
18. Bracts and bracteoles when present not scarious; fruit an utricule.... **AMARANTHACEAE**
19. Bracts and bracteles when present not scarious; fruit a berry
1. Ovary inferior :
20. parasites, shrubs or trees; flowers actinomorphic; fruit a drupe or berry :
21. Root parasites; flowers unisexual; disc epigynous or perigynous... **SANTALACEAE**
21. Stem parasites; twiggy shrubs; flowers bisexual or unisexual; disc absent... **LORANTHACEAE**

Class II Monocotyledoneae

1. Leaves fan-shaped or pinnate, usually very long or very broad, forming a terminal crown, fibrous, long petiolate... **ARECACEAE**
1. Leaves not as above :
2. Perianth none, at least in male flowers (if the flowers unisexual) or rudimentary
-

-
- or of scales or bristles not petaloid :
3. Perianth 0; flowers subtended by dry, chaffy, usually imbricating bracts (glumes); inflorescence various, of spikelets :
 4. Stem obtusely to distinctly trigonous, mostly solid leaves not ligulate; leaf sheaths not split; fruit a compressed or trigonous nut.... **CYPERACEAE**
 4. Stem mostly hollow, cylindrical or flattened; leaves ligulate; leaf sheaths split; fruit a caryopsis..... **POACEAE**
 2. Perianth represented by scales or bristles; if perianth absent, inflorescence not made up of spikelets; flowers not subtended by dry, chaffy bracts (glume or scales)
 5. Plants not submerged or floating:
 6. Plant monoecious; male and female Flowers on the same axis, male above, females below in spikes; leaves not spinulose:
 7. Plants of wetlands; inflorescence subtended by spatheaceous bract; plants tuberous... **ARACEAE**
 7. Plants not of wet lands; inflorescence not subtended by spatheaceous bracts; plants rhizomatous... **TYPHACEAE**
 6. Plant dioecious; leaves spinulose on margins and keels..... **PANDANACEAE**
 5. Plants submerged or floating:
 8. Plants floating:
 8. Stoloniferous plants; leaves radical, obovate cuneate..... **ARACEAE**
 9. Plants terrestrial:
 10. Plants climbing or twining:
 11. Flowers unigexual, umbellate; anthers one-celled; leaves 3-5 nerved, with reticulate venation; plants often with tendril like petioles and prickly stems and branches.....
 12. Flowers bisexual in racemes; anthers 2-celled; leaves parallel veined or sometimes branches reduced to cladodes; plants not as above..... **LILIACEAE**
 10. Plants not as above:
 12. Flowers in terminal, solitary compact head; level's radical..... **ERIOCAULACEAE**
 12. Flowers and leaves not as above:
 13. Plants not grass-like; perianth petaloid:
 14. Plants usually very xerophytic; leaves mostly fibrous and thick in a dense tuft at the base of apex of the stem; flowers mostly in large panicles.....
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AGAVACEAE

- 14. Plants not as above:
- 15. Outer segment of perianth calyx-like and different from the inner corolla segment: flowers actinomorphic or zygomorphic; stamens 6 or 3.....

COMMELINACEAE

- 15. Outer and inner segments of perianth essentially alike, petaloid

LILIACEAE

- 12. Ovary inferior:
- 16. Plants usually very xerophytic; leaves mostly fibrous and thick or fleshy, in dense tuft at the base or apex of stem; flowers mostly in large panicles.....

AGAVACEAE

- 16. Plants and inflorescence not as above:
- 17. Flowers regular (rarely irregular) and then stamen 3 or more; no petaloid staminodia:

- 18. Submerged herbs.....

HYDROCHARITACEAE

- 18. Terrestrials:

- 19. Plants twining; flowers unisexual; capsule winged or not, but seeds winged; leaves simple or compound, but reticulately veined.....

DIOSCOREACEAE

- 19. Plants not twining; flowers bisexual; fruit and seeds not winged; leaves parallel veined: if reticulate leaves much lobed:

- 20. Stem false, composed of convolute leaf sheaths.....

MUSACEAE

- 20. Stem never as above:

- 21. Leaves entire parallel veined; flowers white, pink, rose-coloured or yellow, umbellate or racemose; placentation axile:

- 22. Inflorescence racemose, rarely solitary; flowers invariably bright- to golden yellow.....

HYPOXIDACEAE

- 22. Inflorescence umbellate; flowers never yellow.....

AMARYLLIDACEAE

- 17. Flowers strongly zygomorphic; fertile stamens 1-2, at times only $\frac{1}{2}$ anther fertile, the other becoming petaloid staminodia and more conspicuous than the perianth:

- 23. Corolla spurred; ovary spirally twisted; gynostemium typical; pollen often agglutinate into pollinia; epiphytic or terrestrial plants.....

ORCHIDACEAE

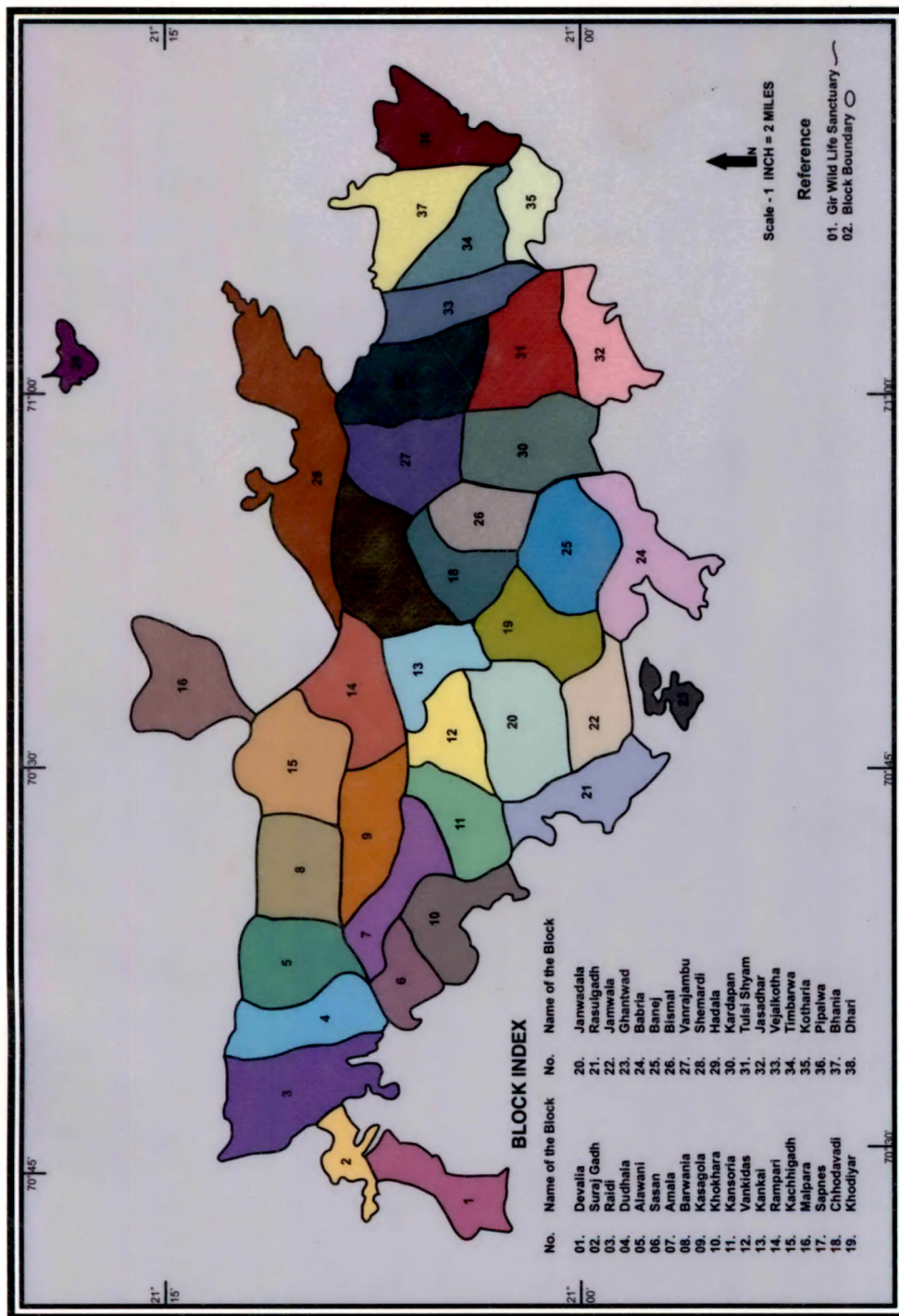
- 23. Corolla not spurred; ovary not twisted; gynostemium absent; pollinia absent; plants terrestrial:

- 24. $\frac{1}{2}$ stamen fertile.....

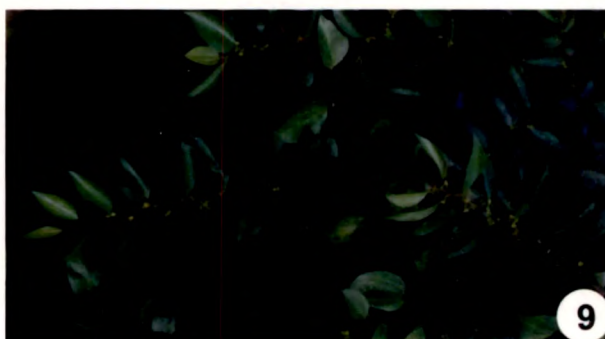
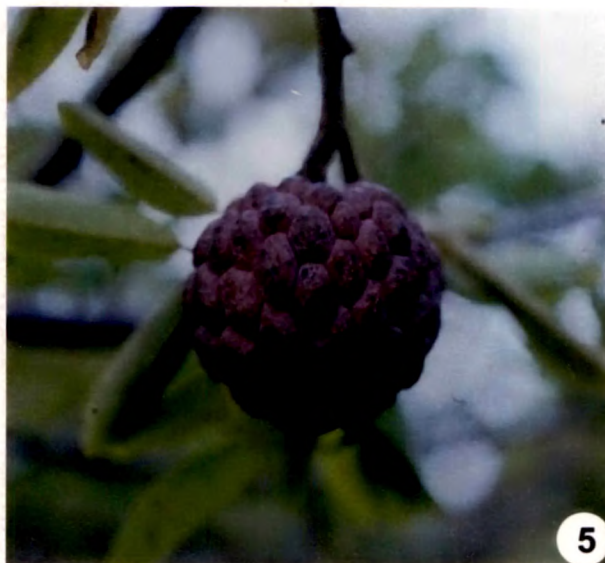
CANNACEAE

- 24. 1 stamen fertile.....

ZIZIBERACEAE



ZONE WISE MAP OF GIR NATIONAL PARK AND SANCTUARY



4) *Annona reticulata* L. 5) *Annona squamosa* L. 6) *Nymphaea nouchali* Burm. 7) *Argemone mexicana* L. 8) *Brassica nigra* (L.) Koch 9) *Capparis sepiaria* L.

Enumeration of Plants

DICOTYLEDONS

ANNONACEAE

About 120 genera and 2100 species mainly in tropics of the Old World; 5 genera and 8 species in GNPS.

ANNONA Linn.

A genus with about 120 speices in warm regions, 2 in GNPS.

***Annona reticulata* L.** Sp. Pl. 537. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 78. 1872; Cooke, Fl. Pres. Bombay 1: 15. 1958 (Repr). Shah, Fl. Guj. 1:50; 1978, Mitra in Sharma et al. Fl. India 1: 207. 1993. Singh, et al Fl. Maha. Dicot. 1: 163. 2000.

Habit: Trees. Leaves oblong-lanceolate, minutely pellucid-punctate beneath, apex acute. Flowers greenish-yellow, solitary, leaf opposed. Fruits syncarpous, yellowish-red. Seeds smooth, black.

FLS and FRTS: July - November.

Herbarium No and date of Collection: 401, 09/07/00. **Photograph:** 4

Local Name: Ramfal.

Distribution and Status in the Study Area: It is found in zone no 1 and 6.

Ecological Data: Frequency- 0.91, Abundance-0.19, Density-0.36.

Distribution in Gujarat: Planted (Shah, 1978).

***Annona squamosa* L.** Sp. Pl. 537. 1753; Hook. f. & Thoms. In Hook f. Fl. Brit. India1: 78. 1872; Cooke, Fl. Pres. Bombay 1: 15, 1958 (Repr.). Shah, Fl. Guj. 1:50; 1978, Mitra in Sharma et al. Fl. India 1:207. 1993. Singh et al Fl. Maha. Dicot. 1: 165. 2000.

Habit: Trees. Leaves oblong – lanceolate, glaucous beneath, pellucid – punctuate. Flowers green, solitary, leaf opposed. Fruits yellowish – green. Seeds brownish – black, polished, oblong.

FLS and FRTS: March – August.

Herbarium No and date of Collection: 402, 09/07/00. **Photograph:** 5

Sanskrit Name: Ganda-gatra, Sitaphala.

Local Name: Sitafal.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 13, 22, 31, 32, and 37.

Ecological Data: Frequency-2.63, Abundance-0.18, Density-0.08.

Distribution in Gujarat: Cultivated or naturalized, through out (except Kachchh)

(Shah, 1978).

MILIUSA Leschn. ex A. DC.

About 40 sepecies in Indomalayan region and 1 in GNPS.

Miliusa tomentosa (Roxb.) Sinclair in Gardn. Bull. Singapore 14:378. 1965; Sant. in Bull. Bot. Surv. India 3: 20. (1961) 1962; Shah, Fl. Guj. 1:51; 1978, Mitra in Sharma et al. fl. India 1: 221. 1993. *Uvaria tomentosa* Roxb. Pl. Cor. 1:31, t. 35. 1795. *Saccopetalum tomentosum* Hook f. & Thoms. Fl. Ind. 152. 1855 & in Hook f. Fl. Brit. India 1: 88. 1872; Cooke, Fl. Pres. Bombay 1: 17. 1958 (Repr.) Singh, et al Fl. Maha. Dicot. 1: 169. 2000.

Habit: A deciduous tree. young shoots densely tomentose. Leaves elliptic – ovate or elliptic – lanceolate, apex acuate, base subacute. Flowers axillary, solitary or fascicled, all parts tomentose.

FLS and FRTS: February - April.

Herbarium No and date of Collection: 403, 13/04/00.

Local Name: Umbadi.

Distribution and Status in the Study Area: It is found in zone no 6, 7, 8, 10, 13, 17, 18, 20, 25, and 29.

Ecological Data: Frequency-4.90, Abundance-0.23, Density-0.10.

Distribution in Gujarat: Throughout in deciduous forests except Kachchh (Shah, 1978).

Notes: Although Baillon (Hist. des. Plantes 244. 1871) has reduced *Saccopetalum* to *Miliusa*, most of the floras maintained these two genera as distinct. The species with several ovules and saccate petals were described and assigned to *Saccopetalum* Bennet. Sinclair (op. cit.) after critically examining the species belonging to both these genera found that there seems to be no relation between the number of ovules and saccate or non-saccate character and hence did not find any *Saccopetalum* distinct from *Miliusa*.

POLYALTHIA Blume.

About 120 species in palaeotropical regions and 1 in GNPS.

Polyalthia longifolia (Sonn.) Thw. Enum. Pl. Zeyl. 398. 1864; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 62. 1872; Cooke, Fl. Pres. Bombay 1: 13. 1958 (Repr.); Shah, Fl. Guj. 1:52; 1978, Mitra in Sharma et al. Fl. India 1: 274. 1993. *Uvaria longifolia* Sonn. Voy. Ind. 2: 233, t. 131. 1782. Singh, et al Fl. Maha. Dicot. 1: 175. 2000.

Habit: Trees with straight trunk and grayish – brown bark. Leaves oblong-lanceolate to narrowly lanceolate, gradually long-acuminate at apex, with undulate margins. Flowers greenish-yellow, in clusters from axil of fallen leaves.

FLS and FRTS: FLS. March - May FRTS. July - September.

Herbarium No and date of Collection: 404, 14/04/00.

Local Name: Asopalav.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 6, 13, 18, 22, 31, 32, 35, and 37.

Ecological Data: Frequency-4.99, Abundance-0.23, Density-0.11.

Distribution in Gujarat: Planted along roads and in gardens (Shah, 1978).

MENISPERMACEAE

About 65 genera and 350 species in warm regions of the world; 4 genera and 5 species in GNPS.

CISSAMPELOS L.

About 30 speices, pantropical; 1 in GNPS.

Cissampelos pareira L. (Buch. – Ham. Ex DC.) forman in Kew Bull. 22: 356. 1968; Gang. In sharma et al. Fl. India 1: 317. 1993. *C. Hirsuta* Buch. – Ham. ex DC. Syst. Nat. 1: 535. 1817. *C. Pareira* L. sp. Pl. 1031. p.p.; Hook. f & Thoms. In Hook. f. Fl. Brit. India 1: 103. 1872; Cooke, fl. Pres. Bombay 1: 24. 1958 (Repr.) Shah, Fl. Guj. 1:53; 1978, Singh, et al Fl. Maha. Dicot. 1: 178. 2000.

Habit: Climbing undershrubs, softly tomentose. Leaves ovate to orbicular, glabrous or sparsely pubescent above, pale and pubescent on nerves blow, apex rounded, base truncate or subcordate. Male flowers in corymbose female flowers in racemes.

FLS and FRTS: FLS. July - August FRTS. August - November.

Herbarium No and date of Collection: 405, 11/11/99.

Sanskrit Name: Patha, Ambastha.

Local Name: Vanivel.

Distribution and Status in the Study Area: It is found in zone no1 to 8, 10, 13, 14, 16, 18, 20, 21, 22, 25 to 29, 31, 33 to 37.

Ecological Data: Frequency-15.97, Abundance-4.34, Density-0.65.

Distribution in Gujarat: Throughout on hedges and on low trees or shrubs in forests, native of Central America (Shah, 1978).

COCCULUS A. DC.

About 11 speices in tropical and sub-tropical regions 2 in GNPS.

Cocculus hirsutus (L.) Theob. In Mason, Burma ed. Theob. 2: 657. 1883; Mabberley in Taxon 34: 155. 1985; Forman in Kew Bull. 43: 400. 1988; Gang. In Sharma et al. Fl. India 1: 318. 1993. *Menispermum hirsutum* L. Sp. Pl. 341. 1753. *Cocculus villosus* (Lam.) DC. Syst. Nat. 1: 525. 1817; Hook, f. & Thoms. in Hook f. Fl. Brit. India 1: 101. 1872; Cooke. Fl. Pres. Bombay 1: 22. 1958 (Repr.). Shah, Fl. Guj. 1:54; 1978. Singh, et al Fl. Maha. Dicot. 1: 179. 2000.

Habit: Climbing undershrubs; stems and branches hirsute. Leaves ovate or oblong – ovate, softly pubescent or villous on both surfaces, apex obtuse and mucronate, base truncate or subcordate.

FLS and FRTS: **November - February.**

Herbarium No and date of Collection: 406, 23/12/99.

Sanskrit Name: **Garudi.**

Local Name: **Vevadi.**

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-26.91, Abundance-7.06, Density-4.50.

Distribution in Gujarat: Throughout in hedges also as a weed in cultivated fields (Shah, 1978).

Notes: So far this combination had been attributed to Diels (in Engl. Pflanzenr. 46: 236. 1910). Mabberley (op. cit.) has unearthed William Theobald's combination which has been made in his edition of Mason's The Natural products of Burmah (1883).

Cocculus pendulus (J.R. & G. Forst.). Diels in Engl. Pflanzenr. 4, 94: 237, f. 78. 1910; Gang in Sharma et al. Fl. India 1: 320. 1993. *Epibaterium pendulum* J.R. & G. Forst. Char. Gen. 108, t. 54. 1776. *Cocculus loeba* (Del.) DC. Syst. Nat. 1 :529. 1817; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 102. 1872; Cooke, Fl. Pres. Bombay 1:23. 1958 (Repr.). Shah, Fl. Guj. 1:54; 1978, Singh, et al Fl. Maha. Dicot. 1: 179. 2000.

Habit: Climbing undershrubs, branches glaucous. Leaves variable, elliptic, linear-elliptic or ovate-oblong, obtuse-mucronate, base rounded or cuneate. Male flowers across, on tubercles; female flowers solitary.

FLS and FRTS: **November - February.**

Herbarium No and date of Collection: 407, 24/12/99.

Local Name: **Valur.**

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-19.91, Abundance-2.99, Density-1.21.

Distribution in Gujarat: Kutch, Saurashtra and Dangs (Shah, 1978).

CYCLEA Arn. ex Wight.

About 30 species, 1 in GNPS.

Cyclea peltata (Lam.). Hook. f. & Thoms. Fl. Ind. 201. 1855 & in Hook. f. Fl. Brit. India 1: 104. 1872 p.p; Cooke, Fl. Pres. Bombay 1: 25. 1958 (Repr.). Sant. & Janardh. in Bull. Bot. Sury. India 10: 368. (1968) 1969; Shah, Fl. Guj. 1:54; 1978, Gang. in Sharma et al. Fl. India 1: 325. 1993. *Menispermum peltatum* Lam. Encycl. 4: 96. 1797. Singh, et al Fl. Maha. Dicot. 1: 180. 2000.

Habit: Herbaceous twiners; young parts pubescent. Leaves oblong-elliptic, apex acuminate or shortly mucronate, base subcordate or hastate, glabrous and shining above, pubescent beneath. Flowers in axillary panicles.

FLS and FRTS- September - February.

Herbarium No and date of Collection: 408, 29/12/99.

Local Nam: Karipat.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 16, 20, 24, 26, 30 to 36.

Ecological Data: Frequency-5.99, Abundance-0.57, Density-0.52.

Distribution in Gujarat: Saurashtra (Barda hills); rare (Shah, 1978).

TINOSPORA Miers.

About 40 species in tropical regions of Africa, South East Asia, Indomalaya and Australia; 1 in GNPS.

Tinospora cordifolia (Willd.) Miers ex Hook. and Thoms. Fl. Ind. 201. 1855; Hook. f. Fl. Brit. India 1:97, 1872; Cooke, Fl. Pres. Bombay 1: 20, 1958 (Repr.). Shah, Fl. Guj. 1: 56, 1978; Singh, et al., Fl. Maha. Dicot. 1: 183. 2000. JIT 8. 1910 and 1:1926; Diels 139; Chopra et al., 244; Dastur 164; *Menispermum cordifolium* Willd. Sp. Pl. 4:826. 1806. Singh, et al Fl. Maha. Dicot. 1: 183. 2000.

Habit: Extensive climbers; bark green, corky. Leaves as broad as long. Sometimes reniform. Flowers greenish – yellow, females solitary or in racemes.

FLS and FRTS: FLS. March - April FRTS. April - June.

Herbarium No and date of Collection: 409, 19/03/00.

Sanskrit Name: Amrita, Amritvel, Guduchi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 10, 12 to 16, 18, 20, 21, 22, 25, 27, 29 to 36.

Ecological Data: Frequency-10.10, Abundance-1.04, Density-1.48.

Distribution in Gujarat: Throughout Gujarat (Shah, 1978).

NYMPHAEACEAE

About 3 genera and 75 species, cosmopolitan, 2, genera and 4 species in GNPS.

NYMPHAEA L.

About 50 speices in tropical and temperate regions, 1 in GNPS.

Nymphaea nouchali Burm. f. Fl. Ind. 120. 1768; Mitra in Sharma et al. Fl. India 1: 430. 1993. *N. stellata* Willd. Sp.Pl. 2: 1153. 1799; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 114. 1872; Cooke, Fl. Pres. Bombay 1: 27. 1958 (Repr.). Shah, Fl. Guj. 1:57; 1978, Singh, et al Fl. Maha. Dicot. 1: 185. 2000.

Habit: Aquatic herbs; root stocks short, ovoid, acute. Leaves orbicular or elliptic, peltate, green, above, purplish below; petioles slender. Flowers white or red, across, solitary. Nutlets globular. Seeds longitudinally striate.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 410, 02/11/01. **Photograph:** 6

Local Name: Poyana.

Distribution and Status in the Study Area: It is found in zone no 6, 12, 13, 18, 19, 20, 25, 26 and 34.

Ecological Data: Frequency-4.19, Abundance-0.35, Density-0.59.

Distribution in Gujarat: Throughout, abundant in ponds (Shah, 1978).

Notes: Maheshwari (1980) has discussed about the synonymies of *N.nouchali* and *N. pubescens* along with their notable taxonomic features. Seeds are said to be eaten in times of scarcity.

PAPAVERACEAE

About 27 genera (including fumaria) and 200 species mostly in temperate and subtropical regions of northern hemisphere, 1 genera and 1 species in GNPS.

ARGEMONE Linn.

About 22 species, mostly Mexican, 1 in GNPS.

Argemone mexicana L. Sp. Pl. 508. 1753; Hook. f. & Thoms. in Hook f. Fl. Brit. India1:117, 1872; Cooke, Fl. Pres. Bombay 1: 29, 1958 (Repr.). Shah, Fl. Guj. 1:58; 1978, Debnath & Nayar in Sharma et al. Fl. Ind. 2: 2, f. 1. 1993. Singh, et al Fl. Maha. Dicot. 1:187. 2000.

Habit: Annual, prickly herbs. Leaves radical and cauline, bluish – green, variegated white, spiny along margins and on veins, sessile. Flowers bright yellow solitary, terminal. Seeds numerous, black, globose.

FLS and FRTS: November - June.

Herbarium No and date of Collection: 411, 24/03/00. **Photograph:** 7

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-12.57, Abundance-2.23, Density-1.43.

Distribution in Gujarat: Throughout (Shah, 1978).

BRASSICACEAE

About 375 genera and 3200 speices, cosmopolitan, chiefly in North temperate and Mediterranean region, 2 genera and 4 species in GNPS.

BRASSICA L.

A genus with very many forms in cultivation mainly distributed in Eurpoe and Asia, 3 speices in GNPS.

Brassica juncea (L.) Czern & coss. In Consp. Fl. Chark. 8. 1859; Hook f & T. And. In Hook, f. Fl. Brit. India 1: 157. 1872; Cooke, Fl. Pres. Bombay 1:37. 1958 (Repr.). Shah, Fl. Guj. 1:61; 1978, Hajra et al. in Sharma et al. Fl. India 2: 134. 1993. *Sinapis Juncea* L. sp. Pl. 668. 1753. Singh, et al Fl. Maha. Dicot. 1: 192. 2000.

Habit: Annual erect herbs. Basal leaves oblong – lanceolate, lyrate – pinnatifid, margins toothed; middle leaves oblong – ovate; upper ones narrowly – lanceolate with toothed margins. Flowers bright yellow, seeds globose.

FLS and FRTS: October - January.

Herbarium No and date of Collection: 412, 19/01/00.

Sanskrit Name: Asuri, Rajika.

Local Name: Rai.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 10, 11, 16, 21, 24, 28, 29, 31, 32, 33, 35, 36 and 37.

Ecological Data: Frequency-4.12, Abundance-0.43, Density-0.70.

Distribution in Gujarat: Under cultivation throughout (Shah, 1978).

Brassica nigra (L) Koch in Roehl. Beutschl. Fl. Ed. 3, 4: 713. 1833; Hock. f. & T. And. in Hook. f. Fl. Brit. India 1: 156. 1872; Shah, Fl. Guj. 1:62; 1978, Hajra et al. in Sharma et al. Fl. India 2: 136. 1993. *Sinapis nigra* L. Sp. Pl. 668. 1753. Singh, et al Fl. Maha. Dicot. 1: 192. 2000.

Habit: Annual erect herbs. Lower leaves lyrate, deeply pinnatifid to pinnatisect; upper narrowly elliptic or lanceolate, margins entire, sessile or subsessile, smaller. Flowers bright yellow, ebracteate in branched racemes. Fruits oblong, beaked, torulose.

FLS and FRTS: September - December.

Herbarium No and date of Collection: 413, 24/12/99. **Photograph:** 8

Local Name: Kalirai.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 10, 11, 16,

21, 24, 28, 29 to 31, 33, 35 to 37.

Ecological Data: Frequency-2.86, Abundance-0.29, Density-0.42.

Distribution in Gujarat: Throughout, a weed in waste places; not common (Shah, 1978).

***Brassica oleracea* var. *capitata* L.** S p. pl. 667. 1753: Shah, Fl. Guj. 1:62; 1978, Hajra et al. in Sharma et al. Fl. India 2; 137. 1993, Singh, et al Fl. Maha. Dicot. 1: 203. 2000.

Habit: Stems condensed until flowering. Leaves prominently nerved, densely packed into a subglobose head. Flowers across, yellow.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 414, 13/11/99.

Local Name: Cobbij.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 10, 11, 24, 28, 29, 31, 32, 35 to 37.

Ecological Data: Frequency-1.89, Abundance-0.12, Density-0.22.

Distribution in Gujarat: Cultivated at some places for the tuberous stem used as a vegetable (Shah, 1978).

RAPHANUS L.

About 8 species mostly in Mediterranean region, 1 in GNPS.

***Raphanus sativus* L.** Sp. Pl. 669. 1753; Hook. f. & T. And. In Hook f. Fl. Brit. India 1:166, 1872; Cooke, Fl. Pres. Bombay 1: 137, 1958 (Repr.). Shah, Fl. Guj. 1:65; 1978, Hajra et al. in Sharma et al. Fl. India 2: 145. 1993. Singh, et al Fl. Maha. Dicot. 1: 204. 2000.

Habit: Annual or biennial herbs with thick white taproot. Leaves : lower ones lyrate, pinnatifid, long petioled, margins crenate; upper leaves oblong or lanceolate, much smaller, margins entire, dentate or lobed, sessile or subsessile. Flowers in many – flowered racemes.

FLS and FRTS: November – February.

Herbarium No and date of Collection: 415, 28/12/99.

Sanskrit Name: Mulak.

Local Name: Mulo.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 10, 11, 24, 28, 29, 31, 32, 35 to 37.

Ecological Data: Frequency-4.57, Abundance-0.71, Density-0.18.

Distribution in Gujarat: Throughout cultivated. Noted as an escape at Dangs and

Rajpipla (Shah, 1978).

CAPPARACEAE

About 45 genera and 600 speices, mostly in tropical and subtropical regions, 4 genera and 6 speices in GNPS.

CADABA Forssk.

About 13 species, 1 in GNPS.

Cadaba fruticosa (L.) Druce in Rep. Bot. Exch. Cl. Soc. Brit, Isles 3:415, 1914; Sant. & Wagh in Bull. Bot. Surv. Idnia 5:105, 1964; Raghavan in Sharma et al. Fl. India 2: 250, 1993. *Cleome fruticosa* L. Sp. Pl. 671, 1753. *Cadaba indica* Lam. Encyucl. 1: 544, 1785; Hook. f. & Thom. In Hook. f. Fl. Britt. India 1: 172, 1872; Cooke, Fl. Pres. Bombay 1: 45, 1958. (Repr.). Shah, Fl. Guj. 1:67; 1978, *C. farinose* Forssk. Fl. Aeg.-Arab. 68, 1775; Hook. f. & Thoms in Hook. f. op. cit. 173, Singh, et al Fl. Maha. Dicot. 1: 206. 2000.

Habit: Unarmed scandent shrubs. Leaves elliptic-oblong, apex obtuse, mucronate, base rounded, margins entire. Flowers dirty-white in one sided racemes with few flowers, terminal; petals spathulate. Fruits cylindric, dehiscent. Seeds many.

FLS and FRTS : December – April.

Herbarium No and date of Collection: 416, 24/12/99.

Local Name: Tellyo Hemkand.

Distribution and Status in the Study Area: It is found in zone no 1 to 33 and 35.

Ecological Data: Frequency-7.46, Abundance-0.54, Density-0.25.

Distribution in Gujarat: Throughout in plains in hedges, seldom in the forest undergrowth; not frequent (Shah, 1978).

CAPPARIS L.

A genus with about 250 speices in the tropics and subtropics, 3 speices in GNPS.

Capparis decidua (Forssk.) Edgew., in J Linn. Soc. 6: 184. 1862; Jacobs in Blumea 12: 424. 1965; Raghavan in Sharma et al. Fl. India 2: 265. 1993. *Sodada deciduas* Forssk. Fl. Aeg. – Arab. 81. 1775. *Capparis aphylla* Roth. Nov. Pl. Sp. 238. 1821; Hook f. & Thoms. In Hook f. Fl. Brit. India 1: 174. 1872. Cooke, Fl. Pres. Bombay 1: 49. 1958 (Repr.). Shah, Fl. Guj. 1:68; 1978, Singh, et al Fl. Maha. Dicot. 1: 209. 2000.

Habit: Armed scandent, shrubs. Leaves on young branches only, linear – oblong, acute – spine tipped, stipular thorns, sharp, straight, orange – yellow. Flowers in corymbs, on older shoots. Fruits ovoid, beaked, many – seeded.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 417, 19/01/00.

Sanskrit Name: Karira.

Local Name: Kerdo.

Distribution and Status in the Study Area: It is found in all zone

Ecological Data: Frequency-18.91, Abundance-0.81, Density-0.58.

Distribution in Gujarat: Commonly found in semi-arid and arid parts of Saurashtra, Kachchh and Central Gujarat (Shah, 1978).

Capparis grandis L. f. Suppl. 263. 1781; Hook. f. & Thoms. In Hook f. Fl. Brit. India 1: 176. 1872; Cooke, Fl. Pres. Bombay 1: 50, 1958 (Repr.); Shah, Fl. Guj. 1:69; 1978, Jacobs in Blumea 12: 456. 1965; Raghavan in Sharma et al. Fl. India 2: 274. 1993. Singh, et al Fl. Maha. Dicot. 1: 210. 2000.

Habit: Trees young branches olive – green, tomentose. Leaves elliptic – obovate, young pubescent, older glabrous or subglabrous, apex obtuse. Flowers white; outer sepals boat shaped, covered with olive – green pubescence outside.

Inner ciliate. Fruits subglobose.

FLS and FRTS: April - January.

Herbarium No and date of Collection: 418, 20/04/01.

Local Name: Motokanthar.

Distribution and Status in the Study Area: It is found in zone no 1 to 7, 9, 13, 14, 15, 18, 20, 21, 22, 25 to 29, 31, 33 to 37.

Ecological Data: Frequency-14.00, Abundance-0.78, Density-0.41.

Distribution in Gujarat: In dry deciduous forests and also in scrub forests (Shah, 1978; Patel, 1984).

Capparis speiaria L. Syst. Nat. ed. 10, 2; 1071, 1759; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 177, 1872; Cooke, Fl. Pres. Bombay 1: 51, 1958 (Repr.); Jacobs in Blumea 12: 489, 1965; Shah, Fl. Guj. 1:69; 1978, Raghavan in Sharma et al. Fl. India. 2: 289, 1993. Singh, et al Fl. Maha. Dicot. 1: 214. 2000.

Habit: Woody climbers. Leaves ovate-elliptic or obovate, apex obtuse, emarginated. Floweres white, in axillary umbels; Fruits globose, smooth, dry when ripe. Seeds embedded in fleshy pulp.

FLS and FRTS: February – September.

Herbarium No and date of Collection: 419, 27/04/01. **Photograph:** 9

Local Name: Kanthar.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-21.00, Abundance-1.18, Density-0.73.

Distribution in Gujarat: Throughout, on hedges; common in scrub forests and semi arid zones (Shah, 1978).

CRATEVA L.

About 8 species, pantropical, except in Australia and New Caledonia, 1 in GNPS.

Crataeva magna (Lour.) DC., Prodr. 1:243. 1824; Jacobs in Steenis, Fl Males. 1, 7: 822. 1976; Raghavan in sharma et al. Fl. India 2: 324. 1993. *Capparis magna* Lour. Fl. Cochinch. 1: 331. 1790. *Crateva religiosa* var. *nurvala* (Bunch-Ham) Hook. f. & Thoms. In Hook. f. Fl. Brit. India 1: 172. 1872; Cooke, Fl. Pres. Bombay 1: 44. 1958 (Repr.). Shah, Fl. Guj. 1:74; 1978, Jacobs in Blumea 12: 194. 1964. Singh, et al Fl. Maha. Dicot. 1: 225. 2000.

Habit: Trees. Leaves 3-foliolate; leaflets ovate-lanceolate, base attenuate, margins entire. Flowers greenish-white, in corymbs; sepals petaloid. Berries woody, smooth.

FLS and FRTS: March - May.

Herbarium No and date of Collection: 420, 18/06/00.

Sanskrit Name : Varuna, Kumarak.

Local Name: Vayvarno.

Distribution and Status in the Study Area: It is found in zone no 3, 6 to 15, 17 to 22, 25, 29, 31, 32 and 35.

Ecological Data: Frequency-5.87, Abundance-0.45, Density-0.10.

Distribution in Gujarat: Throughout, also planted (Shah, 1978). Bulsar, Vyara, Bharuch and Rajpipla (Patel, 1984).

MAERUA Forsk.

About 100 species, tropical, 1 in GNPS.

Maerua oblongifolia (Forssk.) A. Rich. In Gull. & Perr. Fl. Seneg. Tent. 1 : 32, t. 5. 1831; Raghavan in sharma et al. Fl. India 2 : 331. 1993. *Capparis oblongifolia* Forssk. Fl. Aeg. – Arab. 99. 1775. *Maerua arenaria* (DC) Hook.f.& Thoms. In Hook f. Fl. Brit. India 1 : 171. 1872. *M. ovalifolia* (DC) Camb.in Jacq. Voy Bot. 23, t. 24. 1844; Cooke, Fl. Pres. Bombay 1 : 43. 1958 (Repr.) Shah, Fl. Guj. 1:74; 1978. Singh, et al Fl. Maha. Dicot. 1: 225. 2000.

Habit : Climbing unarmed shrubs. Leaves simple, elliptic – oblong, apex obtuse or retuse, mucronate. Flowers greenish – yellow, in corymbs; calyx ovate, acute, hooded at apex with short horn behind the hood and the pubescent margins. Fruits moniliform.

FLS and FRTS: November – March.



10) *Cleome gynandra* L. 11) *Cleome viscosa* L. 12) *Flacourtia indica* (Burm. f.) Merr.
13) *Polygala arvensis* Willd. 14) *Portulaca oleracea* L. 15) *Portulaca pilosa* subsp.
grandiflora (Hook.) Geesink.

Herbarium No and date of Collection: 421, 18/02/00.

Local Name: Hemkand.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 7, 16, 18, 24, 25, 28 to 35.

Ecological Data: Frequency-8.76, Abundance-3.50, Density-2.26.

Distribution in Gujarat: Throughout, on hedges (Shah, 1978).

CLEOMECEAE

About 1 genus and 200 species, 1 genus and 4 species in GNPS.

CLEOME L.

About 200 species in the tropical and subtropical regions, 4 in GNPS.

Cleome burmanni Wight & Arn. Prodr. 22. 1834; Hook f. & Thoms. in Hook. f. Fl. Brit. India 1: 170. 1872; Shah, Fl. Guj. 1:71; 1978, Raghavan in Sharma et al. Fl. India 2: 304, f. 57. 1993. Singh, et al Fl. Maha. Dicot. 1: 219. 2000.

Habit: Herbs. Annual. Stems and leaves glabrous and with scattered minute prickles. Leaves 3-foliate; leaflets ovate-oblong or obovate. Flowers white, rarely purple, axillary solitary.

FLS and FRTS: August - October.

Herbarium No and date of Collection: 422, 23/09/00.

Local Name: Nani Tilavani.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 13, 14 17, 18 to 22, 25, 26, 27, 29, 30, 31, 32, 35 to 37.

Ecological Data: Frequency-7.69, Abundance-1.70, Density-0.59.

Distribution in Gujarat: Reported from Kutch by J. I. Thaker.

Cleome gynandra Linn. Sp. Pl. 671. 1753; Iltis in Brittonia 12: 284. 1960; Jacobs in Steenis, Fl. Males. 1, 6: 101. 1960. *Gynandropsis pentaphylla* (L.) DC. Prodr. 1:238. 1824; Hook. f. & Thoms. In. Hook. f Fl. Brit. India 1:171, 1872; Cooke, Fl. Prés. Bombay 1: 42, 1958 (Repr. ed). Shah, Fl. Guj. 1:72; 1978, Raghavan in Sharma et al. Fl. India 2: 309, f 59. 1993. Singh, et al Fl. Maha. Dicot. 1: 221. 2000.

Habit: Annual herbs. Leaves 3-5-foliate; obovate or elliptic-obovate, obtuse-acuminate, base cuneate, margins crenate or dentate. Flowers in corymbose-racemes; sepals glandular-pubescent; petals white with narrow claw; ovary glandular, Seeds muricate, dark brown, globular.

FLS and FRTS: June - March.

Herbarium No and date of Collection: 423, 23/02/00. **Photograph:** 10

Sanskrit Name: Surjavarta, Tilparni, Ajgandha, Ugra-gandha.

Local Name: Dheli Tilvan.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 13, 14 17 to 22, 25, 26, 27, 29 to 32, 35 to 37.

Ecological Data: Frequency-10.03, Abundance-2.43, Density-0.90.

Distribution in Gujarat: Throughout (Shah, 1978).

Notes: There is no specimen named *Cleome gynandra* at the Linnean herbarium. After the first edition of Species Plantarum, the species has been omitted in the subsequent editions, hence the only plate cited by Linnaeus i.e. plate 24 of Rheede's Hort. Malab.9: 1689 was designated as type by Iltis (op.cit.) However the cultivated plant at BM-CLIFF is the type of *C. pentaphylla* L.

Cleome simplicifolia (Camb.) Hook.f.et. Thoms. in Hook. F. Fl. Brit. India 1: 169, 1872; Cooke, Fl. Pres. Bombay 1: 40, 1958 (Repr.). Shah, Fl. Guj. 1:73; 1978, Shah, Fl. Guj. 1: 73, 1978; Singh, et al., Fl. Maha. Dicot. 1:222. 2000; JIT 27. 1910; *Polanisia simplicifolia* Camb. In Jacq. Voy Bot. 20, t. 20. 1844. Singh, et al Fl. Maha. Dicot. 1: 222. 2000.

Habit: Annual herbs. Stems angled, scabrid-strigose. Leaves obovate or oblong-lanceolate, linear-oblong or oblong-elliptic, obtuse or subacute at apex, tapering at base, densely strigose with scaly hairs. Flowers violet or pink solitary in axil of leafy bracts forming lax, few-flowered racemes. Seeds yellowish-brown, turning black.

FLS and FRTS: March - December.

Herbarium No and date of Collection: 424, 18/06/00.

Local Name: Sadi Talvani.

Distribution and Status in the Study Area: It is found in zone no 6, 8, 10, 11, 12, 19, 22, 24, 26, 28, 31, 33, 34 and 35.

Ecological Data: Frequency-2.52, Abundance-1.77, Density-0.65.

Distribution in Gujarat: Throughout among grasses (Shah, 1978). Panchmahals, North Gujarat, Saurashtra and Kachchh (Patel, 1984).

Cleome viscosa L. Sp. Pl. 672. 1753; Hook. f. & Thoms. In Hook. f. Fl. Brit. India 1:170. 1872; Cooke, Fl. Pres. Bombay 1: 41, 1958 (Repr.). Shah, Fl. Guj. 1:73; 1978, Illits in Brittonia 12: 281. 196-; Jacobs in Steenis, Fl. Males. 1, 6: 103. 1960; Raghavan in sharma et al. Fl. India 2: 317. 1993, Singh, et al Fl. Maha. Dicot. 1: 223. 2000.

Habit: Annual. Erect herbs. Leaves 3-5-foliolate; leaflets elliptic, oblong or obovate,

apex acute or obtuse. Flowers axillary, in lax racemes; sepals glandular-pubescent outside. Capsules hairy, striate, tapering at both ends. Seeds subglobose.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 425, 18/06/00. **Photograph:** 11

Sanskrit Name: Arkakanta, Suvarchala.

Local Name: Pili Tilvan.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 18, 20, 21, 22, 24, 26, 27, 28, 30, 32, 33, 35 to 37.

Ecological Data: Frequency-12.31, Abundance-5.07, Density-2.87.

Distribution in Gujarat: Throughout, scattered or subgregarious (Shah, 1978).

FLACOURTIACEAE

About 90 genera and over 1,000 species in the tropical and subtropical regions, 2 genera and 3 species in GNPS.

CASEARIA Jacq.

About 250 species, mostly American, 1 in GNPS.

Casaria tomentosa Roxb. Fl. Ind. 2: 421. 1832; C.B. CL. In Hook. F. Fl. Brit. India 2: 593. 1879; Cooke, Fl. Pres. Bombay 1: 554. 1958 (Repr.). Shah, Fl. Guj. 1:77; 1978, Mitra in Sharma et al. Fl. India 2 : 397. 10993. *C. elliptica* Willd. Sp. Pl. 2: 628. 1799 nom. Superfl. (based on *anavinga lanceolate* Lam.), Singh, et al Fl. Maha. Dicot. 1: 225. 2000.

Habit : Trees. Stems and branches lenticelled; bark ash coloured. Leaves elliptic – oblong, apex acute or acuminate, margins entire or serrulate. Flowers greenish – white, in short, axillary clusters; ellipsoid. Seeds arilate.

FLS and FRTS: January – May.

Herbarium No and date of Collection: 426, 12/06/00.

Local Name: Mojar.

Distribution and Status in the Study Area: It is found in zone in all zone.

Ecological Data: Frequency-10.43, Abundance-0.73, Density-0.18.

Distribution in Gujarat: In deciduous forests: rare (Shah, 1978).

FLACOURTIA Commers.ex L'Herit.

About 60 species in tropical Africa and Asia 2 in GNPS.

Flacourtia indica (Burm. f.) Merr. Interpr. Rumph. Herb. Amb. 377. 1917; Sleumer in Steenis, Fl. Males 1, 5: 76 : 1954 & Blumea 30 : 241. 1985; Mitra in Sharma et al. Fl. India 2 : 402. 1993. *Gmelina indica* Burm. F. Fl. Ind. 132, t. 39, f. 5. 1768. *Flacourtia*

ramontchi L'herit. Strip. Nov. 3. 59, t. 30 & 30 b. 1785; Hookf. F. & Thoms. In Hook f. Fl. Brit. India 1: 193. 1872, excl. var *latifolia*; Cooke, Fl. Pres. Bombay 1: 59. 1958 (Repr.). Shah, Fl. Guj. 1:78; 1978, *F. ramontchi* var. *occidentalis* Hook. F. & Thoms. In Hook.f op.cit; Cooke, op.cit. *F. ramontchi* var. *sapida* Roxb. Hook. f. Hook.f. op.cit; Cooke, op.cit. *F. ramontchi* var. *sapida* (Roxb.) hook. F. & thoms in Hook. F. op. Cit.; Cooke, op. Cit. *F. sepiaria* Roxb. Pl Cor. 1 : 48, t. 68. 1796; Hook. F & thoms. In Hook f. op. Cit. 194; Cooke, op. Cit. 60 *F. occidentalis* Blatt. In J. Bombay nat. Hist. Soc. 31 : 914. 1927. *F. sepiaria* var. *integrifolia* Blatt. Op. Cit, Singh, et al Fl. Maha. Dicot. 1: 236. 2000.

Habit : Shrubs or small trees. Deciduous thorny; young twigs glabrous. Leaves usually clustered towards apices on older branches, highly variable in shape, size and indumentum, broadly elliptic ovate or obovate, apex acute, acuminate or retuse, margins crenate or subentire. Flowers in axillary, racemate, short, puberulous, racemes or terminating in short, thorny twigs.

FLS and FRTS: January – July.

Herbarium No and date of Collection: 427, 18/02/00. **Photograph**: 12

Local Name: Lodri.

Distribution and Status in the Study Area: It is found in zone no 6 to 13, 17 to 20, 25, 26, 29 to 32.

Ecological Data: Frequency-6.67, Abundance-0.44, Density-0.13.

Distribution in Gujarat: Throughout in dry deciduous forests (Shah, 1978).

Flacourtia montana Grah. Cat. Bombay Pl. 10 . 1839; Hook f. & Thoms. In Hook f. Fl. Brit. India 1: 192. 1872; Cooke, Fl. Pres. Bombay 1 : 58. 1958 (Repr.) Shah, Fl. Guj. 1:79; 1978 ; Mitra in Sharma et al. Fl. India 2 : 406. 1993, Singh, et al Fl. Maha. Dicot. 1: 237. 2000.

Habit : Trees. Stems thorny. Leaves ovate or broadly elliptic to oblong–elliptic base acute or rounded, margins crenate, tomentose along midrib and nerves beneath. Flowers in densely pubescent, bracteate, fascicled racemes, unisexual.

FLS and FRTS: November - April.

Herbarium No and date of Collection: 428, 20/04/01.

Local Name: Lodri.

Distribution and Status in the Study Area: It is found in zone no 1, 3 to 11, 13 to 19, 22, 24 to 33, 35 to 37.

Ecological Data: Frequency-12.15, Abundance-0.81, Density-0.34.

Distribution in Gujarat: So far reported from pavagadh and Dangs (Shah, 1978).

POLYGALACEAE

About 12 genera and 800 species, cosmopolitan, excluding New Zeland, Polynesia and arctic Zone, 1 genera and 3 species in GNPS.

POLYGALA L.

About 600 species, cosmopolitan, excluding New Zeland, Polynesia and arctic zone, 3 in GNPS.

Polygala arvensis Willd. Sp. Pl. ed 3 (2); 876. 1802; Burt in Notes Roy. Bot. Gard. Edinb. 32: 404. 1973; Banerjee in Sharma et al. Fl. India 2; 460, F. 87. 1993. *P. Chinensis* acut. Non L. 1753; Bennett In Hook, f. Fl. Brit. India 1: 204 1872 p.p.; Cooke, Fl. Pres. Bombay 1: 64. 1958 (Repr.). Shah, Fl. Guj. 1:80; 1978, S.K. Mukherjee in Bull. Bot. Soc. Bengal 12: 38. 1960; Adema Curr. Sco. 42: 359. 1973 non Chandrab. 1967. Singh, et al Fl. Maha. Dicot. 1: 246. 2000.

Habit: Diffuse herbs. Leaves sessile elliptic, ovate, suborbicular or linear, acute at both ends. Flowers few in short lateral racemes; pedicels short;

FLS and FRTS: July - December.

Herbarium No and date of Collection: 429, 26/09/01. **Photograph:** 13

Local Name: Pili Bhonyan.

Distribution and Status in the Study Area: It is found in zone no 3 to 10, 13, 14, 16, 19 to 22, 24, 25, 26, 29 to 37.

Ecological Data: Frequency-6.38, Abundance-0.91, Density-1.20.

Distribution in Gujarat: Throughout among grasses (Shah, 1978).

Notes: Accordint to Burt (1973), Indian yellow flowered species which is misidentified as *P. chinensis* L. is actually *P. arvensis* Willd. When he studied the type specimen of *P. chinensis* L. it turned out to be *P. glomerata* Lour. He therefore recommends to abandon the name *P. chinensis* L. and the two plants may be known as *P. arvensis* Willd. and *P. glomerata* L. respectively. Kulkarni & Singh, op.cit. had reported *P. jacobii* Chandrab. from Junnar (Maharashtra State). Subsequently T.S.Nayar in J. Econ. Tax. Bot. 5: 247-248. 1984 has pointed out the erroneous identity of *P. arvensis* as *P. jacobii* and stated that *P. jacobii* does not occur in Maharashtra.

Polygala erioptera DC. Prodr. 1: 326. 1824; Bennett in Hook.f. Fl. Brit. Inda 1; 203. 1872; Cooke. Fl. Pres. Bombay 1: 63. 1958 (Repr.). Shah, Fl. Guj. 1:81; 1978, S.K. Mukherjee in Bull. Bot. Soc. Bengal 12 : 47. 1960; Banerjee in Sharma et al. Fl. India 2 : 467, f. 89. 1993. Singh, et al Fl. Maha. Dicot. 1: 247. 2000.

Habit: Herbs. Annual, appressed hairy, branched from base. Leaves minutely simple hairy on both sides, inflorescence of few – flowered racemes, axillary or extra – axillary. Capsules oblong- ellipsoid, emarginate, densely hairy. Seeds oblong, densely pilose.

FLS and FRTS: August – October.

Herbarium No and date of Collection: 430, 27/09/01.

Local Name: Bhoyasan.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 13, 14, 16, 19 to 26, 29 to 37.

Ecological Data: Frequency-7.85.54, Abundance-1.43, Density-0.73.

Distribution in Gujarat: Throughout, Common (Shah, 1978).

Polygala persicariifolia DC. Prodr. 1 : 326. 1824; Bennett in Hook.f. Fl. Brit. India 1 : 202. 1872 ("*persicariaefolia*"); Cooke, Fl. Pres. Bombay 1 : 63. 1958 (repr.). Shah, Fl. Guj. 1:85; 1978, S.K. Mukherjee in Bull Bot. Soc. Bengal 12 : 45. 1960; Adema in Blumea 14 : 265, f. 9. 1966; Banerjee in Sharma et al. Fl. India 2 : 480. 1993. Singh, et al Fl. Maha. Dicot. 1: 249. 2000.

Habit : Herbs. Leaves linear – oblong, apex acute, base subacute, sparsely pubescent beneath. Flowers lateral and terminal racemes.

FLS and FRTS: August – October.

Herbarium No and date of Collection: 431, 22/08/01.

Local Name: Rati Bhonyasan.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 13, 15, 16, 18, 19, 21 to 26, 27, 29 to 33, 36 and 37.

Ecological Data: Frequency-8.11, Abundance-1.38, Density-0.66.

Distribution in Gujarat: Listed by J. I. Thaker (1926) from Kutch. Santapau and Janardhanan have included it in Saurashtra flora also on the authority of J. I. Thaker (1910).

PORTULACACEAE

About 19 genera and 580 species, cosmopolitan but especially in America, 1 genus and 3 species in GNPS.

PORTULACA L.

About 200 species, tropical and subtropical, 3 in GNPS.

Portulaca oleracea L. Sp. Pl. 445. 1753; Hook. f. Fl. Brit. India 1:246; Cooke, Fl. Pres. Bombay 1: 72, 1958 (Repr.). Shah, Fl. Guj. 1:86; 1978, Geesink in Blumea

17:292. 1969; M.K.V. Rao in Sharma et al. Fl. India 3: 4, f. 1. 1993, Singh, et al Fl. Maha. Dicot. 1: 261. 2000.

Habit: Succulent herbs. Leaves alternate, opposite, subopposite or whorled, ovate, sessile. Flowers yellow, terminal, solitary or fascicled. Capsules ovate – oblong. Seeds many, brown, granulate or tuberculate.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 432, 18/06/00. **Photograph:** 14

Sanskrit Name: Laghu-Lonika.

Local Name: Zini Luni.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 16, 21 to 23, 28, 31 to 37.

Ecological Data: Frequency-5.24, Abundance-0.31, Density-0.37.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Portulaca pilosa subsp. *grandiflora* (Hook) Geesink in Blumea 17:297. 1969. *P. grandiflora* Hook. In Bot. Mag. N.s. 3: t 2885. M.K.V. Rao in Sharma et al. 3:3. 1993. *P. pilosa* ssp. *grandiflora* (Hook) Geesink in Blumea 17:297. 1969 & in Steenis, Fl. Males. 1, 7:131. 1971. Shah, Fl. Guj. 1:86; 1978, Singh, et al Fl. Maha. Dicot. 1: 264. 2000.

Habit: Herbs, prostrate or ascending. Leaves, terete, scattered. Capsules thin. Ovoid or conical. Seeds minute, tuberculate, reniform.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 433, 18/06/00. **Photograph:** 15

Local Name: Moti Luni.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 16, 21, 22, 24, 28, 31 to 37.

Ecological Data: Frequency-2.57, Abundance-1.03, Density-0.35.

Distribution in Gujarat: Ornamental; also an escape (Shah, 1978).

Portulaca quadrifolia L. Mant. 1: 73. 1767; FBI 1: 247; C. 72; Ch & O 40: S & J 9; S 13; WI 8:220. Shah, Fl. Guj. 1:86; 1978.

Habit: Prostrate, glabrous herbs, with radially spreading branches. Leaves sessile, fleshy. Flowers yellow, terminal. Capsule long, ovoid or conical. Seeds darkbrown or blackish-brown, minutely tubercled concentrically horizontally ribbed.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 434, 18/06/00.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 16,

21, 22, 23, 28, 31 to 37.

Ecological Data: Frequency-3.33, Abundance-0.24, Density-0.52.

Distribution in Gujarat: Throughout, common (Shah, 1978).

TAMARICACEAE

About 4 genera and 120 species, mainly in temperate and subtropical desert, steppes and sea shores, 1 genus and 1 species in GNPS.

TAMARIX L.

About 54 species, mainly in West Europe, Mediterranean to India and North China as halophytes, 1 in GNPS.

Tamarix ericoides Rottl. in Ges. Naturf. Fr. Berlin Neue Schr. 4:214. 1803; Hook. f. Fl. Brit. India 1:249. 1874; Cooke, Fl. Pres. Bombay 1: 76, 1958 (Repr.). Shah, Fl. Guj. 1:88; 1978, Shetty & Pandey in Sharma et al. Fl. India 3: 25. 1993. Singh, et al Fl. Maha. Dicot. 1: 267. 2000.

Habit: Bushy shrubs, bark cracked. Leaves minute, scaly, ovate. Flowers pale to bright rosy terminal, branched spikes. Capsules beaked, pale brown. Seeds oblong with pale white hairs.

FLS and FRTS: October – February.

Herbarium No and date of Collection: 435, 15/12/00.

Sanskrit Name: Jhavuk, Patravas.

Local Name: Kahudo.

Distribution and Status in the Study Area: It is found in zone no 4 to 7, 11, 13, 14, 18, 20 to 25, 31 to 35 and 37.

Ecological Data: Frequency-7.96, Abundance-0.72, Density-0.45.

Distribution in Gujarat: In stony riverbeds, common (Shah, 1978).

ELATINACEAE

About 2 genera and 45 species, tropical and temperate, 1 genera and 2 species in GNPS.

BERGIA L.

About 25 species in tropics or subtropics, 2 in GNPS.

Bergia ammannioides Roxb. Ex Roth, Nov. Pl. Sp. 219. 1821; T. Dyer in Hook. F. fl. Brit. India 1: 251. 1874; Cooke. Fl. Pres. Bombay 1: 77. 1958 (Repr.). Shah, Fl. Guj. 1:90; 1978, Ramam. In Slad. & Nicols. Fl. Hassan Dist. 122, f. 25. 1976; J. Bhattacharya in Sharma et al. Fl. India 3:33. 1993. Singh, et al Fl. Maha. Dicot. 1:

268. 2000.

Habit: Herbs erect annual, tall, often with decumbent branches, glandular – hairy. Leaves elliptic – lanceolate. Flowers minute, red, in dense axillary clusters. Capsules dark red, Seeds numerous, pale brown.

FLS and FRTS: November – February.

Herbarium No and date of Collection: 436, 23/11/00.

Local Name: Jal Okharad.

Distribution and Status in the Study Area: It is found in zone no 2, 4 to 9, 13, 14, 15, 17 to 20, 24 to 33 and 35.

Ecological Data: Frequency-7.29, Abundance-1.65, Density-0.57.

Distribution in Gujarat: Throughout; common in moist ground (Shah, 1978).

Bergia suffruticosa (Del.) Fenzl, in Dankes Bot. Gesel. Reg. 3:183. 1841; J. Bhattacharya in Sharma et al. Fl. India 3: 36. 1993; Naik, Fl. Marathwada 1: 129. 1998. *Lancretia suffruticosa* Del. Fl. Egypt. 69, t. 25. 1812. *Bergia odorata* Edgew. In J. Asiat. Soc. Bengal 7: 765. 1838; T. Dyer I Hook f. Fl. Brit. India 1: 251. 1874; Cooke, Fl. Pres. Bombay, 1: 77. 1958 (Repr.). Shah, Fl. Guj. 1:90; 1978, Singh, et al Fl. Maha. Dicot. 1: 269. 2000.

Habit: Shrubs, aromatic, decumbent, with opposite branches. Leaves elliptic-ovate or oblong – lanceolate, narrowed at base, obtuse or subacute at apex, crenate or serrulate, densely pubescent; stipules linear – lanceolate. Flowers whitish – pink.

FLS and FRTS: October – February.

Herbarium No and date of Collection: 437, 19/11/00.

Distribution and Status in the Study Area: It is found in zone no 2, 4 to 9, 13, 14, 15, 17 to 20, 24 to 33 and 35.

Ecological Data: Frequency-6.99, Abundance-1.31, Density-0.51.

Distribution in Gujarat: Throughout common (Shah, 1978).

MALVACEAE

About 50 genera and 1000 species, mainly distributed in the tropics and subtropics, 8 genera and 19 species in GNPS.

ABELMOSCHUS Medic.

About 6 species in S. and S.E. Asia and N. Australia, 2 in GNPS.

Abelmoschus esculentus (L) Moench. Method. 617. 1794; Borss. In Blumea 14: 100. 1966; Paul & Nayar in Nayar et al. Fl. Face. Fl. India 19: 71. 1988; Paul in Sharma et al. India 3: 385. 1993. *Hibiscus esculentus* L. Sp. Pl. 696. 1753; Mast. In



16) *Abelmoschus manihot* (L.) Medik, 17) *Abutilon indicum* (L.) Sweet, 18) *Hibiscus rosa-sinensis* L., 19) *Hibiscus schizopetalus* (Mast.) Hook. f. 20) *Kydia calycina* Roxb., 21) *Sida acuta* Burm. f.,

Hook. f. Fl. Brit. India 1: 343. 1874; Cooke, Fl. Pres. Bombay 1: 119. 1958 (Repr.). Shah, Fl. Guj. 1:94; 1978, Singh, et al Fl. Maha. Dicot. 1: 334. 2000.

Habit: Herbs or undershrubs, high; stems and branches scattered with short stiff hairs, ultimately glabrescent. Leaves cordate at base, lamina variously dissected. Epicalyx segments long; petals yellow or whitish-yellow with dark purple centre. Capsules long. Seeds warty, glabrous, dark brown.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 438, 18/11/00.

Sanskrit Name: Gandhamula, Karpanphala, Bhenda.

Local Name: Bhindo.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 7, 8, 10, 11, 15, 16, 17, 20, 21, 22, 28, 32, 35, 36 and 37.

Ecological Data: Frequency-5.17, Abundance-0.58, Density-0.46.

Distribution in Gujarat: Throughout, extensively cultivated; also an escape (Shah, 1978).

***Abelmoschus manihot* (L) Medik.** Malv. 46. 1787, ampl. Hochar. In Candolela 2: 87. 1924; Borss. In Blumea 14: 1966; Paul & Nayar in Fasc. Fl. India 19: 74. 1988; Paul in Sharma et al. Fl. India 3: 304. 1993. *Habiscus manihot* L. Sp. Pl. 696. 1753; Mast. In Hook. f. Fl. Brit. India 1: 341. 1874. Shah, Fl. Guj. 1:94; 1978, Singh, et al Fl. Maha. Dicot. 1: 290. 2000.

Habit: Herbs or undershrubs glabrous or densely hispid. Leaves mostly 3 – 9 – lobed, base cordate, margins dentate or serrate. Seeds stellate hairs in concentric rings.

FLS and FRTS July – December.

Herbarium No and date of Collection: 439, 21/11/00. **Photograph:** 16

Sanskrit Name: Lata kasturika.

Local Name: Jangli Bhindi.

Distribution and Status in the Study Area: It is found in zone no 1 to 9, 11, 13, 14, 17 to 22, 24 to 37.

Ecological Data: Frequency-8.40, Abundance-0.56, Density-0.48.

Distribution in Gujarat: Throughout except Kachchh (Shah, 1978).

ABUTILON MILL.

About 150 species in tropics and sub-tropics, 2 in GNPS.

***Abutilon indicum* (L.) Sweet.** Hort. Brit. 54. 1826; Must. In Hook. f. Fl. Brit. India 1:326, 1874; Cooke, Fl. Pres. Bombay 1: 102, 1958 (Repr.). Shah, Fl. Guj. 1:96;

1978, Bross. In Blumea 14: 170. 1966; Paul & Nayar in Nayar et al. fasc. Fl. India 19: 87. 1988; Paul in Sharma et al. Fl. India 3: 266. 1993. *Sida indica* L. in Torner, Cent Pl. 2: 26. 1756. & amoen. Acad. 4: 324. 1759. Singh, et al Fl. Maha. Dicot. 1: 297. 2000.

Habit: Herbs or undershrubs. Leaves ovate – suborbicular, apex acute or acuminate, base cordate, flowers solitary, axillary; calyx across; corolla yellow to orange, across. Schizocarps globular. Seeds brownish – black.

FLS and FRTS: September – April.

Herbarium No and date of Collection: 440, 22/11/00. **Photograph:** 17

Sanskrit Name: Atibala, Kankati, Pitpushpi.

Local Name: Kapat.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 5, 6, 8, 10, 11, 13, 14, 15, 21, 22, 23, 28, 31 to 37.

Ecological Data: Frequency-5.54, Abundance-2.92, Density-1.72.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Abutilon pannosum (Forst. F) Schlect. Bot. Zeit, 9: 828. 1851; Paul & Nayar in Nayar et al, Fasc. Fl. India 19: 90. 1988; Paul in Sharma et al. Fl. India 3: 268, 1993. *Sida pannosa* Forst. F. in Comm. Phys. Soc. Reg. Goett. 1787: 62. 1789. *Abutilon muticum* (delile ex DC.) Sweet, Hort. Brit. Ed. 2: 65. 1830; Mast. In Hook. f. Fl. Brit. India 1: 327. 1874; Cooke, Fl. Pres. Bombay 1: 102. 1958 (Repr.). *A. glaucum* (Cav.) Sweet, Hort. Brit. Ed. 1, 54. 1827.

Habit : Herbs. Grey or whitish-velvety-tomentose underhrubs. Leaves long and almost as much broad, broadly ovate or suborbicular, petiolate. Flowers across, bright-yellow or tinged red, axillary, solitary or geminate. Fruit broad, reniform, pale-blackish-brown, minutely stellate-hairy.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 441, 23/11/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 15, 16, 21, 22, 23, 28, 31 to 37.

Ecological Data: Frequency-4.04, Abundance-0.35, Density-0.19.

Distribution in Gujarat: Throughout not frequent (Shah, 1978).

GOSSYPIUM L.

About 20 species, wild or cultivated in tropics and subtropics, 1 species cultivated for cotton in GNPS.

Gossypium herbaceum L. Sp. Pl. 693. 1753; Mast in Hook f. Fl. Brit. India 1: 346.

1874; Cooke, Fl. Pes. Bombay 1: 123. 1958 (Repr.). Shah, Fl. Guj. 1:100; 1978, Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 115, 1988; Paul in Sharma et al. Fl. India 3: 389. 1993. *G. herbaceum* var. *acerifolium* sensu Naik. Fl. Marathwada 1: 137. 1998 non (Guill. & Perr.) chevalier, 1939. Singh, et al. Fl. Maha. Dicot. 1: 336. 2000.

Habit: Herbs or undershrubs, more or less hairy. Leaves ovate – rounded, cordate at base. Plamately sometimes lobed. Flowers solitary, axillary; epicalyx segments long, ovate-cordate, slightly connate at base, divided across the top into long lanceolate teeth; calyx long truncate or undulate; corolla yellow with purple center, petals obovate. Capsules long, oblong-obtuse, loculed. Seeds locule, ovoid with floss and fuzz.

FLS and FRTS: March - April.

Herbarium No and date of Collection: 442, 23/04/01.

Sanskrit Name: Karpasi.

Local Name: Desi Kapas.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 15, 16, 21, 22, 24, 28, 29, 31 to 37.

Ecological Data: Frequency-00.0, Abundance-00.0, Density-00.0.

Distribution in Gujarat: Cultivated throughout; also an escape (Shah, 1978).

HIBISCUS L.

About 250 species in tropics and subtropics, 4 in GNPS.

Hibiscus lobatus (J. A. Murr.) O. Ktze., Rev. Gen. Pl. 3. 19. 1898; Borss, in Blumea 14:77. 1966; Rakshit & Kundu in Bull. Bot. Surv. India 12: 169. (1970) 1972; Paul & Nayar I Nayar et al. Fasc. Fl. India 19: 133, f 27. 1988; Paul in Sharma et al. Fl. India 3: 336, f. 95. 1993. *Solandra lobata* J.A. Murr. Comm. Sec. Reg. Sci. Goetting 6: 20, t 1. 1785. *Hibiscus solandra* L' Herit. Stirp. Nov. 1: 103, t. 49. 1788; Mast. In Hook. F. Fl. Brit. India 1: 336. 1874; Cooke, Fl. Pres. Bombay 1: 114, 1958(Repr.). Shah, Fl. Guj. 1:104; 1978, Singh, et al. Fl. Maha. Dicot. 1: 313. 2000.

Habit: Annual herbs. Stems rarely with stellate hairs. Leaves orbicular to ovate, margins serrate to crenate. Flowers solitary, axillary, rarely in racemes by reduction of upper levels; Seeds black.

FLS and FRTS: July – January.

Herbarium No and date of Collection: 443, 25/09/01.

Sanskrit Name: Bharadvasi.

Local Name: Tali.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 6, 11, 12, 13, 15, 18, 21 to 24, 27, 28, 31, 32, 33, 35 and 36.

Ecological Data: Frequency-5.82, Abundance-2.19, Density-1.26.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Hibiscus rosa-sinensis L. Sp. Pl. 694. 1753; Mast. In Hook, f. Fl. Brit. India 1:344. 1874; Cooke, Fl. Pres. Bombay 1: 120. 1958 (Repr.). Shah, Fl. Guj. 1:107; 1978, Borss. In Blumea 14: 72. 1966; Paul & Nayar et al. Fasc. Fl. India 13: 147. 1988; Paul in Sharma et al. Fl. India 3: 391. 1993. Singh, et al Fl. Maha. Dicot. 1: 340. 2000.

Habit: Shrubs; stems woody, without prickles. Leaves ovate or ovate – lanceolate, tapering at base, acuminate at apex, serrate to dentate or crenate at margins, glabrous on both sides or with a few minute stellate hairs on the veins beneath. Flowers solitary, axillary; pedicels jointed above the middle; epicalyx segments 5 – 8, lanceolate, connate at base, sparsely pubescent; calyx campanulate, lobes lanceolate, stellate & glandular – pilose outside; corolla tubular below, red, petals obovate. Capsules globose, rarely formed.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 444, 24/07/01. **Photograph:** 18

Sanskrit Name: Jasuda, Japa, Trisandhya.

Local Name: Jasud.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 13, 16, 21, 24, 25, 28, 31, 32, 35 to 37.

Ecological Data: Frequency-9.56, Abundance-0.31, Density-0.12.

Distribution in Gujarat: Planted; seldom escape (Shah, 1978).

Hibiscus schizopetalus (Mast.) Hook f. in Curtis. Bot. Mag. 3: 36, t. 6524. 1880; Borss. In Blumea 14: 73. 1966; Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 150. 1988; Paul in Sharma et al fl. India 3: 392. 1993. *H. rosa – sinensis* L. var. *schizopetalus* Mat. In Gard. Chron. N.s. 12: 272, f. 45. 1879. Shah, Fl. Guj. 1:107; 1978, Singh, et al Fl. Maha. Dicot. 1: 341. 2000.

Habit : Shrubs; stems woody; branches glabrous. Leaves ovate – elliptic, cuneate at base, acute at apex, serrate towards apes, glabrous. Flowers solitary, axillary, pendulous.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 445, 24/07/01. **Photograph:** 19

Local Name: Jasud.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 13, 16, 21, 22, 24, 25, 28, 31, 32, 35 to 37.

Ecological Data: Frequency-10.62, Abundance-0.35, Density-0.39.

Distribution in Gujarat: Dangs (HS 19604, 19717, 19959); locally abundant in dense hedges and forest undergrowth.

Hibiscus trionum L. Sp. Pl. 697. 1753; Mast. In Hook f. Fl. Brit. India 1:334. 1874; Cooke, Fl. Pres. Bombay 1: 111. 1958 (Repr.). Shah, Fl. Guj. 1:108; 1978, Rakshit & Kundu in Bull. Bot. Surv. India 12: 168. (1970) 1972; Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 158. 1988; Paul in Sharma et al. Fl. India 3: 341. 1993. Singh, et al Fl. Maha. Dicot. 1: 316. 2000.

Habit : Trailing, annual herbs. High with simple and few stellate hairs. Leaves lower leaves orbicular, lobed or unlobed, upper leaves palmately 3 – 5 – lobed, hairy on both surfaces. Flowers solitary, axillary, yellow with dark purple centre; Capsules oblong, obtuse, hairy. Seeds many, more or less reniform, mature ones glandular – papillose, rugose.

FLS and FRTS: July – January.

Herbarium No and date of Collection: 446, 1/11/01.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 11, 12, 16, 22 and 35.

Ecological Data: Frequency-1.68, Abundance-0.61, Density-0.40.

Distribution in Gujarat: Kutch, Saurashtra and Bulsar (Shah, 1978).

KYDIA Roxb.

Two species in South Asia, 1 in GNPS.

Kydia calycina Roxb. Pl. Cor. 3:12, t. 215, 1811; Mast. In Hook. F. Fl. Brit. India 1: 348. 1874; Cooke, Fl. Pres. Bombay 1: 100. 1958 (Repr.). Shah, Fl. Guj. 1:109; 1978, Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 160. 1988; Paul in Sharma et al. Fl. India 3: 344. 1993. Singh, et al Fl. Maha. Dicot. 1: 317. 2000.

Habit: Moderate sized trees, high; young branches with stellate tomentum. Leaves lobed, palminerved. Flowers in panicles, polygamous; Capsules globose, Seeds reniform – ellipsoid.

FLS and FRTS: September – February.

Herbarium No and date of Collection: 447, 1/10/01. **Photograph:** 20

Local Name: Goyani.

Distribution and Status in the Study Area: It is found in zone no 3 to 14, 17 to 22, 24 to 27, 29 and 31.

Ecological Data: Frequency-13.38, Abundance-1.01, Density-0.49.

Distribution in Gujarat: Saurashtra, Dangs (Patel, 1984).

PAVONIA Cav.

About 200 species, pantropical, 1 in GNPS.

Pavonia zeylanica (L.) Cav. Diss. 3:134. t. 48. f. 2. 1787; Mast. In Hook. f. Fl. Brit. India 1: 331, 1874; Cooke, Fl. Pres. Bombay 1:108 1958 (Repr.). Shah, Fl. Guj. 1:112; 1978, Paul & Nayar et al. Fasc. Fl. India 19: 198, f. 46. 1988; Paul in Sharma et al. Fl. India 3: 377, f. 108a. 1993. *Hibiscus zeylanicum* L. Sp. Pl. 699. 1753. Singh, et al Fl. Maha. Dicot. 1: 324. 2000.

Habit: Undershrubs, stellate pubescent; stems with numerous decumbent branches towards apex. Leaves orbicular to obvoid, deeply 3 – 5 – lobed, sparsely stellate hairy on both surfaces. Flowers solitary, axillary. Seeds reniform.

FLS and FRTS: July – December.

Herbarium No and date of Collection: 448, 2/11/01.

Distribution and Status in the Study Area: It is found in zone no 3, 7, 8, 12, 18, 19, 20, 25, 26, 27, 30 and 34.

Ecological Data: Frequency-4.14, Abundance-0.48, Density-0.22.

Distribution in Gujarat: Throughout; common (Shah, 1978).

SIDA L.

About 15 species in tropical and subtropical regions, 6 in GNPS.

Sida acuta Burm. f., Fl. Ind. 147. 1768; emend K. Schum. Fl. Bars. 12(3): 326. 1891; Cooke. Fl. Pres. Bombay 1: 98. 1958 (Repr.). Shah, Fl. Guj. 1:114; 1978, Bross. In Blumea 14; 186. 1966; Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 202, f. 49. 1988; Paul in Sharma et al. Fl. India 3: 281, f. 76. 1993. *S. carpinifolia* Mast. In Hook f. Fl. Brit. India 1: 323. 1874 non L. f. 1781. Singh, et al Fl. Maha. Dicot. 1: 325. 2000.

Habit: Branched undershrubs, pubescent when young, glabrescent later. Leaves elliptic – lanceolate or ovate – oblong, serrate at margins. Flowers solitary, axillary. Seeds dark brown.

FLS and FRTS: September – December.

Herbarium No and date of Collection: 449, 1/10/01. **Photograph:** 21

Sanskrit Name: Balabhed, Bala.

Local Name: Bala.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-25.14, Abundance-5.72, Density-3.96.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Sida alba L. Sp. Pl. ed. 2, 2: 960. 1763; Hook. f. Fl. Brit. India. 1: 323, 1874; Cooke, Fl. Pres. Bombay 1: 98, 1958 (Repr.). Shah, Fl. Guj. 1: 114, 1978; Singh, et al., Fl.

Maha. Dicot. 1:328. 2000; Bhandari, Fl. Ind. Desert 71. 1978, 1990; *Sida spinosa* L. Sp. Pl. ed. 1. 2: 683. 1753.

Habit: Perennial, sparingly branched herbs or undershrubs. Stellately grey-tomentose in younger parts; bark greenish-brown smooth.

FLS and FRTS: September – December.

Herbarium No and date of Collection: 450, 1/10/01.

Sanskrit Name: Nagbala.

Local Name: Kantalibala.

Distribution and Status in the Study Area: It is found in zone no 10, 11, 12, 22, 24, 34 and 35.

Ecological Data: Frequency-2.57, Abundance-1.65, Density-0.92.

Distribution in Gujarat: Throughout; scattered; common (Shah, 1978).

Sida cordata (Burm. f.) Borss. In Blumea 14: 182. 1966; Paul & Nayar in Nayar et al. Face. Fl. India 19: 206, f. 50. 1988. Paul in Sharma et al Fl. India 3:283, f. 77. 1993. *Melochia cordata* Burm. F. Fl. Ind. 143. 1768. *Sida humilis* Cav. Diss. 5: 277, t. 134, f. 2. 1788; Mast in Hook. F. Fl. Brit. India 1: 322. 1874. *S. humilis* var. *veronicifolia* (Lam.) Mast. In Hook. F. op. cit. 322. Encycl. 1:5. 1783; Cooke, Fl. Pres. Bombay 1: 97. 1958 (Repr.). Shah, Fl. Guj. 1:114; 1978, Singh, et al Fl. Maha. Dicot. 1: 325. 2000.

Habit: Patently hairy herbs. Leaves orbicular; stipules linear – filiform. Flowers pale yellow, solitary, axillary, ultimately in few – flowered racemes either by development of accessory buds or by replacement of upper leaves; calyx campanulate; corolla across. Mericarps tetrahedral with rounded angles. Seeds ovoid.

FLS and FRTS: April – November.

Herbarium No and date of Collection: 451, 30/09/01.

Sanskrit Name: Bhumibala.

Distribution and Status in the Study Area: It is found in zone no 10, 11, 12, 16, 18, 21, 22, 34 and 35.

Ecological Data: Frequency-2.48, Abundance-1.51, Density-1.04.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Sida rhombifolia L. sp. Pl. 684.1753 emead. Mast in Hook. F. Fl. Brit. India 1:3223. 1874; Borss. In Blumea 14: 193, t. 21 a – c 1966. Shah, Fl. Guj. 1:115; 1978, Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 212, f. 52. 1988; Paul in Sharma et al. Fl. India 3: 289, f. 79. 1993. *S. rhombifolia* var. *rhomboidea* (Roxb. Ex Fleming) Mast. In Hook. F. Op. cit. 324. *S. rhombifolia* var. *microphylla* (Cav.) Mast. In Hook f. op cit.

324; Almeida, Fl. Mah. 1: 126. 324. 1996. *S. rhombifolia* var. *obovata* Wall. Ex Mast. In Hook f. op. cit. Singh, et al Fl. Maha. Dicot. 1: 327. 2000.

Habit: Herbs or undershrubs. Leaves ovate – oblong, often more or less rhomboid, margins serrate to crenata towards apex. Flowers axillary, solitary. Seeds brown or black.

FLS and FRTS: July – December.

Herbarium No and date of Collection: 452, 1/10/01.

Local Name: Betraubal.

Distribution and Status in the Study Area: It is found in zone no 2 to 9, 11 to 14, 16, 18, 20, 21, 22, 24 to 37.

Ecological Data: Frequency-9.14, Abundance-1.88, Density-1.35.

Distribution in Gujarat: South Gujarat (Bulsar, Dangs, Vyara, Rajpipla), Central Gujarat (pavagadh, chhotaudepur). North Gujarat (Khedbrahma) and Saurashtra; not frequent (Shah, 1978).

Sida rhombifolia var. *retusa* (L). Borss. In Blumea 14: 198, f 21 e – h. 1966; Paul & Nayar in Nayar et al. Face. Fl. India 19: 216, f 53. 1988; Paul in Sharma et al. Fl. India 3: 289. 1993. *S. retusa* L. Sp. Pl. ed. 2, 961. 1763. *S. rhombifolia* var. *retusa* (L.) Mast. In Hook f. Fl. Brit. India 1: 324. 1874; Cooke, Fl. Pres. Bombay 1: 99. 1958 (Repr.). Shah, Fl. Guj. 1:116; 1978, Singh, et al Fl. Maha. Dicot. 1: 328. 2000.

Habit: Prostrate or ascending undershrubs. Leaves ovate – orbicular to ovate, crenate, rhomboid – truncate with dentate apex. Flowers yellow. Seeds brownish – black.

FLS and FRTS: July – December.

Herbarium No and date of Collection: 453, 1/10/01.

Sanskrit Name: Atibala.

Local Name: Betraubal.

Distribution and Status in the Study Area: It is found in zone no 2 to 6, 9 to 12, 14, 15, 16, 18, 20, 21, 22, 26 to 37.

Ecological Data: Frequency-8.19, Abundance-1.08, Density-0.87.

Distribution in Gujarat: Throughout except Kachchh (Shah, 1978).

Sida veronicifolia Lam. (Burm. f.) Bross. In Blumea 14:182. 1966. *Melochia cordata* Burm. F. Fl. Ind. 143. 1768. *Sida veronicaefolia* Lam. Encyel. Meth. 1:5. 1783; c 1:97: Ch & O 42: S & J 12; WI 9:325. f. 105. *Sida humilis* Cav. Diss, 5:227. t 134. f. 2. 1788; FBI 1:322. Shah, Fl. Guj. 1:114; 1978.

Habit: Perennial, patently hairy herbs. Leaves membranous, ovate, appressed-hairy



22) *Thespesia populnea* (L.) Soland. ex. Corr., 23) *Thespesia lampus* (Cav.) Dalz. & Gibs., 24) *Bombax ceiba* L. 25) *Firmiana colorata* (Roxb.) R. Br., 26) *Sterculia urens* Roxb., 27) *Helicteres isora* L.

on both surfaces. Flowers yellow, axillary, solitary or geminate and clustered at ends of branches. Fruit across, globose; ripe carpels 5, long, finely hairy, cuneate. Seeds brown, glabrous smooth.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 454, 26/09/01.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 9, 11 to 15, 17, 19, 20, 21, 24, 25, 27, 29, 31, 34 to 37.

Ecological Data: Frequency-17.24, Abundance-3.65, Density-3.17.

Distribution in Gujarat: Throughout the common (Shah, 1978).

THESPESIA Sol. ex. Correa.

About 15 species pantropical, 2 in GNPS.

***Thespesia lampus* (Cav.) Dalz. & Gibs.** Bombay Fl. 19. 1861; Mast. In Hook, f. Fl. Brit. India 1: 345. 1874; Bross. In Blumea 14: 116. 1966; Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 22. f. 58. 1988; Paul in Sharma et al fl. India 3: 350, f. 98. 1993. *Hibiscus lampas* Cav. Diss 3: 154, t 56, f.2. 1787. *Thespesis macrophylla* Bl. Bijdr. 73. 1825. Cooke, Fl. Pres. Bombay 1: 121. 1958 (Repr.). Shah, Fl. Guj. 1:99; 1978, *Azanza lampas* (Cav.) Alef. In Bot. Zeit. 19: 298. 1861. Singh, et al Fl. Maha. Dicot. 1: 329. 2000.

Habit: Shrubs, young shoots densely stellate – tomentose, glabrescent later. Lower leaves orbicular, deeply lobed; upper leaves broadly ovate to oblong; stipules small. Lanceolate to subulate, stellate – hairy. Flowers solitary, axillary. Seeds black.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 455, 30/09/01. **Photograph:** 23

Local Name: Nano Paraspiplo.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 9, 12, 13, 17, 19, 20, 25, 26, 27, 30, 31, 33 and 34.

Ecological Data: Frequency-7.05, Abundance-0.37, Density-0.44.

Distribution in Gujarat: Throughout in shade; not common (Shah, 1978).

Notes: Earlier workers treated *T. lampas* under the genus *Hibiscus* L. But recently Exell & Hillocat (Contr. Fl. Mozamb. 2:47. 1954) reinstated the genus *Azanza* Alefeld, on the basis of the connate style, appearing as monostylus and transferred *T. lampas* to *Azanza*. Subsequently Borssum (op.cit.) after the study of a wide range of material from Malesia treated this taxon with a distinct sectional status on the basis of presence of nectary in midrib, connate style and dehiscent capsule.

Thespesia populnea (Linn.) Soland ex Corr. in Ann. Mus. Herb. Paris. 9: 290, t. 8, f. 1. 1807; Mast in Hook, f. fl. Brit. India 1:345. 1874; Cooke. Fl. Pres, Bombay 1: 121. 1958 (Repr.). Shah, Fl. Guj. 1:117; 1978, Bross. In Blumea 14: 106. 1966; Paul & Nayar in Nayar et al. Fasc. Fl. India 19: 225. 1988; Paul in Sahrma et al. Fl. India 3: 352. 1993. *Hibiscus populneus* L. Sp. Pl. 694. 1753. Singh, et al Fl. Maha. Dicot. 1: 330. 2000.

Habit: Moderate sized trees. Twigs covered with minute scales; glabrescent. Leaves orbicular, deltoid, deeply cordate; stipules lanceolate to subulate. Flowers axillary, solitary, across; epicalyx segments 3, caduceus; calyx coriaceous, copular, densely scaly; corolla campanulate, light yellow with a dark purple centre, finally orange. Fruits across, globose, faintly 5 – angled. Seeds obovoid, angular.

FLS and FRTS February - September.

Herbarium No and date of Collection: 456, 29/07/01. **Photograph:** 22

Sanskrit Name: Parisha, Garda-bhanda.

Local Name: Paraspiplo.

Distribution and Status in the Study Area: It is found in zone no.1, 3, 6, 7, 8, 10, 13, 14, 21, 22, 25, 31 and 35.

Ecological Data: Frequency-2.96, Abundance-0.47, Density-0.09.

Distribution in Gujarat: Planted in gardens and along roadsides; rarely wild (Shah, 1978).

BOMBACACEAE

About 20 genera and 180 species, pantropical, especially in America, 3 genera and 3 species in GNPS.

ADANSONIA L.

About 10 species, palaeotropical, 1 in GNPS.

Adansonia digitata L. Sp. Pl. 1190. 1753; Mast, in Hook, f. Fl. Brit. India 1: 348. 1874; Cooke. Fl. Pres. Bombay 1: 126. 1958 (Repr.). Shah, Fl. Guj. 1:118; 1978, Nayar & Biswas in Sharma et al. Fl. India 3: 404. 1993. Singh, et al Fl. Maha. Dicot. 1: 345. 2000.

Habit: Tree, trunks often stout. Leaves digitate, glabrous; leaflets 3 – 9, ovate – oblong, acute or obtuse. Flowers white on long pedicels eaching 20 cm. fruits densely hairy. Seeds bluish, reniform.

FLS and FRTS: May – October.

Herbarium No and date of Collection: 457, 29/07/01.

Sanskrit Name: Ravana-amblika, Shitphalam, Goraxi-panchparni.

Local Name: Chorambli.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.48, Abundance -0.02, Density-0.01.

Distribution in Gujarat: Cultivated, seldom in waste places as self-sown (Shah, 1978).

BOMBAX L.

About 8 species, in tropical Africa and Asia, 1 in GNPS.

Bombax ceiba L. Sp. Pl. 511. 1753; Robyns in Taxon 10: 157. 1961 & in Bull. Jard. Bot. Bruxelles 33: 88, f. 7. 1963; Nayar & Biswas in Sharma et al. Fl. India 3: 398, f. 111. 1993. *B. malabaricum* DC. Prodr. 1: 479. 1824; Mast in Hook, f. Fl. Brit. India 1: 349. 1874; Cooke, Fl. Pres. Bombay 1: 127. 1958 (Repr.). Shah, Fl. Guj. 1:118; 1978, Singh, et al Fl. Maha. Dicot. 1: 343. 2000.

Habit: Tress. Trunk buttressed. Leaves long, 5–7 foliolate; leaflets apex caudate, cuspidate or acuminate, base acute, entire. Flowers across, red, solitary, paired or clustered near ends of leafless branchlets. Capsules long, ovoid – oblong, loculicidal, 5 – locular. Seeds numerous, ovoid, packed in white cotton.

FLS and FRTS: February – June.

Herbarium No and date of Collection: 458, 17/02/01. **Photograph:** 24

Sanskrit Name: Shalmali.

Local Name: Shimlo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-15.57, Abundance-0.79, Density-0.33.

Distribution in Gujarat: Throughout in deciduous and scrub forests (Shah, 1978).

CEIBA Mill. Emend. Gaertn.

About 1 species, 1 in GNPS.

Ceiba pentandra (L.) Gaertn. Fruct. Sem. Pl. 2: 244, t 133. 1791; Robyns in Dassan. & fosb. Rev. Handb. Fl. Ceylon 1 : 70, 1980; Nayar & Biswas I Sharma et al Fl. India 3: 400, f. 112. 1993. *Bombax pentandrum* L. Sp. Pl. 511. 1753. *Eriodendron pentandrum* (L.) Kurz in J. Asiat. Soc. Bengal 43: 113. 1874. *E. anfractuosum* DC. Prodr. 1: 479. 1824; Mast. In Hook, f. Fl. Brit. India 1: 350. 1874; Cooke, Fl. Pres. Bombay 1: 128. 1958(Repr.). Singh, et al Fl. Maha. Dicot. 1: 345. 2000.

Habit : Tress. Leaflets lanceolate, glaucous beneath, apex cuspidate, base acute, entire. Flowers dirty white, appearing along with young leaves at ends of branches. capsules fusiform, blunt, lined with long, white, silky hairs. Seeds pyriform, black, enveloped in silky wool.

FLS and FRTS: January – June.

Herbarium No and date of Collection: 459, 22/06/01.

Local Name: Kapok.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 11, 21, 22, 32 and 37.

Ecological Data: Frequency-3.70, Abundance-0.16, Density-0.14.

STERCULIACEAE

About 70 species in tropical regions, 1 in GNPS.

FIRMIANA Marsili.

About 15 species in Africa, South East and Eastern Asia, 1 in GNPS.

Firmiana colorata (Roxb.) R. Br. In Bennett & Brown, Pl. Jav. Rar. 235. 1844; Kosterm. In Reinwardtia 5: 386. 1961; Malick in Sharma et al. Fl. India 3: 420, f. 117. 1993. *Sterculia colorata* Roxb. Pl. Cor. 1: 26, t. 25. 1795 & Fl. Ind. 3: 146. 1832; Mast. In Hook, f. Fl. Brit. India 1: 359. 1874; Cooke, Fl. Pres. Bombay 1: 133. 1958 (Repr.). Shah, Fl. Guj. 1:121; 1978, *S. rubicunda* wall. Ex Mast op. cit. 360. Singh, et al Fl. Maha. Dicot. 1: 353. 2000.

Habit : Tress, 8 – 10 m tall. Leaves broadly ovate, palmately 5 – 7 – lobed, apex obtuse or acute to acuminate, base deeply cordate. Flowers orange – red. Seeds ovoid, compressed, smooth.

FLS and FRTS : February – May.

Herbarium No and date of Collection: 460, 13/04/00. **Photograph:** 25

Local Name: Kodaro.

Distribution and Status in the Study Area: It is found in the zone no 7, 8 and 17.

Ecological Data: Frequency-3.81, Abundance-0.05, Density-0.01.

Distribution in Gujarat: So far reported from pavagadh, chhotaudepur and Saurashtra; rare (Shah, 1978).

GUAZUMA L.

About 1 species, 1 in GNPS.

Guazuma ulmifolia Lam. Encycl. 3: 52. 1789; Robyns in Ann. Miss. Bot. Gard. 51: 102; 1964. Malick in Sharma et al. Fl. India 3: 424. 1993. *Theobroma guazuma* L. sp. Pl. 782. 1753. *Guazuma tomentosa* H. B & K. Nov. Gen. Pl. Sp. 5: 320. 1826; Mast. In Hook, f. Fl. Brit. India 1: 375. 1874; Cooke, Fl. Pres. Bombay 1: 144, 1958 (Repr.). Shah, Fl. Guj. 1:122; 1978, Singh, et al Fl. Maha. Dicot. 1: 365. 2000.

Habit : Trees. Leaves ovate – oblong, oblong – lanceolate, sometimes falcate, base

obliquely cordate, apex rounded to shortly acuminate, irregularly serrate, scabrid to glabrescent above, pubescent beneath. Flowers yellow, in large, terminal and axillary panicles. Capsules across, oblong – globose, woody, septicidally 5-valved, tubercled. Seeds many, across. Globose.

FLS and FRTS : March – October.

Herbarium No and date of Collection: 461, 17/04/00.

Local Name: Rudraksh.

Distribution and Status in the Study Area: It is found in the zone no 6 and 22.

Ecological Data: Frequency-0.46, Abundance-0.03, Density-0.02.

Distribution in Gujarat: Cultivated in gardens and along roadsides, seldom an escape (Shah, 1978).

HELICTERES L.

About 60 species in tropical Asia and America, 1 in GNPS.

Helicteres isora L. Sp. Pl. 963. 1753; Mast in Hook, f. Fl. Brit. India 1: 365. 1874; Cooke. Fl. Pres. Bombay 1: 136. 1958 (Repr.). Shah, Fl. Guj. 1:122; 1978, Malick in Sharma et al. Fl. India 3: 426. 1993. Singh, et al Fl. Maha. Dicot. 1: 355. 2000.

Habit : Shrubs. Young shoots stellate hairy. Leaves bifarious, oblong – obovate clothed with stellate hairs on both surfaces, apex short acuminate, base subcordate – subacute, irregularly serrulate. Flowers bright red, distinctly bilabiate in axillary clusters of 2–6 together. Follicles beaked, stellately tomentose. Seeds numerous, angular, wrinkled.

FLS and FRTS: August – December.

Herbarium No and date of Collection: 462, 29/09/01. **Photograph:** 27

Sanskrit Name: Mriga-shinga, Avartani, Avartaphala.

Local Name: Aantedi.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-19.00, Abundance-1.36, Density-0.67.

Distribution in Gujarat: Throughout, common (Shah, 1978).

MELOCHIA L.

About 54 species, tropical, 1 in GNPS.

Melochina corchorifolia L. Sp. Pl. 675. 1753; Mast. In Hook, f. Fl. Brit. India 1: 374. 1874; Cooke. Fl. Pres. Bombay 1: 142. 1958 (Repr.). Shah, Fl. Guj. 1:123; 1978, Robyns in Ann. Missouri Bot. Gard. 51: 83. 1964; Malick in Sharma et al. Fl. India 3: 441. 1993. Singh, et al Fl. Maha. Dicot. 1: 356. 2000.

Habit : Herbs. Leaves ovate – oblong, sometimes obscurely 3 – lobed, glabrous or

truncate, margins serrate. Flowers in terminal densely crowded clusters. Capsules depressed – globose, hispid. Seeds angled, mottled black – grey.

FLS and FRTS: April – November.

Herbarium No and date of Collection: 463, 29/07/01.

Local Name: Chhunchha Khapat.

Distribution and Status in the Study Area: It is found in zone no 1, 3 to 7, 11, 12, 14 to 20, 24 to 27, 30, 31 and 34.

Ecological Data: Frequency-6.95, Abundance-1.37, Density-1.28.

Distribution in Gujarat: Throughout, common in moist ground (Shah, 1978).

STERCULIA L.

About 300 species in tropical regions, 2 in GNPS.

Sterculia foetida L. Sp. Pl. 1008. 1753; Mast. In Hook, f. Fl. Brit. India 1: 354. 1874; Cooke, fl. Pres. Bombay 1: 131. 1958 (Repr.); Malick in Sharma et al. Fl. India 3: 459, 461, f. 126. 1993. Singh, et al Fl. Maha. Dicot. 1: 375. 2000.

Habit : Trees, large; bark whitish. Leaves digitate; leaflets 5 – 9, subsessile, oblong – lanceolate, base tapering, apex acute, or acuminate, pubescent when young, at length glabrous on both surfaces. Flowers reddish. Seeds numerous, ovoid – oblong.

FLS and FRTS : March – June.

Herbarium No and date of Collection: 464, 12/06/00. **Photograph:** 26

Local Name: Badam.

Distribution and Status in the Study Area: It is found in the zone no 1 to 3, 6, 10, 13, 17, 21 to 24, 28, 30, 31, 35 to 37.

Ecological Data: Frequency-4.93, Abundance-0.38, Density-0.25.

Distribution in Gujarat: Throughout, Planted in garden (Shah, 1978).

Sterculia urens Roxb. Pl. Cor. t. 24. 1795; Hook. f. Fl. Brit. India 1: 355. 1874; Cooke, Fl. Pres. Bombay 1: 131. 1958 (Repr.). Shah, Fl. Guj. 1:124; 1978, Malik in Sharma et al. Fl. India 3: 470. 1993. Singh, et al Fl. Maha. Dicot. 1: 359. 2000.

Habit : Trees, 10 m high; young parts pubescent; bark white, smooth, papery. Leaves as broad as long, crowded at tips of branches, shallowly palmately 5 – lobed, scabrid above, velvety beneath, apex caudate – acuminate, base cordate. Flowers across in branched, glandular – pubescent, terminal panicles appearing before leaves. Follicles oblong. Seeds 3 – 6, oblong, dark.

FLS and FRTS : December – May.

Herbarium No and date of Collection: 465, 16/12/00.

Local Name: Kadayo.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-12.69, Abundance-0.85, Density-0.30.

Distribution in Gujarat: Throughout in deciduous and scrub forests, not common (Shah, 1978).

WALTHERIA L.

About 50 species in tropical America, West Indies, and S.E. Asia, 1 in GNPS.

Waltheria indica L. Sp. Pl. 673, 1753; Mast in Hook. F. Fl. Brit. India 1 : 374. 1874; Cooke Fl. Pres. Bombay 1 : 144. 1958 (Repr.). Shah, Fl. Guj. 1:125; 1978, Malick in sharma et al. Fl. India 3 : 473, f. 131. 1993. Singh, et al Fl. Maha. Dicot. 1: 361. 2000.

Habit : Herbs, perennials; stems terete, softly canopubescant. Leaves ovate or ovate – oblong. Softly wooly on both surfaces, apex acute, base obtuse, rounded or subcordate, margins crenate – serrate. Flowers in dense, axillary or terminal compact clusters. Capsules obconical. Seeds solitary, obconical, smooth or wrinkled, black.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 466, 13/12/00.

Distribution and Status in the Study Area: It is found in zone no 1, 3 to 8, 11, 12, 14 to 21, 24 to 28, 30, 31, 34 and 36.

Ecological Data: Frequency-10.90, Abundance-1.45, Density-1.24.

Distribution in Gujarat: Throughout (except Dangs); common (Shah, 1978).

TILIACEAE

About 50 genera and 750 species, chiefly in South East Asia and Brazil; 3 genera and 23 species in GNPS.

CORCHOURUS L.

About 100 species, maily pantropical, 3 in GNPS.

Corchorus aestuans L. Syst. Nat. ed. 10, 2: 1079. 1759; Daniel & Chandrab. In sharma et al. Fl. India 3 : 485. 1993. *C. acutangulus* Lam. Encycl. 2 : 104. 1786; Mast, in Hook. F. Fl. Brit. Indai 1: 398. 1874; Cooke, Fl. Pres. Bombay 1: 160. 1958 (Repr.). Shah, Fl. Guj. 1:126; 1978, Singh, et al Fl. Maha. Dicot. 1: 377. 2000.

Habit : Annual herbs: stems reddish, much branched. Leaves ovate, glabrous or sparsely hairy on both the surfaces, apex acute. Inflorescence of leaf-opposed cymes. Flowers yellow. Seeds truncate, dark – brown.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 467, 29/10/00.



28) *Corchorus fascicularis* L., 29) *Corchorus olitorius* L., 30) *Biophytum candolleanum* Wight., 31) *Oxalis corniculata* L., 32) *Impatiens balsamina* var. *rosea* (L.) Hook. f., 33) *Aegle marmelos* (L.) Corr.

Local Name: Chhunchh.

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 24 to 27, 28, 32 to 37.

Ecological Data: Frequency-41.90, Abundance-2.65, Density-1.39.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Corchorus fascicularis Lam. Encycl. 2: 104 1786; Mast. In Hook f. Fl. Brit. India 1: 398. 1874; Cooke, Fl. Pres. Bombay 1; 159 1958 (Repr.). Shah, Fl. Guj. 1:127; 1978, Danie. & Chandrab. In Sharma et al. Fl. India 3: 486 1993. Singh, et al Fl. Maha. Dicot. 1: 380. 2000.

Habit : Herbs, suffruticose; stems and branches terete. Leaves elliptic – oblong, serrate; stipule lanceolate – subulate. Flowers nearly sessile, in leaf – opposed cymes. Capsules shortly beaked. Seeds wedge – shaped, black, smooth.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 468, 29/07/01. **Photograph:** 28

Local Name: Chhunchhado.

Distribution and Status in the Study Area : It is found in zone no 2 to 13, 15, 17, 21, 22, 24 to 28, 31 to 37.

Ecological Data: Frequency-14.70, Abundance-1.71, Density-1.12.

Distribution in Gujarat: Throughout, a weed in cultivated fields and indrying moist ground (Shah, 1978).

Corchoruss olitorius L. Sp. Pl. 529. 1753; Mast. In Hook. F. Fl. Brit. India 1 : 397. 1874; Cooke, Fl. Pres. Bombay 1 : 158. 1958 (Repr.). Shah, Fl. Guj. 1:128; 1978, Daniel & chandrab. In Sharma et al. Fl. India 3 : 487. 1993. Singh, et al Fl. Maha. Dicot. 1: 380. 2000.

Habit : Herbs, suffruticose. Leaves elliptic, ovate or ovate – lanceolate, rounded at base, acute at apex, margins serrate. Inflorescence of extra – axillary or leaf – opposed cymes. Flowers yellow; petals oblong – spatulate. Capsules 10 – ribbed, transversely partitioned in between valves. Seeds trigonous, black.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 469, 29/07/01. **Photograph:** 29

Sanskrit Name: Chanchu.

Local Name : Chhunchhado.

Distribution and Status in the Study Area: It is found in zone no 2 to 15, 16 to 20, 21, 24, 25, 26, 28 to 37.

Ecological Data: Frequency-18.38, Abundance-3.25, Density-1.22.

Distribution in Gujarat: Throughout, common, scattered or sub-gregarious (Shah, 1978).

GREWIA L.

About 150 species, tropics of Africa, Asia and Australia, 4 in GNPS.

Grewia damine Gaertn. Fruct. 2 : 113. 1791; Naraayanasw. & Rolla Rao in J. Indian Bot. Soc. 29 : 187. 1950. 1950; Daniel & Chandra. In Sharma et al. Fl. India 3 : 496. 1993. *G. salvifolia* Heyne ex Roth. Nov. Pl. Sp. 239. 1821; Mast. In Hook. F. Fl. Brit. India 1 : 386. 1874 p.p.; Cooke, Fl. Pres. Bombay 1 : 149. 1958 (Repr.). Shah, Fl. Guj. 1:131; 1978, Singh, et al Fl. Maha. Dicot. 1: 385. 2000.

Habit : Herbs, woody. Leaves ovate-oblong or ovate-lanceolate. Inflorescence of umbellate cymes. Flowers yellow. Drupes sparsely pubescent, 2 – 4 – lobed, green when young.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 470, 21/08/01.

Local Name: Sisotee.

Distribution and Status in the Study Area: It is found in zone no 19 and 28.

Ecological Data: Frequency-1.90, Abundance-1.20, Density-0.80.

Distribution in Gujarat: Central Gujarat (Chhotaudepur forest division, Kawant range), north Gujarat, Saurashtra and Kutch; not frequent (Shah, 1978).

Grewia hirsuta Vahl, Symb. Bot. 1: 34 1790; Mast in Hook. F. Fl. Brit. India 1: 391 1874; Cooke, Fl. Pres. Bombay 1 : 153. 1958 (Repr.). Shah, Fl. Guj. 1:132; 1978, Narayanasw. & Rolla Rao in J. Indian Bot. Soc. 29 : 179. 1950; Daniel & Chandra. In Sharma et al. Fl. India 3 : 501. 1993. Singh, et al Fl. Maha. Dicot. 1: 387. 2000.

Habit : Undershrubs, erect, fulvous – hairy. Leaves distichous, broadly ovate or lanceolate, upper surface glabrescent, lower surface densely villous. Inflorescence of umbellate cymes. Flowers yellow. Drupes across, fleshy, wrinkled, slightly 4 – lobed with sparse stellate hairs.

FLS and FRTS : May – November.

Herbarium No and date of Collection: 471, 31/10/00.

Local Name: Khad Dhamani.

Distribution and Status in the Study Area: It is found in zone no 3, 5, 7, 8, 9, 11, 12, 13, 17 to 20, 26, 27, 30, 31 and 34.

Ecological Data: Frequency-9.00, Abundance-0.40, Density-0.15.

Distribution in Gujarat: Bulsar, Rajpipla, Panchmahals, North Gujarat and Saurashtra (Shah, 1978).

Grewia tenax (Forssk.) Fior in Agric. Colong. 5. (Suppl.) : 23. 1912. Narayanasw. & Rolla Rao in J. India Bot. Soc. 29 : 197. 1950; Daniel & Chandrab. In Sharma et al. Fl. India 3 : 511, f. 139. 1993. *Chadara tenax* Forssk. Fl. Aeg. – Arab. 114, 1775. *Grewia populifolia* Vahl, Symb. Bot. 1 : 33. 1790; Mast in Hook. F. Fl. Brit India 1 : 385. 1874; Cooke, Fl. Pres. Bombay 1 : 148. 1958 (Repr.). Shah, Fl. Guj. 1:132; 1978. Singh, et al Fl. Maha. Dicot. 1: 393. 2000.

Habit : Straggling shrubs. Leaves ovate, obovate or suborbicular, obtuse at base, acute at apex, margins dentate. Flowers white, in axillary or leaf – opposed cymes. Drupes 2 – 4 – lobed, orange coloured, smooth.

FLS and FRTS : April – September.

Herbarium No and date of Collection: 472, 30/10/00.

Local Name: Khad Dhamani.

Distribution and Status in the Study Area: It is found in zone no 6 to 14, 17, 18, 19, 20, 25, 26, 27, 29 to 32 and 35.

Ecological Data: Frequency-10.59, Abundance-0.66, Density-0.33.

Distribution in Gujarat: Throughout in scrub forests, in hedges (except south Gujarat) (Shah, 1978).

Grewia tiliifolia Vahl, Symb. Bot. 1: 35. 1790; Mast in Hook. F. Fl. Brit. India 1 : 386. 1874 ('tiliaefolia'); Cooke, Fl. Pres. Bombay 1: 150 1958 (Repr.). Shah, Fl. Guj. 1:133; 1978, Daniel & Chandrab. In Sharma et al. Fl India 3: 511, f. 140. 1993. *G. tiliifolia* Vahl var. *leptopetala* (Brandis) T. Cooke, Fl. Pres. Bombay 1: 142, 1901 [1: 150, 1958 (Repr.)]. *G. inequalis* Bl. Bijdr. 115. 1825; Almeida, Fl. Mah. 1: 185, 1996. *G. omequalis* var. *leptopetala* (T. Cooke). Almeida, op. cit. 186. Singh, et al Fl. Maha. Dicot. 1: 393. 2000.

Habit : Trees. Leaves, ovate, acuminate at apex, obliquely cordate at base. Margins serrate to crenate – serrate. Glabrescent above, pubescent or tomentose beneath. Inflorescence of umbellate cymes. Flowers yellow; stamens many; ovary glabrous, hirsute. Drupes across, entire or 2 –lobed, sparsely hirsute.

FLS and FRTS : April – September.

Herbarium No and date of Collection: 473, 29/12/99.

Sanskrit Name: Dharmana, Dhanu-vruskha.

Local Name: Dhaman.

Distribution and Status in the Study Area: It is found in the zone no 1, 6 to 14, 16 to 20, 25 to 27, 29 to 32, 35 to 37.

Ecological Data: Frequency-12.29, Abundance-0.24, Density-0.21.

Distribution in Gujarat: Throughout in deciduous forests, occasional seldom in

scrub forests (Shah, 1978).

TRIUMFETTA L.

About 150 species, mostly tropical weeds, 2 in GNPS.

Triumfetta malabarica Koen, ex Rottb. Pl. Hort. Univ. Rar. Prog. 4.1773; Mabb. In Taxon 33 : 439. 1984. *T. rotundifolia* Lam. Encycl. 3 : 421. 1792; Mast. In Hook. f. Fl. Brit. India 1 : 395. 1874; Cooke, Fl. Pres. Bombay 1 : 156. 1958 (Repr.). Shah, Fl. Guj. 1:135; 1978, Daniel & Chandrab. In Sharma et al. Fl. India 3 : 521. 1993. Singh, et al Fl. Maha. Dicot. 1: 398. 2000.

Habit : Herbs, suffruticose. Leaves obovate to orbicular, obtuse at base, acute at apex, stellate –hairy above, softly grey – tomentose beneath. Flowers yellow, in leaf – opposed cymes. Capsules ovoid, to globose, spines pubescent with hooked bristle points.

FLS and FRTS : May – October.

Herbarium No and date of Collection: 474, 29/09/01.

Local Name: Zipti.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-18.55, Abundance-3.90, Density-2.48.

Distribution in Gujarat: In scrub forest, common along roads and earth bunds, rarely in deciduous forest clearings (Shah, 1978).

Triumfetta rhomboidea Jacq. Enum. Pl. Carib. 22. 1760; Mast. In Hook. F. Fl. Brit. India 1 : 395. 1874; Cooke, Fl. Pres. Bombay 1 : 156. 1958 (Repr.). Shah, Fl. Guj. 1:135; 1978, Sant. In Bull. Bot. Surv. India 3 : 21. (1961) 1962; Daniel & Chandrab. In Sharma et al. Fl. India 3 : 520. 1993. *T. tungarensis* Billore in J. Econ. Tax. Bot. 3 : 621. 1982. Singh, et al Fl. Maha. Dicot. 1: 399. 2000.

Habit : Perennial herbs. Lower leaves across, leaf surface with simple and stellate hairs, upper leaves shortly petiolate. Flowers bright yellow. Fruits across, spines glabrous, bristle points hooked.

FLS and FRTS : August – April.

Herbarium No and date of Collection: 475, 22/03/00.

Sanskrit Name: Jhinjhirita.

Local Name: Zipti.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-13.86, Abundance-1.96, Density-1.43.

Distribution in Gujarat: Throughout, common, scattered or sub-gregarious (Shah, 1978).

MALPIGHIACEAE

About 65 genera and 1280 species, mainly in tropical sub-tropical South America, 1 genera and 1 species in GNPS.

HIPTAGE Gaertn.

About 30 species in W. China, subtropical Asia, Formosa, Malaya and Pacific Islands, 1 in GNPS.

Hiptage benghalensis (L.) Kurz in J. Asiat. Soc. Bengal 43 : 136. 1874; Blatt. In J. Bombay nat. Hist. Soc. 34 : 893. 1930; Srivastava in Hajra et al Fl. India 4 : 1997 (var. *benghalensis*). *Banisteria benghalensis* L. Sp. Pl. 427. 1753. *Hiptage madablota* Gaertn. Fruct. 2 : 169, t. 116, f. 4. 1791 nom. illeg; Hook. F. Fl. Brit. India 1 : 418. 1874; Cooke, Fl. Pres. Bombay 1 : 167. 1958 (Repr.). Shah, Fl. Guj. 1:137; 1978. Singh, et al Fl. Maha. Dicot. 1: 419. 2000.

Habit : Extensive woody climbers. Leaves elliptic, coriaceous, shining above, sparsely pubescent beneath, acute or acuminate at apex. Flowers creamy white, throat yellowish, in terminal racemes or panicles.

FLS and FRTS : January – April.

Herbarium No and date of Collection: 476, 15/11/99.

Local Name: Madhavalata.

Distribution and Status in the Study Area: It is found in zone no 2, 4, 6 to 11, 18 to 22, 28 to 35.

Ecological Data: Frequency-6.48, Abundance-1.29, Density-0.66.

Distribution in Gujarat: Dangs (Malegaon-Saputara forest) and Saurashtra (Gujarat) (Shah, 1978).

ZYGOPHYLLACEAE

About 20 genera and 240 species in tropics and subtropics usually in drier parts, 1 genus and 1 species; in GNPS.

TRIBULUS L.

About 15 species in warmer parts of the world, 1 in GNPS.

Tribulus terrestris L. Sp. 387. 1753; Edgew & Hook. f. in Hook. f. Fl. Brit. India 1 : 423. 1874 p.p. Cooke, Fl. Pres. Bombay 1 : 170. 1958 (Repr.). Shah, Fl. Guj. 1:140; 1978, p.p. P. Singh & V. Singh in Nayar et al. Fasc. Fl. India 20 : 191. 1990 & in Hajra et al. Fl. India 4 : 55. 1997. Singh, et al Fl. Maha. Dicot. 1: 427. 2000.

Habit : Prostrate or suberect, silky-pubescent herbs. Leaves paripinnate; leaflets elliptic-oblong, appressed hairy. Flowers yellow. Solitary. Axillary or leaf – opposed.

Fruits glabrous. Seeds minute, oblong.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 477, 22/03/00.

Sanskrit Name: Gokshru, Vanshrugat, Trikantak, Laghu gokshru.

Local Name: Mitha Gokharu.

Distribution and Status in the Study Area: It is found in zone no 1 to 5, 7 to 11, 15 to 18, 21, 24, 27, 28, 29, 31 to 37.

Ecological Data: Frequency-16.86, Abundance-3.88, Density-2.89.

Distribution in Gujarat: Throughout in plains (Shah, 1978).

OXALIDACEAE

About 3 genera and 900 species, mostly tropical and subtropical, 2 genera and 2 species in GNPS.

BIOPHYTUM DC.

About 70 species, mainly tropical, 1 in GNPS.

Biophytum candolleanum Wight, Illus, Ind. Bot. 1 : 161, t. 62. 1840; Matthew, Fl. Tamilnadu Carnatic 1 : 188. 1983. *B. sensitivum* var. *candolleanum* (Wight) Edgew. & Hook. F. Fl. Brit. India 1: 437. 1874. Shah, Fl. Guj. 1:141; 1978, Singh, et al Fl. Maha. Dicot. 1: 435. 2000.

Habit : Erect, annual herbs. Leaves variable in length, leaflets oblong – obovate, membranous, hairy or glabrous, glaucous beneath, apex appendiculate, base obtuse or rounded. Umbels, peduncles, Filiform. Flowers across; sepals lanceolate; petals oblanceolate. Capsules ovoid, hairy on angles, seeds ovoid, brown.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 478, 28/10/00. **Photograph:** 30

Sanskrit Name: Lajjaluka.

Local Name: Risamani.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-21.57, Abundance-6.09, Density-4.23.

Distribution in Gujarat: Throughout, in shaded spots and as a weed in cultivated fields (Shah, 1978).

OXALIS L.

About 800 species, tropical and temperate, 1 in GNPS.

Oxalis corniculata L. Sp. Pl. 435. 1753; Edgew. & Hook. F. Fl. Brit. India 1 : 436. 1874; Cooke, Fl. Pres. Bombay 1 : 177. 1958 (Repr.). Shah, Fl. Guj. 1:141; 1978,

Singh, et al Fl. Maha. Dicot. 1: 437. 2000.

Habit : Perennial, hairy herbs. Leaflets, obcordate, membranous, sessile or subsessile. Umbels flowered on axillary peduncles. Flowers yellow; sepals appressed – pubescent outside; petals as long as sepals, oblong. Capsules oblong, narrowed at apex, 5 – angled and beaked. Seeds ovoid, transversely striate.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 479, 13/11/99. **Photograph:** 31

Sanskrit Name: Changari, Amla-patrika.

Local Name: Navari, Ambati.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 9, 10, 11 to 14, 20, 21, 22, 24 to 27, 32 to 37.

Ecological Data: Frequency-9.19, Abundance-3.28, Density-3.04.

Distribution in Gujarat: Throughout in moist places and cultivated fields (Shah, 1978).

BALSAMNIACEAE

About 4 genera and 500 to 600 species, cosmopolitan; one genus and 3 species in GNPS.

IMPATIENS L.

About 500, species widely distributed, 2 in GNPS.

Impatiens balsamina var. *coccinea* Hk.f. L. Sp. Pl. 938. 1753; Hook. F. Fl. Brit. India 1: 453. 1874; Cooke, Fl. Pres. Bombay 1 : 184. 1958 (Repr.). Shah, Fl. Guj. 1:142; 1978, Singh, et al Fl. Maha. Dicot. 1: 447. 2000.

Habit : Simple or sparingly branched, erect herbs. Leaves margins serrate, flowers axillary, solitary light to deep purple or bright reddish – purple. Capsules ellipsoid or ovoid, apiculate, tomentose.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 480, 25/07/01. **Photograph:** 32

Local Name: Galmendi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-26.39, Abundance-4.33, Density-2.80.

Distribution in Gujarat: Saurashtra and Pavagadh (Shah, 1978).

Impatiens balsamina var. *rosea* (Lindl.) Hook. f. Fl. Brit. India 1: 453. 1874; Blatt. In J. Bombay nat. Hist. Soc. 36 : 314. 1993. *I. rosea* Lindl. Bot. Reg. T. 27. 184'. *I. balsamina* var. *brevicalcarata* T. Cooke, Fl. Pres. Bombay 1 : 174. 1901, 1 : 185.

1958 (Repr.). Shah, Fl. Guj. 1:142; 1978. Singh, et al Fl. Maha. Dicot. 1: 449. 2000.

Habit : Herbs. Leaves, narrowly lanceolate. Flowers standar petal winged at back, horned at apex; pedicels. Capsules ellipsoid. Seeds few, glabrous, granular.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 481, 28/09/01.

Local Name: Galrnendi.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 8, 10, 11, 12, 14 to 22, 29 to 37.

Ecological Data: Frequency-19.90, Abundance-5.47, Density-4.67.

Distribution in Gujarat: Throughout ; common (Shah, 1978).

RUTACEAE

About 150 genera and 900 species widely distributed in southern hemisphere, especially in Australia and S. Africa, 4 genera and 4 species in GNPS.

AEGLE Correa.

Two to three species in tropical Asia and Africa, 1 in GNPS.

***Aegle marmelos* (L.) Corr.** In Trans. Linn. Soc. London 5 : 223. 1800; Hook. F. Fl. Brit. India 1 : 516. 1875; Cooke, Fl. Pres. Bombay 1 : 204. 1958 (Repr.). Shah, Fl. Guj. 1:144; 1978, Almeida Fl. Mah. 1 : 198. 1996; Nair & Nayar in Hajra et al. Fl. India 4 : 264. 1997. *Crateva marmelos* L. Sp. Pl. 444. 1753. *Aegle marmelos* var. *mahurensis* Zate in Indian J. For. 5 : 36. 1982. Singh, et al Fl. Maha. Dicot. 1: 464. 2000.

Habit : Trees. Leaves, foliolate leaflets lanceolate or elliptic-lanceolate, chartaceous, acuminate at apex. Inflorescence of axillary panicles. Flowers greenish – white or yellow, fragrant. Fruits across, globose, smooth, with gray or yellowish rind, pulp orange coloured.

FLS and FRTS : April – November.

Herbarium No and date of Collection: 482, 11/11/99. **Photograph:** 33

Sanskrit Name: Sripkala, Bilvaphala, Vasapatra, Malur, Shailush.

Local Name: Bili.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-19.47, Abundance-1.26, Density-0.60.

Distribution in Gujarat: Throughout, in deciduous forests and scrub forests, common; also planted in gardens (Shah, 1978).

CITRUS L.

About 7 species in Asia and Australia, 1 in GNPS.

Citrus limon (L.) Burm f. Fl. Ind. 173. 1768; Bailey, Man. Cult. Pl. (ed. 2) 609. 1949; Nair & Nayar I Hajra et al. fl. India 4: 282. 1997. *C. medica* var. *limon* L. Sp. Pl. 782. 1753. *C. medica* var. *limonum* (Wight & Arn.) Hook, f. Fl. Brit. India 1: 515. 1875; Cooke. Fl. Pres. Bombay 1: 201. 1958 (Repr.). Shah, Fl. Guj. 1:144; 1978, *C. karna* Raf. Syl. Tell. 142. 1838; Naik Fl. Osmananbad 64. 1979. Singh, et al Fl. Maha. Dicot. 1: 484. 2000.

Habit : Shrubs or small tress; thorns short and stiff. Leaves elliptic-ovate or ovate lanceolate, obtuse crenate-serrate; petioles merely margined. Flowers long, solitary or in axillary condensed racemes; petals white above, reddish-purple below. Fruits yellow when ripe, oval or oblong, pulp very acidic.

FLS and FRTS : April - September.

Herbarium No and date of Collection: 483, 29/05/01.

Sanskrit Name: Nimba-phala.

Local Name: Limbu.

Distribution and Status in the Study Area: It is found in zone no1, 3, 6, 10, 11, 13, 16, 18, 21, 22, 24, 25, 28, 29, 31, 33, 35 to 37.

Ecological Data: Frequency-12.89, Abundance-0.55, Density-0.39.

Distribution in Gujarat: Planted throughout (Shah, 1978).

LIMONIA L.

About 1 species, 1 in GNPS.

Limonia acidissima L. Sp. Pl. ed. 2, 1 : 554. 1762; Nair & Nayar in Hajra et al. Fl. India 4 : 294, f. 75. 1997. *Schinus limonia* L. Sp. Pl. 389. 1753 p. p. *Feronia elephantum* Corr. In Trans. Linn. Soc. London 5: 225. 1800: Hook. f. Fl. Pres. Bombay 1: 203. 1958 (Repr.).

Habit : Trees, moderate sized; spines straight, sharp. Leaves imparipinnate; leaflets cuneate or obovate, tip crenulate. Inflorescence of lateral or terminal, pubescent panicles. Flowers red. Seeds embedded in pulp.

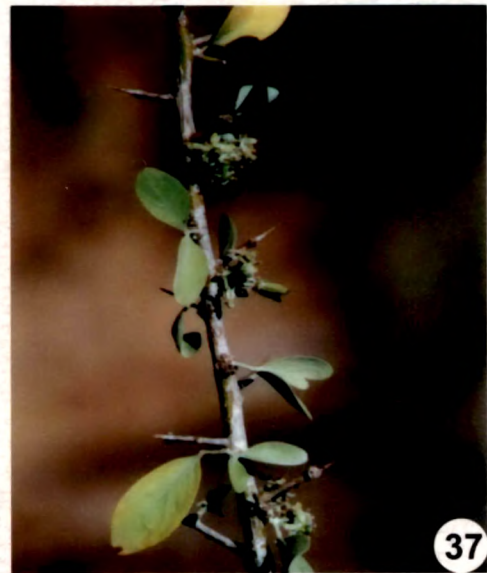
FLS and FRTS : March – August.

Herbarium No and date of Collection: 484, 22/03/00.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-2.24, Abundance-0.36, Density-0.21.

Distribution in Gujarat: Planted throughout (Shah, 1978).



34) *Murraya koenigii* (L.) Spr., 35) *Ailanthus excelsa* Roxb., 36) *Boswellia serrata* Roxb. ex. Colebr., 37) *Balanites aegyptiaca* (L.) Del., 38) *Commiphora wightii* (Arn.) Bhandari., 39) *Azadirachta indica* A. Juss.

MURRAYA L.

About 4 species, distributed in Tropical Asia, 1 in GNPS.

***Murraya koenigii* (L.) Spr.** Syst. 2 : 315. 1825; Hook. F. Fl. Brit. India 1: 503. 1875; Cooke, Fl. Pres. Bombay 1 : 193 1958 (Repr.). Shah, Fl. Guj. 1:145; 1978, Nair & Nayar in Hajra et al. Fl. India 4 : 351. 1997. *Bergera koenigii* L. Mant. 1 : 563. 1771. Singh, et al Fl. Maha. Dicot. 1: 473. 2000.

Habit : Shrubs or small trees, branches brownish, lenticelled. Leaflets elliptic or ovate, base oblique. Flowers across, greenish – white, interterminal corymbose cymes; pedicels and sepals pubescent. Berried rough with pitted glands.

FLS and FRTS : February – June.

Herbarium No and date of Collection: 485, 22/03/00. **Photograph**: 34

Sanskrit Name: Kedariya, Ketariya.

Local Name: Mitho limdo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 6, 10, 11, 13, 21, 22, 24, 25, 29, 31, 32, 35 and 37.

Ecological Data: Frequency-9.18, Abundance-0.25, Density-0.20.

Distribution in Gujarat: Planted in gardens near houses (Shah, 1978).

SIMAROUBACEAE

About 30 genera and 200 species in tropical regions, centering tropical America and tropical West Africa, 1 in GNPS.

AILANTHUS Desf.

About 10 species in tropical and subtropical Central and S.E. Asia and Australia, 1 in GNPS.

***Ailanthus excelsa* Roxb.** Pl. Cor. 1 : 24, t. 23. 1795; Bennett in Hook. F. Fl. Brit. India 1; 518. 1875; Cooke, Fl. Pres. Bombay 1 : 205. 1958 (Repr.). Shah, Fl. Guj. 1:146; 1978, Basak in Fasc. Fl. India 4 : 4. 1980. Singh, et al Fl. Maha. Dicot. 1: 489. 2000.

Habit : Trees, leaf scars large. Leaves long or more; leaflets pairs, alternate or subopposite, tomentose when young, variable in shape, apex acute or acuminate, base unequal. Flowers greenish in much branched, lax panicles. Samaras reddish – brown, linear – oblong to lanceolate. Seeds solitary.

FLS and FRTS : January – July.

Herbarium No and date of Collection: 486, 20/01/00. **Photograph**: 35

Sanskrit Name: Arlu, Mahanimba.

Local Name: Arduso.

Distribution and Status in the Study Area: It is found in zone no 2 to 22, 24, 25, 28, 29, 32, 34 to 37.

Ecological Data: Frequency-15.50, Abundance-0.65, Density-0.35.

Distribution in Gujarat: Throughout, frequent in scrub forests, rarely in cleared, dry deciduous forests (Shah, 1978).

BALANITACEAE

Only 1 genus and about 25 species in Africa and Asia, 1 in GNPS.

BALANITES Delile.

About 25 species, tropical, 1 in GNPS.

Balanites aegyptiaca (L.) Del. In Descr. Egypt. Hist. Nat. 2: 221, t. 28, f. 1. 1813; Basak in Fasc. Fl. India 4: 20. 1980. *Ximenia aegyptiaca* L. Sp. Pl. 1194. 1753. *Balanites roxburghii* Planch. In Ann. Sci. Nat. 4, 2 : 258. 1854; Bennett in Hook. F. Fl. Brit. India 1 : 522. 1875; Cooke, Fl. Pres. Bombay 1: 207. 1958 (Repr.). Shah, Fl. Guj. 1:146; 1978. Singh, et al Fl. Maha. Dicot. 1: 491. 2000.

Habit: Shrubs or trees, younger parts upbescent, spines long, often with leaves and flowers. Leaves bifoliate; apex obtuse or acute or rarely mucronulate, base rounded or cuneate. Flowers greenish-white, in axillary, short peduncled, cymes or fascicles. Drupes woody angular, 5 – grooved, yellow when ripe. Seeds solitary, strong.

FLS and FRTS : March – June.

Herbarium No and date of Collection: 487, 25/04/01. **Photograph:** 37

Sanskrit Name: Tailaphala, Ingudi, Dirghakanta, Tapas-vriksha.

Local Name: lagore.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-11.27, Abundance-1.07, Density-0.22.

Distribution in Gujarat: Throughout, in scrub forests (Shah, 1978).

Notes: Amalraj (1985) opines that the species occurring in India should be named as *Balanites roxburghii* instead of merging it with African *B. aegyptiaca*. However the characters on which he bases his argument are quantitative rather than qualitative, such as length of petiole, hairiness of petals and lengthening of the ovary and weight and pulp content of the fruits. Hence his view is not acceptable.

The flowers are fragrant. The fruit pulp is foetid smelling, said to be edible and also used for cleansing silk and cotton. Bark used as anthelmintic for cattle and its juice used as fish-poison. Wood is used for walking sticks and as fuel.

The roots and fruits of ths plant yield diosgenin which is the starting material for the

production of cortico steroid sex hormones, oral contraceptives and anabolic agents (Amalraj & Jayaraman, 1979).

BURSERACEAE

A family of about 16 genera & nearly 200 species distributed in tropics, 3 genera and 3 species reported from GNPS.

BOSWELLIA Roxb. ex Colebr.

About 24 species in tropical Africa, Madagascar & tropical Asia, 1 in GNPS.

Boswellia serrata Roxb. Ex. Colebr. In Asiat. Res. 9 : 379, t. 5. 1807; Bennett in Hook. f. Fl. Brit. India 1: 528. 1875; Cooke, Fl. Pres. Bombay 1 : 210. 1958 (Repr.). Shah, Fl. Guj. 1:147; 1978. Singh, et al Fl. Maha. Dicot. 1: 494. 2000.

Habit : Trees, tall; young shoots pubescent. Leaves long, imparipinnate, apically clustered; leaflets, subopposite, ovate – lanceolate or oblong, apex acute, base cuneate or subacute. Flowers across, in racemes shorter than leaves. Drupes trigonous, pyrenes 3, each single seeded.

FLS and FRTS : February – June.

Herbarium No and date of Collection: 488, 23/04/01. **Photograph**: 36

Sanskrit Name: Shallaki, Nagvadhu, Gajbhakshya.

Local Name: Saladi.

Distribution and Status in the Study Area: It is found in zone no 5 to 20, 24 to 37.

Ecological Data: Frequency-11.92, Abundance-0.93, Density-0.34.

Distribution in Gujarat: Throughout in deciduous forests (Shah, 1978).

COMMIPHORA Jacq.

About 1 species, 1 in GNPS.

Commiphora wightii (Arn.) Bhandari in Bull. Bot. Surv. India 6 : 327. & 1965 & Fl. Indian Des. 96, f. 34, 1978. *Balsamodendron wightii* Arn. Ion Ann. Nat. Hist. Soc. 3 : 86. 1839. *B. roxburghii* stocks in J. Asiat. Soc. Beng. 2 : 391. 1848 non Arn. 1839, Bennett in Hook. F. Fl. Brit India 1 : 529. 1875. *B. mukul* Hook. Ex stocks in Hook. J. Bot. & Kew Gard Misc. 1 : 259, t. 8. 1849; Bennett in Hook. F. op. Cit. *Commiphora mukul* (Hook. Ex stocks) Engl. In DC. Mon. Phan 4 : 12. 1883; Cooke, Fl. Pres. Bombay 1 : 212. 1958 (Repr.). Shah, Fl. Guj. 1:148; 1978. Singh, et al Fl. Maha. Dicot. 1: 495. 2000.

Habit : Shrubs, high ; young parts glandular – pubescent. Leaves 1 – 3 foliolate; leaflets subsessile, rhomboid – ovate. Flowers brownish – red in fascicles.

FLS and FRTS : March – May.

Herbarium No and date of Collection: 489, 26/04/01. **Photograph:** 38

Local Name: Guggal.

Distribution and Status in the Study Area: It is found in zone no 6, 28, 33, 34, 35 and 37.

Ecological Data: Frequency-3.33, Abundance-0.15, Density-0.09.

Distribution in Gujarat: Central Gujarat (Mahi ravines near Vasad), north Gujarat (Idar, Pahada, Mahudi), Saurashtra and Kutch; common in the last two zones (Shah, 1978).

GARUGA Roxb.

About 4 species, from Himalayas to S. China, S.E. Asia, N.E. Australia & Pacific, 1 in GNPS.

Garuga pinnata Roxb. Pl. Cor. 3 : 5, t. 208. 1819; Bennett in Hook. F. Fl. Brit. India 1 : 528. 1875; Cooke, Fl. Pres. Bombay 1 : 211. 1958 (Repr.). Shah, Fl. Guj. 1:148; 1978, Kalkman in Blumea 7 : 468. 1953. Singh, et al Fl. Maha. Dicot. 1: 495. 2000.

Habit : Trees. Leaves long; leaflets ovate or ovate – lanceolate, pubescent on lower side, apex acuminate, base oblique. Flowers across, yellow in much branched, axillary, tomentose panicles. Drupes across, greenish – black when dry, irregularly globular. Seeds 1- 5.

FLS and FRTS : February – August.

Herbarium No and date of Collection: 490, 22/08/01.

Sanskrit Name: Kakad-phala.

Local Name: Kakad.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 7, 10, 11, 21 and 22.

Ecological Data: Frequency-4.57, Abundance-0.18, Density-0.08.

Distribution in Gujarat: Throughout, in deciduous forests (Shah, 1978).

MELIACEAE

About 50 genera and over 800 species, mainly tropical; 3 genera and 3 species in GNPS.

AZADIRACHTA A. Juss.

Two species, Indo – Malayan, 1 in GNPS.

Azadirachta indica A. Juss. In Mem. Mus. Hist. Nat. paris 19 : 220, t. 2, f. 5, 1830; Cooke, Fl. Pres. Bombay 1 : 220. 1958 (Repr.). Shah, Fl. Guj. 1:149; 1978, *Melia azadirachta* L. Sp. Pl. 385. 1753; Hiern in Hook. F. Fl. Brit. India 1 : 544. 1875.

Singh, et al Fl. Maha. Dicot. 1: 502. 2000.

Habit : Trees. Leaves crowded near branch endings; leaflets ovate – lanceolate, flowers white, in axillary panicles. Drupes long, ovoid. Seeds solitary, ellipsoid.

FLS and FRTS : March – June.

Herbarium No and date of Collection: 491, 02/06/01. **Photograph**: 39

Sanskrit Name: Nimba.

Local Name: Limdo.

Distribution and Status in the Study Area: It is found in zone no1 to 11, 13 to 22, 24, 25, 28 to 37.

Ecological Data: Frequency-11.03, Abundance-0.94, Density-0.39.

Distribution in Gujarat: Throughout, planted along roadsides, self-sown and/or wild in forests (Shah, 1978).

MELIA L.

About 15 species, tropical, 1 in GNPS.

Melia azedarach L. Sp. Pl. 384. 1753; Hiern in Hook. F. Fl. Brit. India 1 : 544. 1875; Cooke, Fl. Pres. Bombay 1 : 218. 1958 (Repr.). Shah, Fl. Guj. 1:150; 1978. Singh, et al Fl. Maha. Dicot. 1: 505. 2000.

Habit : Trees. Leaves opposite or alternate; leaflets ovate or lanceolate, apex acuminate, base slightly inequilateral. Flowers in long peduncled, axillary panicles. Drupes ellipsoid – globose. Seeds 4, ellipsoid.

FLS and FRTS : July – August.

Herbarium No and date of Collection: 492, 29/07/01.

Sanskrit Name: Nimba, Pichumand, Prabhadrā, Parvatnimba, Mahanimba, Sarvatrobhadra.

Local Name: Bakano limdo.

Distribution and Status in the Study Area: It is found in zone no 3, 6, 10, 20, 21, 22, 24, 32, 35 and 37.

Ecological Data: Frequency-4.01, Abundance-0.25, Density-0.19.

Distribution in Gujarat: Throughout, planted (Shah, 1978).

SOYMIDA Juss.

A monotypic Indo-Malayan genus with its only species also found in GNPS.

Soymida febrifuga (Roxb.) A. Juss. In Mus. Hist. Nat. paris 19 : 251, t. 22, f. 26. 1830; Hiern in Hook. F. Fl. Brit. India 1 : 567. 1875; Cooke, Fl. Pres. Bombay 1 : 228. 1958 (Repr.). Shah, Fl. Guj. 1:150; 1978, *Swietenia febrifuga* Roxb. Bot. Descr. Swietenia 1. 1793 & in Med. Fasc. Obs. 6 : 129. 1795 & Pl. Cor. 1 : 18, t. 17. 1795.



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40) *Soymida febrifuge* (Roxb.) A. Juss., 41) *Celastrus paniculata* Willd., 42) *Maytenus senegalensis* (Lam.) Excell., 43) *Zizyphus nummularia* (Burm. f.) Wight & Arn., 44) *Cissus quadrangularis* L., 45) *Sapindus emarginatus* Vahl.

Singh, et al Fl. Maha. Dicot. 1: 508. 2000.

Habit : Trees. Leaves dark – green, crowded at ends of branches; leaflets 3 – 6 pairs, elliptic or oblong, pennierved, apex obtuse. Flowers white, in axillary panicles. Fruits obovoid, woody. Seeds compressed, winged.

FLS and FRTS : February – July.

Herbarium No and date of Collection: 493, 30/05/01. **Photograph:** 40

Local Name: Rohan.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-16.64, Abundance-1.14, Density-0.41.

Distribution in Gujarat: Throughout, Common (Shah, 1978).

CELASTRACEAE

A family of 55 genera and 850 species mainly distributed in tropical and subtropical regions, 2 genera and 2 species in GNPS.

CELASTRUS L.

About 31 species in Asia, Latin America, North America, New Caledonia, Australia, Fiji and Madagascar, 1 in GNPS.

Celastrus paniculata Willd. Sp. Pl. 1 : 1125. 1798; Laws. In Hook. F. Fl. Brit. India 1 : 617. 1875; Cooke, Fl. Pres. Bombay 1 : 245. 1958 (Repr.). Shah, Fl. Guj. 1:152; 1978, Ding Hou in Steenis, Fl. Males. 1, 6 : 25. 1962. Singh, et al Fl. Maha. Dicot. 1: 521. 2000.

Habit : Climbing shrubs; young branches lenticelled. Leaves broadly elliptic, ovate or obovate, apex acuminate, margins crenate – serrate. Inflorescence of panicles, long, axillary and terminal. Flowers greenish – white or yellow. Capsules subglobose, valved, bright yellow. Seeds brown, ovoid.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 494, 13/11/99. **Photograph:** 41

Sanskrit Name: Jyotismati, Kanguni, Alvana.

Local Name: Malkankni.

Distribution and Status in the Study Area: It is found in zone no 1 to 19, 21, 22, 24 to 36.

Ecological Data: Frequency-18.88, Abundance-3.00, Density-1.53.

Distribution in Gujarat: Throughout in hedges or dense forests (Shah, 1978).

MAYTENUS Molina.

About 200 species distributed mostly in the tropical and subtropical Africa, Asia and

Australia, 1 in GNPS.

Maytenus senegalensis (Lam.) Excell. In Bot. Soc. Brot. 2, 26 ; 223. 1952; Almeida, Fl. Mah. 1 : 243, f. 1996. *Celastrus senegalensis* Lam. Encycl. 1 : 400. 1763. *Maytenus emarginata* (Willd.) Ding Hou in Steenis, Fl. Males. 1, 6 : 241. 1962; *Celastrus montatana* Bth. Fl. Austr. 1 : 400. 1863; Laws in Hook. F. Fl. Brit. India 1 : 621. 1875; Cooke, Fl. Pres. Bombay 1 : 247. 1958 (Repr.). Shah, Fl. Guj. 1:153; 1978, M. *emarginata* (Willd.) Thw. Enu., 409. 1864; Laws. In Hook. F. op. Cit. Singh, et al Fl. Maha. Dicot. 1: 525. 2000.

Habit : Shrubs. Leaves obovate. Flowers white or yellowish. calyx ciliate. Capsules concave at tip, purple when ripe. Seeds rugose, black.

FLS and FRTS : September – February.

Herbarium No and date of Collection: 495, 27/12/99. **Photograph**: 42

Sanskrit Name: Vikantaka.

Local Name: Vikalo.

Distribution and Status in the Study Area: It is found in zone no 3, 6, 8, 10, 14, 15, 16, 21, 24 to 35.

Ecological Data: Frequency-10.76, Abundance-0.61, Density-0.41.

Distribution in Gujarat: Throughout in plains and low hills, in hedges or in forests undergrowth; common (Shah, 1978).

RHAMNACEAE

A family of 58 genera and about 900 species distributed in tropical and temperate regions. 1 genera and 4 species are reported from GNPS.

ZIZYPHUS Mill.

About 100 species mainly distributed in tropical Asia and America and in temperate regions of both hemisphere, 4 in GNPS.

Zizyphus mauritiana Lamk. Encyl. 3 : 319. 1789; Bhandari & Bhansali in Nayar et al. Fasc. Fl. India 20 : 99. 1990. *Z. jujuba* (L.) Gaertn. Fruct. 1 : 203. 1788 non Mill. 1768; Laws. In Hook. F. Fl. Brit. India 1 : 632. 1875 non Lam. 1789; Cooke, Fl. Pres. Bombay 1 : 256. 1958 (Repr.). Shah, Fl. Guj. 1:155; 1978. Singh, et al Fl. Maha. Dicot. 1: 544. 2000.

Habit : Small trees or large shrubs armed. Leaves ovate – elliptic with rounded ends, slightly oblique at base, glabrous above and white – tomentose beneath. Flowers greenish – above and white – tomentose beneath. Flower greenish – yellow, in axillary clusters or shortly peduncled axillary cymes. Drupes across, globose, fleshy, yellow or orange when ripe.

FLS and FRTS : September – October.

Herbarium No and date of Collection: 496, 27/09/01. **Photograph:** 43

Sanskrit Name: Badari.

Local Name: Bor.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-20.42, Abundance-1.21, Density-0.67.

Distribution in Gujarat: Throughout, a few varieties are cultivated in some parts of Gujarat (Shah, 1978).

Zizyphus oenoplia (L.) Mill. Gard. Dict. Ed. 8, 3. 1768; Laws. In Hook f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 257. 1958 (Repr.). Shah, Fl. Guj. 1:156; 1978, Bhandari & Bhansali in Nayar et al. Fasc. Fl. India 20 : 106. 1990. *Rhamnus oenoplia* L. Sp. Pl. 194. 1753. Singh, et al Fl. Maha. Dicot. 1: 545. 2000.

Habit : Straggling shrubs. Leaves distichous, ovate or ovate – lanceolate, oblique at base, margins minutely denticulate. Flowers in panicle, subsessile cymes. Drupes globose or obovoid, black when ripe, edible.

FLS and FRTS : August – September.

Herbarium No and date of Collection: 497, 20/08/01.

Local Name: Bordi Velo.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 15 to 18, 20, 21, 22, 24, 26, 28, 30, 32, 34 and 37.

Ecological Data : Frequency-11.11, Abundance-2.58, Density-0.67.

Distribution in Gujarat : Throughout, on hedges and on trees in forest; common (Shah, 1978).

Zizyphus nummularia (Burm.f.). Wight & Arn. Prodr. 162. 1834; Laws. In Hook. F. Fl. Brit. India 1 : 633. 1875; Bhandari & Bhansali in Nayar et al. Fasc. Fl. India 20 : 103. 1990. *Rhamnus nimmularia* Burm. F. Fl. Ind. 61. 1768. *Zizyphus rotundifolia* Lam. Encycl. 3 : 319. 1789; Cooke, Fl. Pres. Bomay 1 : 257. 1958 (Repr.). Shah, Fl. Guj. 1:156; 1978. Singh, et al Fl. Maha. Dicot. 1: 544. 2000.

Habit : Shrubs, branched from near the base with dichotomous branches. Leaves orbicular or ovate, tomentose, margins globose, red when ripe.

FLS and FRTS : October – December.

Herbarium No and date of Collection: 498, 13/12/00.

Local Name: Chanibor.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 13 to 22, 24 to 37.

Ecological Data: Frequency-15.16, Abundance-0.81, Density-0.54.

Distribution in Gujarat: Throughout, common in arid and semi-arid regions, scattered or subgregarious, rare in dry deciduous forests (Shah, 1978).

Zizyphus xylopyra (Retz.) Willd. Sp. Pl 1 : 1104. 1798; Laws. In Hook f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 258. 1958 (Repr.). Shah, Fl. Guj. 1:157; 1978, Bhandari & Bhansal in Nayar et al. Fasc. Fl. India. 20 : 112. 1990. *Rhamnus xylopyra* Rietz. Obs. Bot. 2 : 11. 1781. Singh, et al Fl. Maha. Dicot. 1: 546. 2000.

Habit : Straggling shrubs or occasionally trees armed or not. Leaves occasionally elliptic – oblong or suborbicular, obliquely cordate at base. Flowers in pubescent, paniculate cymes. Frutis across, globose, hard and woody. seeded.

FLS and FRTS : April – July.

Herbarium No and date of Collection: 499, 27/08/00.

Local Name: Ghatbor.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 13 to 20, 24 to 37.

Ecological Data: Frequency-12.53, Abundance-0.95, Density-0.37.

Distribution in Gujarat: In all zones; occasional in deciduous forests, rare in scrub forests (Shah, 1978).

VITACEAE

A family of 12 genera and about 700 species widely distribute in the tropics and subtropics, extending into north and south temperate regions, 3 genera and 5 species in GNPS.

AMPELOCISSUS Planch.

A genus of about 95 species in the tropical regions of Asia, Africa, America and Australia, 1 in GNPS.

Ampelocissus latifolia (Roxb.) Planch. In J. vigne, Amer. 374. 1884 & in DC. Monogr. Phan. 5 (2) 370 1887. *Vitis latifolia* (Lam) Roxb. Fl. Ind. 1: 661. 1820; Laws. In Hook.f. Fl. Brit. India 1 : 652. 1875; Cooke. Fl. Pres. Lam. 1783. Shah, Fl. Guj. 1:158; 1978, Singh, et al Fl. Maha. Dicot. 1: 549. 2000.

Habit : Climbing shrubs; young parts – reddish – tomentose, stem and branches striate. Leaves orbicular, angled or shallowly palmately lobed, cottony – tomentose beneath when young, glabrous at length, margins toothed. Flowers reddish, in pyramidal paniculate – cymes; Seeds ellipsoid.

FLS and FRTS : June – October.

Herbarium No and date of Collection: 500, 27/09/01.

Local Name: Gandovelo.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 7, 9, 11, 13, 15, 18, 19, 21, 24, 27, 29, 31, 33, 35 and 36.

Ecological Data : Frequency-7.62, Abundance-0.83, Density-0.54.

Distribution in Gujarat: Throughout on hedges and forest undergrowth; common (Shah, 1978).

CAYRATIA Juss.

About 45 species from India to New Guinea, Australia, Africa and Madagascar, 2 in GNPS.

Cayratia auriculata (Roxb) Gamble. Fl. Madras Pres. 237. 1918; S & J 15. *Cissus auriculata* Roxb. Fl. Ind. 1:130. 1820. *Vitis auriculata* Wall Cat. 6031. 1828 (nomen; FBI 1:658: C 1:273). Shah, Fl. Guj. 1:159; 1978.

Habit: An extensive, woody, somewhat succulent, tendril climber. Leaflets obovate or ovate-rhomboidal, glabrous above, pubescent beneath. Flowers greenish-white, branched cymes. Berries deep-purple to almost black when ripe, smooth.

FLS and FRTS : August - January.

Herbarium No and date of Collection: 501, 29/12/99.

Local Name: Khat-khatumboo.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 6, 11, 12, 16, 17, 20 to 26, 28, 30, 32, 34, 36 and 37.

Ecological Data : Frequency-9.62, Abundance-1.31, Density-0.62.

Distribution in Gujarat : Bulsar, Chhotaudepur and Saurashtra, occasional; trailing in absence of support (Shah, 1978).

Cayratia carnosa (Lam.) Gegnep. Lecomte Not. Syst. 1:347. 1911; ch & O 64; S & J 15. *Cissus carnosa* Lam. Encyel. 1:31. 1783. *Vitis carnosa* Wall. Ex W. & A. Prodr. 127. 1834; Fl. Brit. India 1:654; (excl. syn. *Cissus auriculata* Roxb.). Shah, Fl. Guj. 1:159; 1978, *Vitis trifolia* C 1:271 et al. auct. (non L. 1753). Singh, et al Fl. Maha. Dicot. 1: 552. 2000.

Habit : Slender, herbaceous climbers, somewhat woody at base. Leaflets glaucous-green, ovate-elliptic or obovate, thinly pubescent. Flowers greenish-white, in 4-6 cm broad, branched cymes. Berries globose, glabrous, deep-purple

FLS and FRTS : July - October.

Herbarium No and date of Collection: 502, 27/09/01.

Local Name: Khat-khatumboo.

Distribution and Status in the Study Area: It is found in zone no 3 to 8, 10, 13, 14, 15, 18, 19, 22, 24, 26, 28, 29, 31, 33, 35 and 37.

Ecological Data : Frequency-7.33, Abundance-1.38, Density-0.67.

Distribution in Gujarat: Throughout on hedges, old walls and low shrubs or trees; common (Shah, 1978).

CISSUS L.

A pantropical genus of about 350 species, a few in the warmer parts of the temperate zones, 2 in GNPS.

Cissus quadrangularis L. Mant. 1 : 39. 1767. *Vitis quadrangularis* Wall. Ex Wight & Arn. Prodr. 125. 1834; Laws in Hook. F. Fl. Brit India 1 : 645. 1875; Cooke, Fl. Pres. Bombay 1 : 266. 1958 (Repr.). Shah, Fl. Guj. 1:160; 1978. Singh, et al Fl. Maha. Dicot. 1: 557. 2000.

Habit : Climbing shrubs; rootstock stout, leafless when old, tendrils simple. Leaves broadly ovate, apex rounded, base cordate, margins entire or lobed. Flowers greenish – white, in shortly peduncled umbels; calyx cup – shaped; petals oblong. Berries globose, red when ripe. Seeds obovoid.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 503, 13/02/01. **Photograph:** 44

Sanskrit Name: Asthisanhar, Vrajvallii, Granthiman.

Local Name: Hadsakal.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 21, 22, 24, 27, 35, 36 and 37.

Ecological Data: Frequency-1.22, Abundance-0.33, Density-0.23.

Distribution in Gujarat: In all zones, on hedges at some places; not common (Shah, 1978).

Cissus repanda Vahl, Symb. Bot. 3 : 18. 1794. *Vitis repanda* (Vahl.) Wight & Arn. Prodr. 125. 1834; Laws in Hook. F. Fl. Brit India 1 : 648. 1875; Cooke, Fl. Pres. Bombay 1 : 267. 1958 (Repr.). Shah, Fl. Guj. 1:160; 1978. Singh, et al Fl. Maha. Dicot. 1: 559. 2000.

Habit : Scandent shrubs; young parts and leaves rufous tomentose, nodes swollen. Leaves ovate, apex acuminate, base shallowly cordate, margins crenate – dentate. Flowers reddish- pink, in dichotomous cymes.

FLS and FRTS : March – June.

Herbarium No and date of Collection: 504, 01/06/01.

Local Name: Ghandovelo.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 17 to 22, 24 to 31, 33 to 37.

Ecological Data : Frequency-19.81, Abundance-4.76, Density-2.83.

Distribution in Gujarat: In deciduous forest on trunks of trees, in absence of support trailing; occasional (Shah, 1978).

LEEACEAE

A monotypic family of about 34 species in Indo-Malaysian regions, Australia, Africa and Madagascar; 1 species in GNPS.

LEEAL.

About 1 species, 1 in GNPS.

***Leea asiatica* (L.)** Ridsd.in Manilala, Bot & Hist. Hort. Malab. 189. 1980. *Phytolacca asiatica* L. sp. Pl. 474. 1753. *Leea crispa* van Royen ex L. Syst. Nat. ed. 12, 2 : 627. 1767. & Mant. 1 : 124. 1767; Laws in Hook. F. Fl. Brit. India 1 : 665. 1875; Cooke, Fl. Pres. Bombay 1 : 276. 1958 (Repr.). Shah, Fl. Guj. 1:161; 1978, Ridsd. In Blumea 22 : 88. 1974. *L. aspera* Edgew in Trans. Linn. Soc. 20 : 36. 1846; non Wall. Ex G. don 1831; Laws in Hook. F. op. Cit; Cooke, op. Cit. 277 nom. Illeg. *L. edgeworthii* Sant. In Rec. Bot. Surv. India 16 : 54. 1953, 16 : 46, ed. 3, 1967. *L. pumila* Kurz in J. Asiat. Soc. Beng. 41 (2) : 302. 1872. Laws in Hook. F. op. Cit. 666. Singh, et al Fl. Maha. Dicot. 1: 566. 2000.

Habit : Herbs. Leaflets elliptic or ovate, glabrous above, pubescent beneath, base rounded or cordate. Flowers in much branched, trichotomous, pubescent cymes. berries across, depressed – globular, purplish – black when ripe, 5 – 6 lobed, smooth.

FLS and FRTS : May – November.

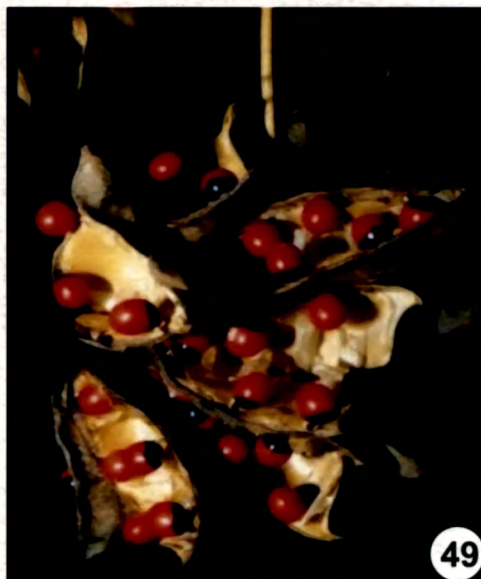
Herbarium No and date of Collection: 505, 27/09/01.

Distribution and Status in the Study Area: It is found in zone no 2, 7, 8, 9, 11, 12, 14 to 20, 25, 26, 27, 31 to 35.

Ecological Data: Frequency-7.81, Abundance-0.76, Density-0.42.

Distribution in Gujarat: In deciduous forests of South and Central Gujarat; not frequent (Shah, 1978).

Notes: Ridsdale op.cit.cites van Rheed's plate '*Nalagu*' (Hort, Malab. 1:26. 1678) as 'type' for *L. asiatica* while making combination for *L. crispa* (in Manilal op.cit.) quoting the basionym *Phytolacca asiatica*. But in fact the type plate cited resembles more *L.*



46) *Cardiospermum halicocabum* L., 47) *Mangifera indica* L., 48) *Moringa oleifera* Lam., 49) *Abrus precatorius* L., 50) *Butea monosperma* (Lamk.) Taubert., 51) *Butea superba* Roxb.

indica than *L. crispa*. Hence, the name *L. asiatica* should be adopted for *L. indica* instead of *L. crispa*.

SAPINDACEAE

About 150 genera and 2,000 species in tropics and subtropics, 3 genera and 4 species in GNPS.

CARDIOSPERMUM L.

About 14 species mainly in tropical and subtropical regions of India, Africa and America, 1 in GNPS.

Cardiospermum halicacabum L. Sp. Pl. 366. 1753; Hiern in Hook. F. Fl. Brit. India 1: 670. 1875; Cooke, Fl. Pres. Bombay 1: 280. 1958 (Repr.). Shah, Fl. Guj. 1:163; 1978. Singh, et al Fl. Maha. Dicot. 1: 571. 2000.

Habit : Slender, perennial herbs; roots woody. Leaflets ovate – lanceolate, margins toothed. Flowers across, white, 4 – merous, in corymbose, tendrilliferous cymes; petals unequal with scales on inner side at base capsuled trigonous, depressed, pyriform. Seeds globose, arillate.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 506, 15/11/99. **Photograph**: 46

Sanskrit Name: Karnasphota.

Local Name: Trandharo.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 7, 8, 10 to 15, 16, 22, 24 to 29, 31, 32, 34, 36 and 37.

Ecological Data : Frequency-14.19, Abundance-3.15, Density-2.31.

Distribution in Gujarat: Throughout on hedges and forests undergrowth; common (Shah, 1978).

SAPINDUS L.

About 13 species, in tropics and subtropics, 2 in GNPS.

Sapindus emarginatus Vahl, Symb. Bot. : 3: 54. 1794. *S. trifolius* Hiern. In Hook. F. Fl. Brit. India 1: 682. 1875, p.p. non L. 1753. *S. laurifolius* Vahl. Var. *emarginatus* (Vahl.) T. Cooke, Fl. Pres. Bombay 1: 267. 1902. [1 : 284. 1958 (Repr.)]. Shah, Fl. Guj. 1:164; 1978. Singh, et al Fl. Maha. Dicot. 1: 576. 2000.

Habit : Tree, bark rough with grey scales, branches tomentose. Leaves paripinnate; leaflets oblanceolate or ovate-oblong, thickly coriaceous, glabrous above, pubescent beneath, base cuneate or obtuse. Flowers dull white, in terminal panicles.

FLS and FRTS : February – May.

Herbarium No and date of Collection: 507, 23/04/01. **Photograph:** 45

Local Name: Aritha.

Distribution and Status in the Study Area: It is found in zone no 3 to 7, 9, 10, 11, 12, 14, 17 to 22, 24 to 27, 30 to 33, 35 and 36.

Ecological Data: Frequency-8.28, Abundance-1.00, Density-0.55.

Distribution in Gujarat : Planted at some places.

Sapindus laurifolius Vahl. Symb. Bot. 3 : 54. 1794; Cooke, Fl. Pres. Bombay 1 : 284. 1958 (Repr.). Shah, Fl. Guj. 1:164; 1978, *S. trifolius* acut. Non L. 1753; Hiern in Hook. F. Fl. Brit. India 1 : 682. 1875 p.p. Singh, et al, Fl. Maha. Dicot. 1: 576. 2000.

Habit : Trees, high. Leaves abruptly pinnate; leaflets 2 – 3 pairs, lanceolate or elliptic – oblong, glabrous on both sides or sometimes pubescent beneath, base acute or rounded. Flowers across, white or greenish – white, in terminal, rusty pubescent panicles; calyx pubescent; petals longer than calyx. Drupes– lobed, brownish when ripe.

FLS and FRTS : November – March.

Herbarium No and date of Collection: 508, 15/11/99.

Sanskrit Name: Phenila, Phenil, Aristha.

Local Name: Aritha.

Distribution and Status in the Study Area: It is found in zone no 3 to 7, 9 to 14, 17 to 22, 24, 25, 26, 29, 30, 32, 33, 35 and 36.

Ecological Data: Frequency-9.01, Abundance-0.87, Density-0.27.

Distribution in Gujarat: Planted as a hedge at some places (Shah, 1978).

SCHLEICHERA Willd.

Monotypic genus distributed in Indo-Malaysia, 1 in GNPS.

Schleichera oleosa (Lour) Oken in Allg. Naturgesch. 3 (2) : 1341. 1841; Merr. In J. Arnold Arbor. 31 : 284. 1950. *Pistacia oleosa* Lour. Fl. Cochinch. 2 : 615. 1790. *Schleichera trijuga* Willd. Sp. Pl. 4 (2) : 1096. 1805; Hiern in Hook. F. Fl. Brit. India 1 : 681. 1875; Cooke, Fl. Pres. Bombay 1 : 283. 1958 (Repr.). Shah, Fl. Guj. 1:165; 1978. Singh, et al Fl. Maha. Dicot. 1: 577. 2000.

Habit : Trees. Leaves paripinnate, young leaves reddish; leaflets oblong or elliptic – oblong, coriaceous, nerves strongly plaited below, apex obtuse – rounded or acute, base cuneate – subcordate. Flowers greenish – white,

FLS and FRTS : March – May.

Herbarium No and date of Collection: 509, 02/06/01.

Local Name: Ujjal.

Distribution and Status in the Study Area: It is found in zone no 3 to 15, 17 to 22, 24 to 27, 29, 30, 32 to 35.

Ecological Data: Frequency-7.68, Abundance-0.89, Density-0.21.

Distribution in Gujarat: In deciduous forests in south, central Gujarat and Saurashtra; occasional (Shah, 1978).

ANACARDIACEAE

About 70 genera and 600 species chiefly throughout the tropics and subtropics; 5 genera and 5 species in GNPS.

ANACARDIUM L.

About 8 species in tropical America, 1 in GNPS.

Anacardium occidentale L. Sp. Pl. 383. 1753; Hook. F. Fl. Brit. India 2 : 20. 1876; Cooke, Fl. Pres. Bombay 1 : 292. 1958 (Repr.). Shah, Fl. Guj. 1:166; 1978. Singh, et al Fl. Maha. Dicot. 1: 581. 2000.

Habit : Trees, branches terete. Leaves obovate or elliptic, apex rounded, base cuneate. Flowers yellow, with pink stripes.

FLS and FRTS : December – May.

Herbarium No and date of Collection: 510, 02/06/01.

Sanskrit Name: Kajut, Kajutak, Vrut-taruskar, Piyalchar.

Local Name: Kaju.

Distribution and Status in the Study Area: It is found in zone no 6 and 10.

Ecological Data: Frequency-1.70, Abundance-0.29, Density-0.22.

Distribution in Gujarat: Planted at some places; also grown by the forests department in some forest division on experimental basis; native of Tropical America (Shah, 1978).

BUCHANANIA Spreng.

About 25 species in tropical Asia, 1 in GNPS.

Buchanania cochinchinensis (Lour.) Almeida, Fl. Mah. 1 : 287. 1996. *Toluifera cochinchinensis* Lour. Fl. Cochinch. 262. 1790. *B. Lazzari* Spreng. In J. Bot. (Schrader) 2 : 234. 1800; Cooke, Fl. Pres. Bombay 1 : 293. 1958 (Repr.). Shah, Fl. Guj. 1:166; 1978, *B. latifolia* Roxb. Fl. Ind. 2 : 385. 1832; Hook. F. Fl. Brit. India 2 : 23. 1876. Singh, et al Fl. Maha. Dicot. 1: 582. 2000.

Habit : Trees, young branches silky tomentose. Leaves broadly oblong, apex emarginate, base rounded. Inflorescence terminal, panicles long. Flowers across,

white. Drupes across, subglobose, reddish – purple when ripe; stone hard.

FLS and FRTS : January – May.

Herbarium No and date of Collection: 511, 02/06/01.

Sanskrit Name: Piyalak, Priyal, Sneha-bij.

Local Name: Charoli.

Distribution and Status in the Study Area: It is found in zone no.6 and 10.

Ecological Data: Frequency-1.76, Abundance-0.27, Density-0.17.

Distribution in Gujarat: In deciduous forests of Dangs, Rajpipla, Panchmahals; occasional (Shah, 1978).

LANNEA A. Rich.

About 40 species, chiefly in tropical Africa, 1 in GNPS.

Lannea coromandelica (Houtt.) Merr. In J. Arnold Arbor. 19 : 353. 1939. *Dialium coromandelicum* Houtt. Nat. Hist. 2, 2: 39, t. 5, f. 2. 1774. *Odina wodier* Roxb. Fl. Ind. 2 : 293. 1832; Hook. F. Fl. Brit. India 2 ; 29. 1876; Cooke Fl. Pres. Bombay 1: 296. 1958 (Repr.). Shah, Fl. Guj. 1:167; 1978. Singh, et al Fl. Maha. Dicot. 1: 584. 2000.

Habit : Trees. Bark ash coloured, young branchlets puberulous. Leaves crowded at ends of branches; leaflets ovate – oblong, apex acuminate, base rounded. Inflorescence of terminal panicles; flowers across, creamy yellow with reddish tinge. Drupes reniform, ripens red.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 512, 20/02/00.

Sanskrit Name: Jhingini.

Local Name: Moladi.

Distribution and Status in the Study Area: It is found in zone no 3 to 9, 11 to 19, 24 to 37.

Ecological Data: Frequency-11.58, Abundance-0.59, Density-0.23.

Distribution in Gujarat: Throughout; occasional (Shah, 1978).

MANGIFERA L.

About 35 species chiefly in tropical Asia, 1 in GNPS.

Mangifera indica L. Sp. Pl. 200. 1753; Hook. F. Fl. Brit. India 2 : 13. 1876; Cooke, Fl. Pres. Bombay 1 : 291. 1958 (Repr.). Shah, Fl. Guj. 1:167; 1978. Singh, et al Fl. Maha. Dicot. 1: 584. 2000.

Habit : Trees. Leaves crowded at apex of branches, oblong – lanceolate, coriaceous. Inflorescence of pubescent, terminal panicles. Flowers across, polygamous. Drupes obliquely pyriform or obovoid; stone compressed, fibrous, hard.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 513, 02/06/01. **Photograph:** 47

Sanskrit Name: Rasal, Kokilanand.

Local Name: Ambo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 13, 16, 17, 20, 21, 22, 24, 25, 28, 31 to 37.

Ecological Data: Frequency-7.10, Abundance-0.35, Density-0.17.

Distribution in Gujarat: Throughout; several varieties such as Afus, Payari, Langdo, Malgubba, Totapuri, Dasher, Kesar and Ladvo are planted (Shah, 1978).

SPONDIAS L.

About 10 species in the Indo-Malesian and American tropics, 1 in GNPS.

Spondias pinnata (L.f.) Kurzi in Prelim. Rep. For & Veg. Pegu Append. A. 44. & B. 42. 1875. *Mangifera pinnata* L. f. Suppl. 156. 1781. *Spondias mangifera* Willd. Sp. Pl. 2 : 751. 1799. Nom. Illeg.; Hook. F. Fl. Brit. India 2 : 42. 1876; Cooke, Fl. Pres. Bombay 1 : 299. 1958 (Repr.). Shah, Fl. Guj. 1:169; 1978, *S. acuminata* Roxb. Fl. Ind. 2 : 453. 1832; Hook. F. op. Cit. ; Cooke, op. Cit. 300. Singh, et al Fl. Maha. Dicot. 1: 587. 2000.

Habit : Trees, leaves imparipinnate; leaflets oblong or elliptic, apex acuminate, margins entire or serrate. Inflorescence of terminal panicles. Flowers greenish -white, clustered, yellow when ripe; stones hard.

FLS and FRTS : December – July.

Herbarium No and date of Collection: 514, 28/12/99.

Local Name: Ambado.

Distribution and Status in the Study Area: It is found in zone no 14, 15, 16, 17, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 35.

Ecological Data: Frequency-4.09, Abundance-0.19, Density-0.12.

Distribution in Gujarat: In deciduous forest at Dangs and panchmahals (Shah, 1978); Cooke remark, " Gujarat-widely planted", but this information could not be verified.

MORINGACEAE

Monotypic family of 14 species distributed from Southern Angola and South-Western Africa across to Madagascar and India; 2 species in GNPS.

MORINGA Adans.

About 14 species, 2 in GNPS.

Moringa concanensis Nimmo in Grah. Cat. Bomb. Pl. 43 : 1839; Hook. F. Fl. Brit. India 2 : 45. 1876; Cooke, Fl. Pres. Bombay 1 : 301. 1958 (Repr.). Shah, Fl. Guj. 1:169; 1978, Verdc. In Kew Bull. 40 : 12. 1985. Singh, et al Fl. Maha. Dicot. 1: 589. 2000.

Habit : Trees, Leaflets broadly elliptic – ovate or orbicular. Inflorescence of lax, pubescent. Flowers white, petals yellow with pink streaks. Capsules triquetrous, slightly constricted between seeds. Seeds 3 –angled.

FLS and FRTS : December – April.

Herbarium No and date of Collection: 515, 24/12/99.

Local Name: Saragvo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 14, 15, 16, 21, 22, 24, 25, 29, 32, 33, 35 to 37.

Ecological Data: Frequency-5.61, Abundance-0.54, Density-0.19.

Distribution in Gujarat : Throughout, rare (Shah, 1978).

Moringa oleifera Lam. Encycl. 1 : 398. 1785; verdc. In Kew Bull. 40 : 7. 1985. *M. pterygosperma* Gaertn. Fruct. 2 : 314. 1791; Hook. F. Fl. Brit. India 2 : 45. 1876; Cooke, Fl. Pres. Bombay 1 : 301. 1958 (Repr.). Shah, Fl. Guj. 1:170; 1978. Singh, et al Fl. Maha. Dicot. 1: 590. 2000.

Habit : Trees. Leaflets lateral leaflets elliptic, terminal obovate. Inflorescence of puberulous panicles. Flowers white. Capsules ribbed. Seeds 3 –angled, angles winged.

FLS and FRTS : January – April.

Herbarium No and date of Collection: 516, 20/01/00. **Photograph:** 48

Sanskrit Name: Srigru, Shobhajan, Svetashigu, Krishnagandha.

Local Name: Jangli Saragvo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 13, 14, 17, 19, 20, 26, 27, 30, 31 and 35.

Ecological Data: Frequency-5.39, Abundance-0.36, Density-0.21.

Distribution in Gujarat: Planted or self-sown, near houses, throughout (Shah, 1978).

FABACEAE

(PAPILIONACEAE)

About 480 genera and 12000 species, cosmopolitan, abundant in tropics and subtropics; 33 genera and 68 species in GNPS.

ABRUS Adans.

About 12 species in tropics, 1 in GNPS.

Abrus precatorius L. Syst. Nat. ed. 2, 2 : 472. 1767; Baker in Hook. F. Fl. Brit. India 2 : 175. 1876; Cooke, Fl. Pres. Bombay 1 : 382. 1958 (Repr.). Shah, Fl. Guj. 1:176; 1978, Breteler in Blumea 10 : 617. 1960; Verdc. In Kew Bull. 24 : 240. 1970; Sanj. Legumes of india 74. 1991. Singh, et al Fl. Maha. Dicot. 1: 597. 2000.

Habit : Twiners, perennial. Leaves long; leaflets oblong or elliptic-oblong, glabrous above, appressed – hairy beneath. Flowers pinkish-purple, fading white in racemes. Pods long, linear-oblong, beaked. Seeds ellipsoid, bright scarlet with a black spot.

FLS and FRTS : August – March.

Herbarium No and date of Collection: 517, 20/01/00. **Photograph**: 49

Sanskrit Name: Gunja, Raktika, Angarvallarii.

Local Name : Chanothi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-23.71, Abundance-9.47, Density-5.97.

Distribution in Gujarat: Throughout on hedges and on low shrubs in forests (Shah, 1978).

AESCHYNOMENE L.

About 150 species, tropical and sub-tropical, 1 in GNPS.

Aeschynomene indica L. Sp. Pl. 713. 1753; Baker in Hook. F. Fl. Brit. India. 2 : 151. 1876; Cooke, Fl. Pres. Bombay 1 : 363. 1958 (Repr.). Shah, Fl. Guj. 1:177; 1978, Rudd in Reinwardtia 5 ; 30. 1959 Sanj. Legumes of india 75. 1991. Singh, et al Fl. Maha. Dicot. 1: 598. 2000.

Habit : Herbs or undershrubs. Leaves imparipinnate; leaflets many, alternate, – linear – oblong, apex obtuse or subacute, minutely mucronate, base rounded and inequilateral. Flowers pale to creamy – yellow, few, in axillary, lax racemes. Seeds Dark – brown.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 518, 21/08/01.

Local Name: Bhoy-ikad.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4, 5, 6, 8 to 12, 15, 16, 21, 22, 26, 28, 29, 30, 32, 33, 35 and 37.

Ecological Data: Frequency-8.09, Abundance-0.70, Density-0.57.

Distribution in Gujarat: Throughout, in moist places; common (Shah, 1978).

ALYSICARPUS Desv.

About 25-30 spp. In Africa, Australia, Polynesia and Tropical America, 4 in GNPS.

Alysicarpus hamosus Edgew. In J. Asiat. Soc. Bengla 21 : 171. 1853; Baker in Hook. F. Fl. Brit. India 2 : 157, 1876; Cooke, Fl. Pres. Bombay 1: 368. 1958 (Repr.). Shah, Fl. Guj. 1:180; 1978, Sanj. Legumes of india 78. 1991. *Hedysarum procumbens* Roxb. Fl. Ind. 3 : 345. 1832 non Mill. 1768. *Alysicarpus procumbens* (Roxb.) Schindl. In Feddes Repert. 21 : 11. 1925.

Habit : Herbs, prostrate or procumbent, hairy; branches radially spreading or diffuse. Leaves ovate – oblong or suborbicular, hairy on nerves beneath. Flowers purple or pink, few, in terminal and axillary racemes.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 519, 21/08/01.

Local Name: Sameravo.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 15 to 18, 20 to 37.

Ecological Data: Frequency-11.63, Abundance-0.84, Density-0.45.

Distribution in Gujarat: Throughout, among grasses, in cultivated fields and along roads and railway lines (Shah, 1978).

Alysicarpus longifolius (Rottl. Ex. Spreng.) Wight & Arn. Prodr. 233. 1834.; Baker in Hook. F. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 370 1958 (Repr.). Shah, Fl. Guj. 1:179; 1978, Sanj. Legumes of india 79. 1991. *Hedysarum longifolium* Rottl. Ex. Spreng. Syst. Veg. 3 : 319. 1826. Singh, et al Fl. Maha. Dicot. 1: 602. 2000.

Habit : Herbs, erect, slender. Leaves oblong or lanceolate, appressedly pubescent on nerves beneath. Flowers reddish – purple geminate in spicate racemes. Pods 4 –6 jointed.

FLS and FRTS : September – October.

Herbarium No and date of Collection: 520, 28/09/01.

Local Name: Ubho Sameravo.

Distribution and Status in the Study Area: it is found in all zones.

Ecological Data: Frequency-18.57, Abundance-1.95, Density-2.31.

Distribution in Gujarat: Throughout, common, along margins of cultivated fields, among grasses in wastelands and in hedges (Shah, 1978).

Alysicarpus monilifer (L.) DC. Prodr. 2 : 353. 1825; Baker in Hook. F. Fl. Brit. India 2 : 157. 1876; Cooke. Fl. Pres. Bombay 1 : 368. 1958 (Repr.). Shah, Fl. Guj. 1:180; 1978, Sanj. Legumes of India 79. 1991. *Hedysarum moniliferum* L. Mant. Pl. 1 : 102. 1767. Singh, et al Fl. Maha. Dicot. 1: 603. 2000.

Habit : Herbs, prostrate, hairy. Leaves elliptic-oblong or obovate, hairy on nerves beneath. Flowers pinkish – purple, few in axillary and terminal racemes. Pods long, jointed, hairy. Seeds subglobose or oblong, brownish.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 521, 26/09/01.

Distribution and Status in the Study Area: It is found in zone no 3 to 10, 12, 13, 14, 16 to 20, 22, 25, 27, 30 to 36.

Ecological Data: Frequency-12.91, Abundance-0.82, Density-0.42.

Distribution in Gujarat: Throughout in plains, except Bulsar and Kachchh (Shah, 1978).

***Alysicarpus vaginalis* (L.) DC, Prodr. 2:353. 1853; Baker n Hook. f. Fl. Brit. India 2:158. 1876; Cooke, FL. Pres. Bombay 1:369. 1958 (Repr.). Shah, Fl. Guj. 1:182; 1978, Sanj. Legumes of India 81. 1991. *Hedysarum vaginale* L. Sp. Pl. 746. 1753. Singh, et al Fl. Maha. Dicot. 1: 609. 2000.**

Habit : Herbs, difuse or suberect, sparsely hairy. Leaves ovate-oblong or nearly orbicualr, glabrous above, pubescent beneath. Flowers violet, terminal and axillary racemes. Pods jointed, reticulately veined. Seeds ellipsoid, brown.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 522, 21/08/01.

Local Name : Sameravo.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 7, 8, 10, 11, 12, 14, 15, 17, 18, 20, 24, 25, 27, 28, 30, 32, 33, 34 and 37.

Ecological Data: Frequency-10.55, Abundance-1.28, Density-0.79.

Distribution in Gujarat: Throughout, common (Shah, 1978).

ARACHIS L.

About 15-19, species, probably south American, 1 in GNPS.

***Arachis hypogoea* L. POI. 741. 1753; Baker in Hook. f. Fl. Brit. India 2 : 161. 1876; Cooke, Fl. Pres. Bombay 1 : 435. 1958 (Repr.). Shah, Fl. Guj. 1:183; 1978, Sanj. Legumes of india 83. 1991. Singh, et al Fl. Maha. Dicot. 1: 768. 2000.**

Habit : Herbs, diffuse or suberect. Leaves pinnate, alternate; leaflets 4, ovate – lanceolate. Flowers yellow or white, axillary, solitary. Pods underground, reticulately veined, constricted between seeds.

FLS and FRTS : September – October.

Herbarium No and date of Collection: 523, 01/10/01.

Sanskrit Name: Buchanaka, Mandapi, Snehabija, Bhusimbi.

Local Name : Mangfali.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 15, 16, 21, 22, 24, 28, 31 to 37.

Ecological Data: Frequency-6.67, Abundance-1.14, Density-0.39.

Distribution in Gujarat: Throughout, extensively cultivated in Saurashtra, on a much smaller scale in other parts; at times an escape in water-logged places common (Shah, 1978).

ATYLOSIA Wright & Arm.

About 20-35 species in tropical Africa, Asia and Australia, 1 in GNPS.

***Atylosia scarabaeoides* (L.) Benth.** Pl. Jungh. 3:243. 1851-55; FBI 2:215; C 1:409; S & J 17. *Dolichos scarabaeoides* L Sp Pl. 726. 1753. Shah, Fl. Guj. 1:184; 1978.

Habit : Slender, appressed-pubescent herbs. Leaflets elliptic or ovate-oblong, nearly sessile, grey-pubescent. Flowers pale-to bright-yellow, solitary or few, in axillary racemes. Pods long, elliptic-oblong, appressed-hairy, brown. Seeds ellipsoidal, black, smooth, glabrous, strophilote.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 524, 21/08/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-6.25, Abundance-1.25, Density-1.23.

Distribution in Gujarat: Dangs, Rajpipla, Chhotaudepur, Panchmahals, Mahi ravines and surashtra, on hedges, not common.

BUTEA Koenig ex. Roxb.

About 30 species in Indo-Malaya and China, 3 in GNPS.

***Butea monosperma* (Lam.) Taub.** In Engl. & Prantl. Pflanzenfam. 3 (3) : 365. 1894; Sanj. Legumes of india 99. 1991. *Erythrina monosperma* Lam. Encycl. 2 : 391. 1785. *Butea frondosa* Roxb. Ex Willd. Sp. Pl. 2 : 917. 1802. Nom. Spuerfl. Baker in Hook. f. Fl. Brit. India 2 : 194. 1876; Cooke, Fl. Pres. Bombay 1 : 395. 1958 (Repr.). Shah, Fl. Guj. 1:185; 1978, Singh, et al Fl. Maha. Dicot. 1: 610. 2000.

Habit : Trees; bark rough, ash coloured. Leaves 3 – foliolate; leaflets obovate, ovate-rhomboid, glabrous above, silky-pubescent beneath. Flowers in compact racemes on leafless branches. Pods oblong, sandy – brown, hairy, stalked. Seeds solitary.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 525, 29/05/01. **Photograph:** 50

Local Name : Khakharo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-16.12, Abundance-1.07, Density-0.45.

Distribution in Gujarat : Throughout; common.

Butea monosperma* var. *lutea (Witt) Mahesh. In Bull. Bot. Surv. India 3 : 92. (1961) 1962; Sant. In Rec. Bot. Surv. India 1 6 : 66. 1967 (3rd Rev. ed.) *B. frondosa* var. *lutea* Witt, Descr. List. N. & Berar Circ. C.P. 75. 1916. Singh, et al Fl. Maha. Dicot. 1: 610. 2000.

Habit : Trees. Leaves 3 – foliolate; leaflets obovate, ovate – rhomboid, glabrous above, silky pubescent beneath. Flowers yellowish or canary – yellow. Pods oblong, brownish, 1 – seeded.

FLS and FRTS : January – May.

Herbarium No and date of Collection: 526, 24/04/01.

Sanskrit Name: Palash, Brahmavriksha, Kishunk, Vatpath.

Local Name: Pilo Khakhar.

Distribution and Status in the Study Area: It is found in the zone no 24.

Ecological Data: Frequency-00, Abundance -00, Density-00.

Distribution in Gujarat: Rare, Chhotaudepur and SasanGir (Singh, 1996).

Butea superba Roxb. Ex. Willd. Sp. Pl. 3 : 917. 1802; Baker in Hook. f. Fl. Brit. India 2 : 195. 1876; Cooke, Fl. Pres. Bombay 1 : 396. 1958 (Repr.). Shah, Fl. Guj. 1:186; 1978, Sanj. Legumes of india 99. 1991. Singh, et al Fl. Maha. Dicot. 1: 611. 2000.

Habit : Lianas. Leaves 3 – foliolate; leaflets ovate – rhomboid or elliptic – oblong, coriaceous, glabrescent, apex acute, base obliquely rounded. Flowers in racemes or panicles. Oblong, brown, hairy, reticulately veined, thickened at sutures.

FLS and FRTS : February – June.

Herbarium No and date of Collection: 527, 26/04/01. **Photograph:** 51

Local Name : Kharkhar-velo.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 8, 9, 11, 14, 15, 17, 19, 21, 24, 26, 27, 28, 30, 32, 33, 35 and 36.

Ecological Data : Frequency-11.14, Abundance-0.93, Density-0.65.

Distribution in Gujarat: Dangs and Saurashtra (Shah, 1978).

CAJANUS DC.

A monotypic genus, probably native of the old world, 1 in GNPS,

Cajanus cajan (L.) Millsp. In Field columb. Mus. Bot. 2, (1) : 53. 1900; Van der Maesen in Agric. Univ. Wageningen Papers 85 (4) : 65, f. 4, t. 2 – 3, 5 – 7 (1985) 1986; Sanj. Legumes of india 100. 1991. *Cytisus cajan* L. Sp. Pl. 739. 1753; *Cajanus indicus* spreng. Syst. Veg. 3 : 248. 1826; baker in Hook. f. Fl. Brit.india 2 : 217. 1876;



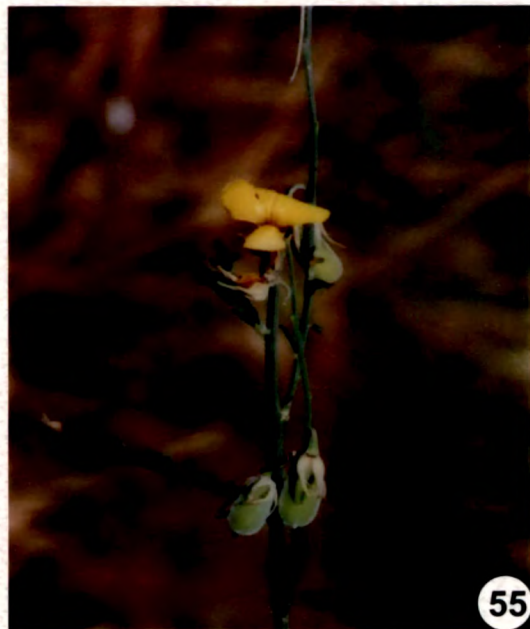
52



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52) *Cajanus cajan* (L.) Millsp., 53) *Canavalia gladiata* (Jacq.) DC., 54) *Clitoria ternatea* L., 55) *Crotalaria leptostachya* Bth., 56) *Crotalaria medicaginea* Lam., 57) *Crotalaria retusa* L.

Cooke, Fl. Pres. Bombay 1; 435. 1958 (Repr.). Shah, Fl. Guj. 1:186; 1978. Singh, et al Fl. Maha. Dicot. 1: 612. 2000.

Habit : Shrubs. Leaflets ovate – elliptic or lanceolate, rarely obcordate, glandular – punctate, apex acuminate, acute or mucronate, base cuneate. Flowers many, yellow in racemes. Pods oblong or sickles shaped, hairy. Seeds globose or ellipsoid.

FLS and FRTS : Septemebr – March.

Herbarium No and date of Collection: 528, 14/11/99. **Photograph**: 52

Sanskrit Name: Adhaki, Tuveri.

Local Name : Tuvar.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 9, 10, 15, 20, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-7.67, Abundance-0.37, Density-0.28.

Distribution in Gujarat: Throughout, cultivated; seldom an escape (Shah, 1978).

CANAVALIA DC.

About 50 species, tropical and subtropical, 1 in GNPS.

Canavalia gladiata (Jacq.) DC. Prodr. 2 : 404. 1825; Sauer in Brittonia 16 : 149. 1964; Sanj. Legumes of india 107. 1991. *Dolichos gladiatus* Jacq. Coll. Bot. 2; 276. 1788. Non DC. 1825; Cooke, Fl. Pres. Bombay 1: 397. 1958 (Repr.). Shah, Fl. Guj. 1:188; 1978. Singh, et al Fl. Maha. Dicot. 1: 616. 2000.

Habit : Twiners, stout, lignose. Leaflets ovate, pubescent, petiolate. Flowers pale lilac, pedicellate, brownish. Seeds oblong – ellipsoid.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 529, 01/11/01. **Photograph**: 53

Local Name : Tarvardi.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 7, 8, 10, 12, 13, 15, 16, 18, 20, 22, 24, 26, 28, 29, 31, 33, 35 to 37.

Ecological Data : Frequency-9.54, Abundance-0.77, Density-0.37.

Distribution in Gujarat: Throughout on hedges, common (Shah, 1978).

CICER L.

About 20 species from North America, e. Mediterranean to Central Asia, 1 in GNPS.

Cicer arietinum L. Sp. Pl. 738. 1753; baker in hook. f. Fl. Brit. India. 2: 176. 1876; Cook, Fl. Pres. Bombay 1:435. 1958 (Repr.). Shah, Fl. Guj. 1:189; 1978, Sanj. Legumes of India 113. 1991. Singh, et al Fl. Maha. Dicot. 1: 769. 2000.

Habit : Herbs, diffuse. Leaflets ovate-oblong or obovate. Flowers violet-purple, axillary, solitary. Pods turgid.

FLS and FRTS : October - March.

Herbarium No and date of Collection: 530, 21/02/00.

Sanskrit Name : Chanaka, Harimanth, Shakalpriya.

Local Name: Chana.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 14, 15, 21, 22, 24, 28, 31 to 37.

Ecological Data: Frequency-7.02, Abundance-0.86, Density-0.38.

Distribution in Gujarat: Cultivated, also an escape (Shah, 1978).

CLITORIA L.

About 40 species in torpical and sub-tropical regions, 2 in GNPS.

Clitoria biflora Dalz. In Kew. J. Bot. 2 : 35. 1850; Baker in Hook. f. Fl. Brit. India 2 : 208. 1876; Cooke, Fl. Pres. Bombay 1 : 406. 1958 (Repr.). Shah, Fl. Guj. 1:189; 1978, Varghese et al. In J. Econ. Tax. Bot. 14 ; 642. 1990; Sanj. Legumes of india 114, 1991. Singh, et al Fl. Maha. Dicot. 1: 617. 2000.

Habit : Herbs. Leaves imparipinnate; leaflets elliptic-oblong or ovate- lanceolate, strigosely hairy, apex acute. Flowers blue, axillary racemes. Flat beaked. Seeds brown.

FLS and FRTS : Auguest – October.

Herbarium No and date of Collection: 531, 27/09/01.

Sanskrit Name: Aparajita, Girikarnika.

Local Name : Ubhi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-1.81, Abundance-0.37, Density-0.36.

Distribution in Gujarat: Throughout in undergrowth of forests and in shaded spots along roads or edges of cultivated fields; occasional (Shah, 1978).

Clitoria ternatea L. Sp. Pl. 753. 1753; Baker in Hook. F. Fl. Brit. India 2: 208. 1876; Cooke, Fl. Pres. Bombay 1 : 405. 1958 (Repr.). Shah, Fl. Guj. 1:190; 1978, sanj. Legumes of india 114. 1991. Singh, et al Fl. Maha. Dicot. 1: 619. 2000.

Habit : Perennials, twining. Leaflets elliptic – oblong, sparsely hairy, apex obtuse, base acute or obtuse. Flowers bright blue, axillary, solitary. Pods sharply beaked with 5 persistent sepals. Seeds yellowish – brown.

FLS and FRTS : May – December.

Herbarium No and date of Collection: 518, 21/08/01. **Photograph:** 54

Sanskrit Name: Vishnukanta, Yonipushpa.

Local Name : Aparajita.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 9, 11 to 14, 20, 21, 22, 24, 25, 31 to 36.

Ecological Data : Frequency-11.07, Abundance-0.73, Density-0.49.

Distribution in Gujarat: Throughout, on hedges; common (Shah, 1978).

CROTALARIA L.

About 550 species in tropical and subtropical regions, 6 in GNPS.

***Crotalaria juncea* L.** Sp. Pl., 714. 1753; Hook. f. Fl. Brit. India. 2: 79. 1876; Cooke, Fl. Pres. Bombay 4: 320, 1958 (Repr.). Shah, Fl. Guj. 1:195; 1978, Sanj. Legumes of India 122. 1991. Singh, et al Fl. Maha. Dicot. 1: 633. 2000.

Habit: Herbs, branched, silky-pubescent. Leaves subsessile, linear-lanceolate or elliptic-lanceolate, appressed-pubescent. Flowers yellow, in terminal and lateral racemes. Pods obovoid – oblong. Seeds subreniform, yellowish – brown.

FLS and FRS : November – January.

Herbarium No and date of Collection: 533, 26/12/99.

Sanskrit Name : Sana, San.

Local Name : Shan.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 7, 8, 9, 11 to 14, 17, 18, 20, 24, 25, 27 to 30, 32, 35 and 36.

Ecological Data: Frequency-6.85, Abundance-0.36, Density-0.67.

Distribution in Gujarat: Throughout, under cultivation; sometimes an escape (Shah, 1978).

***Crotalaria leptostachya* Bth.** In Hook. London J. Bot. 2 : 652. 1843; Baker in Hook. f. Fl. Brit. India 2; 78. 1876; Cooke, Fl. Pres. Bombay 1 : 320. 1958 (Repr.). Shah, Fl. Guj. 1:195; 1978, Sanj. Legumes of india 123. 1991. Singh, et al Fl. Maha. Dicot. 1: 633. 2000.

Habit : Herbs, erect, rigid, fulvous – pubescent. Leaves linear – oblong or oblong – lanceolate, appressed silky – pubescent. Flowers yellow interterminal and axillary racemes. Pods obovate – oblong, hairy. Seeds subreniform, yellowish – brown.

FLS and FRTS : October – November.

Herbarium No and date of Collection: 534, 01/11/01. **Photograph:** 55

Local Name: Jangli Shan.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-12.29, Abundance-1.63, Density-1.00.

Distribution in Gujarat: Dangs, Vyara, Vansda and rajpipla forest ranges in south Gujarat; occasional (but rare at Rajpipla) (Shah, 1978).

Crotalaria linifolia L. f. Suppl. 322. 1781; Baker in Hook. f. Fl. Brit. India 2 : 72. 1876; cooke, Fl. Pres. Bombay 1 : 317. 1958(Repr.). Shah, Fl. Guj. 1:195; 1978, Munk in Reinwardtia 6 : 207. 1962; Sanj. Legumes of india 123. 1991. Singh, et al Fl. Maha. Dicot. 1: 635. 2000.

Habit : Undershrubs, suffruticose. Leaves alternate obovat - oblong or lanceolate, appressed silvery hairy beneath. Flowers yellow.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 535, 30/09/01.

Local Name:Adbau Shan.

Distribution and Status in the Study Area: It is found in the zones no 2 to 6, 8 to 12, 17 to 21, 23 to 26, 30 to 33, 35 to 37.

Ecological Data: Frequency-11.81, Abundance-2.44, Density-1.12.

Distribution in Gujarat: Throughout among grasses and forest undergrowth; rarely on sandy river beds; not common (Shah, 1978).

Crotalaria medicanginea Lam. Encycl. 2 : 201. 1876; Baker in Hook. f. Fl. Brit. India 2 : 81. 1876; Cooke, Fl. Pres. Bombay 1 : 322. 1958 (Repr.). Shah, Fl. Guj. 1:196; 1978, Munk in Reinwardtia 6 : 208. 1962; Sanj. Legumes of india 124. 1991. Singh, et al Fl. Maha. Dicot. 1: 639. 2000.

Habit : Herbs, erect. Leaflets obovate – oblong or oblanceolate, appressed silky – pubescent beneath, apex apiculate. Flowers yellow, terminal and leaf – opoposed racemes. Pods obliquely beaked. Seeds dark – brown, subreniform.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 536, 30/09/01. **Photograph**: 56

Local Name: Ran Methi.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-28.05, Abundance-7.50, Density-5.30.

Distribution in Gujarat: Throughout, common and abundant, often in pure stands everywhere (Shah, 1978).

Crotalaria nana Burm. f. Fl. Ind. 156. T. 48, f. 2. 1768; Baker in Hook. f. Fl. Brit. India 2 : 71. 1876 p.p. Cooke, Fl. Pres. Bombay 1 ; 315. 1958 (Repr.). Shah, Fl. Guj. 1:196; 1978, Sanj. Legumes of india 125. 1991. Singh, et al Fl. Maha. Dicot. 1: 642. 2000.

Habit : Herbs, branches silky – brown hairy. Leaves oblong – oblanceolate, pellucid – punctate, silky hairy, subacute or apiculate. Flowers yellow, in capitate, terminal

racemes. Pods obliquely ovoid- subglobose, black when ripe. Seeds dark – brown, reniform.

FLS and FRTS : September - December.

Herbarium No and date of Collection: 537, 30/10/01.

Distribution and Status in the Study Area: It is found in zone no 7, 9, 10, 11, 16, 21, 22 and 34.

Ecological Data: Frequency-5.62, Abundance-1.93, Density-1.33.

Distribution in Gujarat: Bulsar, Dangs and Vyara; rare (Shah, 1978).

Crotalaria retusa L. Sp. Pl. 715. 1753; Baker in Hook. f. Fl. Brit. India 2 : 75. 1876; Cooke. Fl. Pres. Bombay 1: 318. 1958 (Repr.). Shah, Fl. Guj. 1:198; 1978, Munk in Reinwardtia 6 : 212. 1962; Sanj. Legumes of India 128. 1991. Singh, et al Fl. Maha. Dicot. 1: 645. 2000.

Habit : Undershrubs. Robust. Leaves obovate-oblong or oblanceolate-oblong, pubescent beneath, apex obtuse or retuse, base cuneate. Flowers bright yellow, many, in compact, terminal racemes. Pods linear – oblong, stalked.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 538, 26/12/99. **Photograph:** 57

Local Name: Ghugara.

Distribution and Status in the Study Area: It is found in zone no 3 to 7, 9, 10, 11, 12, 14, 15, 16, 20, 21, 24, 29, 30, 31, 33, 34, 36 and 37.

Ecological Data: Frequency-6.67, Abundance-1.50, Density-0.57.

Distribution in Gujarat: Throughout, in forest undergrowth, under hedges along roads and in cultivated fields; common (Shah, 1978).

DALBERGIA L.f.

About 300 species in tropical and sub tropical regions, 3 in GNPS.

Dalbergia lanceolaria subsp. *paniculata* Roxb. Suppl. 316. 1781; Baker in Hook. f. Fl. Brit. India 2 : 235. 1876; Cooke. Fl. Pres. Bombay 1 : 425. 1958 (Repr.). Shah, Fl. Guj. 1:201; 1978, Sanj. Legumes of India 136. 1991. Singh, et al Fl. Maha. Dicot. 1: 655. 2000.

Habit : Trees, high; bark greyish – white. Leaflet elliptic – oblong or ovate – obovate, puberulous beneath. Flowers white or pinkish, in axillary or terminal, leafless panicles. Pods strap shaped, stipitate, 1 – 3 seeded.

FLS and FRTS : March – June.

Herbarium No and date of Collection: 539, 30/05/01.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6 to 13, 17



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58) *Dalbergia sissoo* Roxb., 59) *Erythrina suberosa* Roxb., 60) *Erythrina variegata* L., 61) *Indigofera astragallina* DC., 62) *Mucuna prurita* Hook., 63) *Pongamia pinnata* L.

to 22, 25 to 37.

Ecological Data: Frequency-8.79, Abundance-0.61, Density-0.20.

Distribution in Gujarat : In deciduous forest; rare (Shah, 1978).

Dalbergia latifolia Roxb. Pl. Cor. 2 : 7, t. 113. 1799; Baker in Hook. f. Fl. Brit. India 2: 235. 1876; Cooke, Fl. Pres. Bombay 1 : 422. 1958 (Repr.). Shah, Fl. Guj. 1:202; 1978, Sanj. Legumes of india 137. 1991. Singh, et al Fl. Maha. Dicot. 1: 657. 2000.

Habit : Trees. Bark – grey – ash coloured. Leaflets elliptic – obovate or ovate – suborbicular, apex emarginate or rounded. Flowers creamy – white in axillary, lax panicles. Pods oblong- lanceolate, reticulately veined, 1- 4 seeded.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 540, 13/11/99.

Sanskrit Name: Shishappa.

Local Name : Shisam.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 8 to 13, 17 to 22, 25 to 28, 30, 31, 32, 34 and 35.

Ecological Data: Frequency-10.16, Abundance-0.71, Density-0.19.

Distribution in Gujarat: In deciduous forests in hilly regions; rather common (Shah, 1978).

Dalbergia sissoo Roxb. Fl. Ind 3 ; 223. 1832; Baker in Hook. f. Fl. Brit. India 2 : 231. 1876; Cooke. Fl. Pres. Bombay 1 : 421. 1958 (Repr.). Shah, Fl. Guj. 1:202; 1978, Sanj. Legumes of india 140. 1991. Singh, et al Fl. Maha. Dicot. 1: 662. 2000.

Habit : Trees, 8 – 12 m high; bark greyish – brown, rough, fissured. Leaflets terminal ones largest, broadly ovate or suborbicular. Flowers white in axillary panicles. Pods strap – shaped, stalked. Seeds 1 – 4.

FLS and FRTS : February – October.

Herbarium No and date of Collection: 541, 23/06/01.

Sanskrit Name: Krishnasara, Shisapa, Sisama.

Local Name : Sissoo.

Distribution and Status in the Study Area: It is found in zone no 6 to 13, 18, 19, 20, 25, 26, 27, 30, 34 and 35.

Ecological Data: Frequency-6.76, Abundance-0.43, Density-0.23.

Distribution in Gujarat: Planted; seldom in forests (Shah, 1978).

DESMODIUM Desv.

About 450 species in tropical and sub-tropical regions, 6 in GNPS.

Desmodium dichotomum (Willd.) DC. Prodr. 2 : 336. 1825; van Meeuwen in Reinwardtia 6 : 248. 1962; Sanj. Legumes of india 152. 1991. *Hedysarum dichotomum* Willd. Sp. Pl. 3; 1180. 1802. *Desmodium diffusum* (Willd.) DC. Prodr. 2 : 336. 1825; Baker in Hook. f. Fl. Brit. India 2 : 169. 1876; Cooke, Fl. Pres. Bombay 1 : 377. 1958 (Repr.). Shah, Fl. Guj. 1:206; 1978. Singh, et al Fl. Maha. Dicot. 1: 670. 2000.

Habit : Herbs, straggling, viscidly pubescent. Leaflets ovate – obovate. Elliptic or obovate, hairy on both surfaces. Flowers pink. Pods faintly reticulate, hairy.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 542, 13/11/99.

Local Name : Shalparni.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6 to 28, 31 to 36.

Ecological Data: Frequency-15.81, Abundance-2.45, Density-1.57.

Distribution in Gujarat: Common, throughout as a weed in cultivated fields, along road sides and railway lines and in forest undergrowth.

Desmodium gangeticum (L.) DC. Prodr. 2 : 327. 1825; Baker in Hook. f. Fl. Brit. India 2: 168. 1876; (incl. Var. maculatum (L.) Baker); Cooke, Fl. Pres. Bombay 1 : 379. 1958 (Repr.). Shah, Fl. Guj. 1:206; 1978, van Meeuwen in Reinwardtia 6 : 249. 1962; Sanj. Legumes of india 153. 1991. *Hedysarum gangeticum* L. Sp. Pl. 746. 1753. Singh, et al Fl. Maha. Dicot. 1: 670. 2000.

Habit : Undershrubs. Leaves ovate- oblong, glabrous above, appressed – pubescent beneath, apex acute. Flowers bluish – violet, in terminal and axillary racemes. Pods reddish- brown, subfalcate, hairy jointed.

FLS and FRTS : March – November.

Herbarium No and date of Collection: 543, 13/11/99.

Sanskrit Name: Vidarigandha, Shalparni, Guha, Atiguha, Dirghamula.

Local Name: Ekpani Pandadiyo.

Distribution and Status in the Study Area: It is found in zone no 2 to 13, 16, 17, 18, 26, 27, 29 to 34, 36 and 37.

Ecological Data: Frequency-13.14, Abundance-2.16, Density-0.99.

Distribution in Gujarat: Throughout in the undergrowth of forests and in shaded spots along roadsides and railway lines; common (Shah, 1978).

Desmodium neomexicanum A. gray. A. Gray, Pl. Wright 1: 53. 1852. Chavan, Sabnis & Bedi in Kew Bull. 17: 265. 1963. Shah, Fl. Guj. 1:208; 1978.

Habit: Erect or suberect, slender, hairy herbs, tall. Leaflets terminal largest, all membranous, ovate or ovate-lanceolate, nearly glabrous but for ciliate margins. Racemes terminal and axillary, long. Pods long, jointed; joints flat, hairy, ciliate on margins. Seeds long, smooth, glabrous, pinkish-brown, grooved at one end.

FLS and FRTS : October - December.

Herbarium No and date of Collection: 544, 13/11/99.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-9.19, Abundance-3.28, Density-3.04.

Distribution in Gujarat: Throughout, scattered in shaded spots or in undergrowth of forests; occasional (Shah, 1978).

Desmodium repandum (Vahl.) DC. (Vahl). DC. Prodr. 2:334, 1825; S & J. 18. *Hedysarum rapandum* Vahl, Symb. Bot. 2: 82. 1791. *Desmodium scalpe* DC. Prodr. 2: 334. 1825. Fl. Brit. India 2: 165. Shah, Fl. Guj. 1:209; 1978.

Habit: An erect herb or undershrub, viscidly hairy, tall. Leaflets ovate. Flowers purplish, in terminal and lateral, simple or branched racemes. Pods jointed. Deeply constricted along both sutures, hairy, hairs hooked.

FLS and FRTS : August - October.

Herbarium No and date of Collection: 545, 24/08/01.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 5 to 12, 15 to 18, 20, 21, 22, 24, 27, 28 to 35.

Ecological Data: Frequency-21.14, Abundance-4.77, Density-3.17.

Distribution in Gujarat: Listed by Santapau from Saurashtra as common in thik forest at Sasan and at the foot of Girnar mountain.

Desmodium ritchiei Sanj. In Bull. Bot. Surv. India 22 : 229. (1980) & Legumes of India 161. 1991. *D. rotundifolium* Baker in Hook. f. Fl. Brit. India 2 : 172. 1876; non DC. 1825.; Cooke. Fl. Pres. Bombay 1 : 381. 1958 (Repr.). Shah, Fl. Guj. 1:209; 1978, p.p. *Desmodiastrum racemosum* (Bth) Pramanik & Thoth. Var. *rotundifolium* (Dalz. Ex Prain) Pramanik & Thoth. In J. Ind. Bot. Soc. 65 : 378. 1987. Singh, et al Fl. Maha. Dicot. 1: 675. 2000.

Habit : Herbs. Leaflets appressedly pubescent beneath. Flowers pink, in terminal and axillary racemes. Pods falcate, lower suture slightly indented;

FLS and FRTS : September – December.

Herbarium No and date of Collection: 546, 14/11/99

Distribution and Status in the Study Area: It is found in zone no 1 to 14, 17, 18, 19, 20, 27 to 30, 32 to 36.

Ecological Data: Frequency-12.63, Abundance-2.48, Density-0.80.

Distribution in Gujarat: Reported from Dangs and Pavagadh only among grasses. Occasional.

***Desmodium triflorum* (L.) DC.** Prodr. 2 : 334. 1825; Baker in Hook. f. Fl. Brit. India 2 : 173. 1876; Cooke, Fl. Pres. Bombay 1 : 378. 1958 (Repr.). Shah, Fl. Guj. 1:210; 1978, van. Meeuwen in Reinwardtia 6 : 261. 1962; Sanj. Legume of india 163. 1991. *Hedysarum triflorum* L. Sp. Pl. 749. 1753. Singh, et al Fl. Maha. Dicot. 1: 672. 2000.

Habit : Prostrate herbs. Leaflets obovate, membranous, hairy beneath, cuneate at base. Flowers pinkish, axillary fascicles. Pods compressed, falcate, hairy.

FLS and FRTS : June – January.

Herbarium No and date of Collection: 547, 16/11/99.

Local Name : Zino Pandaiyo.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 7 to 11, 13 to 19, 21, 22, 24 to 31, 33, 35 and 36.

Ecological Data: Frequency-7.43, Abundance-1.16, Density-0.24.

Distribution in Gujarat: Throughout, gregarious in moist grounds (Shah, 1978).

DOLICHOS L.

About 1 species, 1 in GNPS.

***Dolichos trilobus* L.** Sp. Pl. 726. 1753 p.p. Verdc. In Taxon 17 : 170. 1968 & Kew Bull. 24. 422. 1970; Sanj. Legumes of india 167. 1991. *D. falcatus* Klein ex Willd. Sp. Pl. 3 : 1047. 1803; Baker in Hook. f. Fl. Brit. India 2 : 211. 1876. Shah, Fl. Guj. 1:211; 1978, Singh, et al Fl. Maha. Dicot. 1: 680. 2000.

Habit : Herbs, diffuse, twining. Leaflets ovate, obvate – rhomboid or lanceolate, glabrescent, apex acuminate, base rounded or truncate. Flowers lilac or purple, in axillary fascicles. Pods linear – oblong, subfalcate, apiculate. Seeds reddish – brown, ellipsoid – oblong.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 548, 16/11/99.

Sanskrit Name : Shimbi, Tamvabij.

Distribution and Status in the Study Area : It is found in zone no 1, 2, 3, 6, 8, 10, 14, 15, 20, 21, 22, 28, 29, 32, 34 to 37.

Ecological Data: Frequency-5.93, Abundance-2.32, Density-2.02.

Distribution in Gujarat : Dangs and Saurashtra; occasional (Shah, 1978).

ERYTHRINA L.

About 100 species chiefly tropical and subtropical, 2 in GNPS.

Erythrina suberosa Roxb. Fl. Ind. 3:253. 1832; Baker in Hook, f. Fl. Brit. India 2: 189. 1876; Cooke, Fl. Pres. Bombay 1: 391. 1958 (Repr.). Shah, Fl. Guj. 1:212; 1978, Sanj. Legumes of India 173. 1991. Singh, et al Fl. Maha. Dicot. 1: 682. 2000.

Habit : Trees. Leaflet terminal reniform, cordate, lateral ones ovate-cordate, shortly acuminate. Flowers scarlet, in terminal racemes. Pods brownish, narrowed at both ends.

FLS AND FRTS : January - May.

Herbarium No and date of Collection: 549, 28/05/01.

Local Name: Jangariokhkharo.

Distribution and Status in the Study Area: It is found in zone no 7, 8, 9, 11 to 14, 18, 19, 20, 25, 26, 27, 29, 30 and 31.

Ecological Data: Frequency-8.33, Abundance-0.33, Density-0.15.

Distribution in Gujarat: In all zones (except Kutch), mostly near river banks in forests, rare (Shah, 1978).

Erythrina variegata L. Herb. Amboin. 10. 1754; & Amoen. Acad. 4: 122. 1759; Krukoff in J. Arnold Arbor. 53:132. 1972; Sanj. Legumes of India 173. 1991. *E. indica* Lam. Encycl. 2:391. 1876; Baker in Hook. f Fl. Brit. India 2:188. 1876; Cooke, Fl. Pres. Bombay 1:390.1958 (Repr.). Shah, Fl. Guj. 1:213; 1978, *E. indica* var *alba* Blatt. & Mill. In J. Bombay nat. Hist. Soc. 33:628. 1929. Singh, et al Fl. Maha. Dicot. 1: 683. 2000.

Habit: Trees deciduous. Leaflets ovate or ovate – rhomboid, membranous, apex acute or acuminate base truncate. Flowers coral – red, in dense racemes. Pods subcylindric, black when mature. Seeds reddish – brown, ellipsoid – oblong.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 550, 27/06/01.

Sanskrit Name: Paribhadra, Kantakipalash.

Local Name: Jangariokhkharo.

Distribution and Status in the Study Area: It is found in zone no 6, 8, 9, 11, 14, 27, 29, 30 and 31.

Ecological Data: Frequency-1.53, Abundance-0.32, Density-0.26.

Distribution in Gujarat : Planted at many places (Shah, 1978).

HEYLANDIA Neens.

About 1 species, 1 in GNPS.

Heylandia latebrosa (Heyne. Ex. Roth) Neens. in DC. Prodr. 11 : 723. 1847; C. B. Cl. In Hook. F. Fl. Brit. India 4 : 423. 1884; Cooke, Fl. Pres. Bombay 2: 434. 1958 (Repr.). *Ruellia latebrosa* Heyne ex Roth, Nov. Pl. Sp. 307. 1821. *Hemigraphis latbrosa* var. *heyneana* Bremek. Mat. Mon. Strob. 139. 1944; Sant in Univ. Bombay Mem. 2: 26. 1952.

Habit : Herbs, weak, diffuse; stems slender, obtusely subquadrangular. Leaves ovate, sparsely hairy on both surfaces often with short, bulbous based hairs, acuminate, coarsely crenate-serrate. Flowers bluish in axillary and terminal heads. Capsules minutely pubescent. Seeds broadly ellipsoid or suborbicular, yellowish – brown, clothed with white hairs.

FLS and FRTS : December – March.

Herbarium No and date of Collection: 551, 22/02/00.

Local Name : Panerovo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: Saurashtra (Mehta, 1997).

INDIGOFERA L.

About 300 species in tropical Africa and sub-tropical regions, mostly tropical; 7 in GNPS.

Indigofera astragalina DC. Prodr. 2: 228. 1825; Sanj. Legumes of India 185. 1991 & in Hajra et al. Fasc. Fl. India 21: 20. 1995. *I. hirsute* auct. Non L. 1753; Baker in Hook. f. Fl. Brit. India 2: 98. 1876 p.p.; Cooke, Fl. Pres. Bombay 1:339. 1958 (Repr.). Shah, Fl. Guj. 1:218; 1978, de Kort & Thijssse in Blumea 30: 121. 1984. Singh, et al Fl. Maha. Dicot. 1: 695. 2000.

Habit: Herbs or undershrubs, hairy. Leaflets opposite, elliptic – oblong or ovate oblong, appressed hairy on both surfaces. Flowers bright – scarlet to rosy – purple, in terminal and axillary, compact racemes. Seeds black or brown.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 552, 30/10/00.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 6, 10, 11, 15, 16, 21, 24, 28, 31 to 37.

Ecological Data: Frequency-6.43, Abundance-4.01, Density-2.63.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Indigofera cordifolia Heyne ex Roth, Nov. Pl. Sp. 357. 1821; Baker in Hook. f. Fl. Brit. Indi a2 :93. 1876; Cooke, Fl. Pres. Bombay 1: 331. 1958 (Repr.). Shah, Fl. Guj.

1:220; 1978, de Kort & Thijssse in Blumea 30: 116. 1984; Sanj. Legumes of india 187. 1991 & in Hajra et al. Fasc. Fl. India 21: 45. 1995. Singh, et al Fl. Maha. Dicot. 1: 701. 2000.

Habit : Herbs, prostrate. Leaves densely hairy, apex subotuse or mucronate, base cordate. Flowers red, axillary clusters. Pods deflexed, beaked, hairy. Seeds greenish – brown, truncate at one end.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 553, 30/10/00.

Local Name : Bhakho.

Distribution and Status in the Study Area: It is found in zone no 1 to 32, 34, to 36.

Ecological Data: Frequency-13.43, Abundance-2.24, Density-1.00.

Distribution in Gujarat: Throughout; abundant and common (Shah, 1978).

Indigofera karnatakana Sanj. In Taxon 32: 120. 1983. & Legumes of India 191. 1991 & in Hajra et al. Fasc. Fl. India 21: 85, f. 33. 1995. *I. tenuifolia* Rottl. Ex Wight & Arn Prodr. 200: 1834 non Lam. 1789; Baker in Hook. F. Fl. Brit. India 2: 95. 1876; Cooke. Fl. Pres. Bombay 1: 337. 1958 (Repr.). Shah, Fl. Guj. 1:224 1978, Singh, et al Fl. Maha. Dicot. 1: 707. 2000.

Habit : Herbs, diffuse. Leaflets linear – obovate or oblanceolate, apex apiculate, base subacute. Flowers bright red, in short racemes. Pods subcylindric or compressed. Pods oblong, truncate at both ends, punctuate.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 556, 30/10/00.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 7, 8, 11, 12, 14, 16, 18, 20, 22, 28, 30, 31, 32, 34 to 37.

Ecological Data: Frequency-4.76, Abundance-1.07, Density-0.87.

Distribution in Gujarat: Not common. Vyara, Dangs and Bulsar, among grasses (Shah, 1978).

Indigofera linifolia (L.) Retz. Obs. Bot. 4 : 29. 1786; Baker in Hook. f. Fl. Brit. India 2 : 92. 1876; Cooke, Fl. Pres. Bombay 1 : 330 1958 (Repr.). de Kort & Thijssse in Blumea 30 : 123. 1984; Sanj. Legumes of india 192. 1991 & in Hajra et al. Fasc. Fl. India 21 : 93. 1995. Shah, Fl. Guj. 1:222; 1978, *Hedysarum linifolium* L. f. Suppl. 331. 1781. *Indigofera linifolia* var. *campbelli* wight ex Baker in Hook. f. op. Cit.; Cooke, op. Cit. 331. Singh, et al Fl. Maha. Dicot. 1: 707. 2000.

Habit : Herbs, prostrate. Leaves appressed hairy, acute at apex, Flowers red, axillary, solitary or few in short racemes. Pods paniculate, silky – hairy. Seeds

globose, brownish – black.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 554, 30/10/00.

Local Name : Nahanigali.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 6, 9, 10, 11, 13, 15, 16, 19, 20, 22, 25, 27, 30, 32, 34 and 36.

Ecological Data: Frequency-4.76, Abundance-0.43, Density-0.19.

Distribution in Gujarat: Throughout; common (Shah, 1978).

Indigofera oblongifolia Forssk. Fl. Aeg. – Arab. 137. 1775; Sanj. Legumes of india 193. 1991 & in Hajra et al. Fasc. Fl. India 21 : 108. 1995. *I. paucifolia* Delile, Fl. 'd' Egypte 1-7, t. 37. F. 37. 1813; baker-in Hook. f. Fl. Brit. India 2 : (7. 1876; Cooke, Fl. Pres. Bombay 1 : 334. 1958 (Repr.). Shah, Fl. Guj. 1:222; 1978, Singh, et al Fl. Maha. Dicot. 1: 709. 2000.

Habit : Herbs, much branched, argenteo – canescent. Leaflets ellipitic – obloong or oblanceolat, white pubescent, apex obtuse, base acute. Flwoers red, spicate racmees. Pods torulose, slightly curved. Seeds tetragonous, truncate at one end.

FLS and FRTS : September.

Herbarium No and date of Collection: 555, 30/10/00.

Local Name : Jhiladi.

Distribution and Status in the Study Area: It is found in zone no 8, 10, 16, 19, 26, 33 to 35.

Ecological Data: Frequency-4.99, Abundance-2.33, Density-1.40.

Distribution in Gujarat : Throughtout; common (Shah, 1978).

Indigofera tinctoria L. Sp. Pl 751. 1753; Baker in Hook. f. Fl. Brit. India 2 : 99. 1876; p.p.; Cooke, Fl. Pres. Bombay 1 : 339. 1958 (Repr.). Shah, Fl. Guj. 1:224; 1978, de Kort & Thijsee in Blumea 30 : 137. 1984; Sanj. Legumes of india 195. 1991 & in Hajra et al. Fasc. India 21 ; 133. 1995. Singh, et al Fl. Maha. Dicot. 1: 714. 2000.

Habit : Shrubs. Leaves alternate; leaflets oblong, obovate or oblanceolate, hairy beneath, apex rounded, base acute. Flowers red, many in axillary, spicate racemes. Pods linear, thickened at deflexed sutures. Seeds bronw, cylindric, truncate.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 557, 30/10/00.

Sanskrit Name: Nilika, Nili, Ranjani, Anjankeshika.

Local Name : Gali.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 17 to 27,

29 to 37.

Ecological Data: Frequency-13.81, Abundance-2.82, Density-1.17.

Distribution in Gujarat: Throughout (Shah, 1978).

Indigofera trita L. f. Suppl Pl. 335 1781; Baker in Hook. f. Fl. Brit. India 2 : 96. 1876; Cooke. Fl. Pres. Bombay 1 : 335. 1958 (Repr.). Shah, Fl. Guj. 1:225; 1978, de Kort & Thijssse in Blumea 30 : 139. 1984; Sanj. Legumes of india 196. 1991 & in Hajra et al. Fasc. Fl. India 21 : 143. 1995; Naik, Fl. Marathwada 1 : 284. 1998. Singh, et al Fl. Maha. Dicot. 1: 715. 2000.

Habit : Undershrubs. Leaflets 3, elliptic - -oblong, densely pubescent beneath, apex rounded, apiculate, base obtuse. Flowers red, in axillary racemes. Pods deflexed, appressed – hairy.

FLS and FRTS : October – January.

Herbarium No and date of Collection: 558, 30/10/00.

Local Name : Abdau – gali.

Distribution and Status in the Study Area : It is found in zone no 8, 10, 16, 19, 22, 28, 33, 34 and 35.

Ecological Data : Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat : Throughout (Shah, 1978).

LABLAB Adans.

A monotypic genus distributed throughout the tropical Africa and Asia, 1 in GNPS.

Lablab purpureus (L.) Sweet, Hort. Brit. Ed. 1, 481. 1827; Sanj. Legumes of india. 199. 1991. *Dolichos purpureus* L. Sp. Pl. Ed. 2 . 1021. 1763. *D. lablab* L. Sp. Pl. 725; Baker in Hook. f. Fl. Brit. India 2 : 209. 1876; Cooke, Fl. Pres. Bombay 1 : 406. 1958 (Repr.). Shah, Fl. Guj. 1:226; 1978. Singh, et al Fl. Maha. Dicot. 1:717. 2000.

Habit: Twiners, extensive. Leaflets broadly ovate- rhomboid. Flowers white or lilac, in axillary and terminal racemes. Pods falcate, linear – oblong, compressed.

FLS and FRTS: September – March.

Herbarium No and date of Collection: 559, 22/03/00.

Local Name : Val.

Distribution and Status in the Study Area: It is found in zone no-3, 4, 6, 10, 11, 16, 21, 24, 28, 31 to 37.

Ecological Data : Frequency-12.48, Abundance-1.47, Density-0.60.

Distribution in Gujarat: Cultivated; also an escape (Shah, 1978).

MUCUNA Adans.

About 120 species in tropical and sub-tropical regions, 1 in GNPS.

Mucuna prurita Hook., Bot. Misc. 2: 348. 1831; Hook. f. Fl. Brit. India. 2: 184. 1876; Cooke, Fl. Pres. Bombay 1: 389, 1958 (Repr.). Shah, Fl. Guj. 1:234; 1978; Shah, Fl. Guj. 1: 234, 1978; *Mucuna pruriens* (L.) DC., Prodr. 2: 405. 1825; *Dolichos pruriens* L. in Stickman, Herb. Amb. 23: 1754 et in Syst. Nat. ed. 10: 1162. 1759.

Habit: An extensive, lignose climber with densely hairy stem and branches, at least in younger parts.

FLS and FRTS : FLS. October - January FRTS. December - April.

Herbarium No and date of Collection: 560, 30/10/00.

Sanskrit Name : Atmagupta, Suksimbi, Kandura, Markati, Vanari.

Local Name : Kavach Koyli.

Distribution and Status in the Study Area: It is found in zone no 1, 6 to 22, 24 to 28, 30 to 33, 35 and 36.

Ecological Data : Frequency-18.81, Abundance-4.37, Density-2.07.

Distribution in Gujarat: Throughout in deciduous forests (Shah, 1978).

PHASEOLUS L.

About 50 spp. American in distribution, 1 in GNPS.

Phaseolus radiatus L. Sp.pl. 723. 1753, Fl. Brit. India 2: 200. Singh, et al Fl. Maha. Dicot. 1: 729. 2000.

Habit: An extensive climbers, climber with densely hairy stem and branches, at least in younger parts.

FLS and FRTS : November- December.

Herbarium No and date of Collection: 561, 30/10/00.

Local Name : Adbau Mag.

Distribution and Status in the Study Area: It is found in zone no 1, 6 to 22, 24 to 28, 30 to 33, 35 and 36.

Ecological Data : Frequency-8.89, Abundance-1.59, Density-0.79.

Distribution in Gujarat: Throughout in deciduous forests (Reddy, 1987).

PONGAMIA Vent.

A monotypic genus in Indo-Malayan region, 1 in GNPS.

Pongamia pinnta L. Pierre, For. Fl. Cochinch. T. 385. 1899; Thoth. In Bull. Surv. India 3: 418, t. 1 (1961) 1962 in Taxon 30 : 44. 1981; Sanj. Legumes of india 230. 1991. *Cytisus pinnatus* L. Sp. Pl. 741. 1753 non *Derris pinnata* Lour. *Pongamia glabra* Vent. Jard. Mal. T. 28. 1803; Baker in Hook. f. Fl. Brit. India 2; 240. 1876;

Cooke, Fl. Pres. Bombay 1 : 429. 1958 (Repr.). Shah, Fl. Guj. 1:203; 1978, *Derris indica* (Lam.) Bennet in J. Bombay Nat. Hist. Soc. 68. 303. 1971. Singh, et al Fl. Maha. Dicot. 1: 728. 2000.

Habit : Trees Leaflets broadly ovate or elliptic. Flowers white with purple tinge in axillary, dropping racemes. Pods elliptic – oblong, thick, compressed. Seeds reddish – brown; reniform, rugose.

FLS and FRTS : February – May.

Herbarium No and date of Collection: 562, 17/04/00.

Sanskrit Name : Karanja, Naktamal.

Local Name : Karanj.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-11.49, Abundance-0.80, Density-0.24.

Distribution in Gujarat : Throughout, wild, mostly along riverbanks; also planted (Shah, 1978).

Notes: Bennet (1971) reduced the genus *Pongamia* as a section under *Derris* as in his opinion wingless nature of the pod which was used to distinguish the genus *Pongamia* from *Derris* was not very distinct. However, Verdcourt (1977) is of the opinion that there seemed to him little to be gained from sinking *Pongamia* into *Derris* but still having to keep it as a separate section.

PSEUDARTHRIA Wight & Arn.

About 5 species, mainly African, 1 in GNPS.

***Pseudarthria viscida* (L.) Wight & Arn.** Prodr. 209. 1834; Baker in Hook. f. Fl. Brit. India 2 : 514. 1876; Cooke, Fl. Pres. Bombay 1: 366. 1958 (Repr.). Shah, Fl. Guj. 1:235; 1978, Sanj. Legumes of India 230. 1991. *Hedysarum viscidum* L. Sp. Pl. 747. 1753. Singh, et al Fl. Maha. Dicot. 1: 729. 2000.

Habit : Scandent undershrubs; stem viscidly – pubescent. Leaflets 3, ovate – oblong or ovate – obovoid, hairy, apex acute, base rounded, ciliate on margins. Flowers reddish – purple, in terminal and axillary racemes. Pods linear – oblong, compressed, beaked, viscidly hairy. Seeds subreniform, dark – brown.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 563, 13/11/99.

Local Name: Chapakano-velo.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

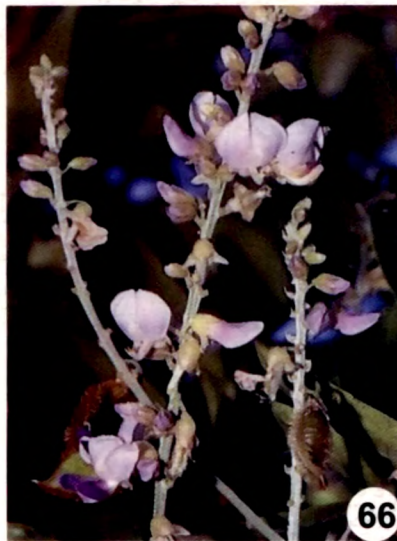
Distribution in Gujarat: Kutch and Saurashtra; not common (Shah, 1978).



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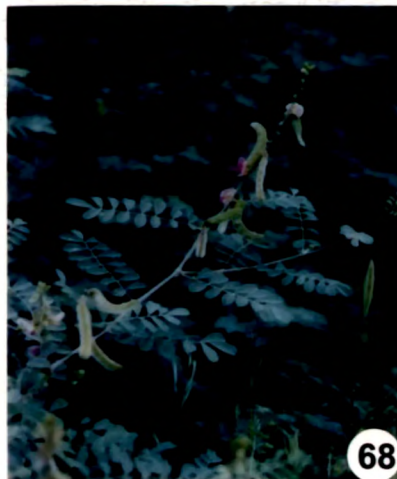
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69

64) *Pterocarpus marsupium* Roxb., 65) *Pueraria thunbergiana* Benth., 66) *Pueraria tuberosa* (Roxb. ex. Willd.) DC., 67) *Rhynchosia minima* (L.) DC., 68) *Tephrosia purpurea* (L.) Pers., 69) *Bauhinia purpurea* L.

PSORALEA L.

About 130 species in tropical and temperate regions and South Africa, 1 in GNPS.

Psoralea corylifolia Linn. Sp. Pl., 764. 1753; Hook. f. Fl. Brit. India. 2: 103. 1876; Cooke, Fl. Pres. Bombay 1: 341, 1958 (Repr.). Shah, Fl. Guj. 1: 236, 1978; Singh, et al., Fl. Maha. Dicot. 1:652. 2000.

Habit: An erect, annual, 15-20 cm tall herbs with ascending or spreading branches.

FLS and FRS : August - March.

Herbarium No and date of Collection: 564, 29/10/00.

Sanskrit Name: Bakuchi, Somraji, Chandralekha.

Local Name : Gawar.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 8, 9 to 13, 16, 18, 19, 20, 25, 26, 27, 30, 31, 34 and 37.

Ecological Data: Frequency-5.89, Abundance-0.54, Density-0.17.

Distribution in Gujarat: Throughout, along roadsides and railway lines, but not common (Shah, 1978).

PETROCARPUS Jacq.

About 15 species widely distributed in the Tropics, 1 in GNPS.

Pterocarpus marsupium Roxb. Pl. Cor. 2 : 9, t. 116. 1799; Baker in Hook. f. Fl. Brit. India 2; 239. 1876; Cooke, Fl. Pres. Bombay 1 : 427. 1958 (Repr.). Shah, Fl. Guj. 1:236; 1978, Sanj. Legumes of india 232. 1991. Singh, et al Fl. Maha. Dicot. 1: 729. 2000.

Habit : Trees. Leaflets oblong or elliptic – ovate, base rounded. Flowers yellow, in terminal panicles. Pods orbicular, winged.

FLS and FRTS : December – March.

Herbarium No and date of Collection: 565, 23/12/99. **Photograph:** 64

Sanskrit Name: Asan, Pitasara, Bijak.

Local Name : Biyo.

Distribution and Status in the Study Area: It is found in zone no 8, 9, 13 to 20, 24 to 32 and 35.

Ecological Data: Frequency-7.43, Abundance-0.39, Density-0.15.

Distribution in Gujarat: In deciduous forests, not common (Shah, 1978).

PUERARIA DC.

15-35 species from Himalyas to Japan, South East Asia and Malaysia, 3 in GNPS.

Pueraria lobata (Willd.) Sanj. Legumes of india 287. 1991. *Dolichos lobtata* Willd.

Sp. Pl. 3 : 1047. 1802. *Pueraria lobata* (Willd.) Ohwi in Bull. Tokyo Sci. Mus. 18 : 16. 19477; Verdc. In Taxon 17 : 170. 1968; Sanj. Legumes of india 233. 1991. Shah, Fl. Guj. 1:237; 1978, Singh, et al Fl. Maha. Dicot. 1: 730. 2000.

Habit : Undershrub, stem twining, hairy. Flowers long racemes. Pods flat, densely brown hairy.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 566, 21/04/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-14.92, Abundance-7.54, Density-3.48.

Distribution in Gujarat: Listed by Santapau (1962) from Saurashtra.

Pueraria thunbergiana Benth. Sanj. Legumes of india 287. 1991. *Dolichos lobtata* Willd. Sp. Pl. 3 : 1047. 1802. Fl. Brit. India 2: 197. Shah, Fl. Guj. 1:237; 1978. Singh, et al Fl. Maha. Dicot. 1: 730. 2000.

Habit : Climbers, stem twining, hairy. Flowers long racemes. Pods flat, densely brown hairy.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 567, 30/10/00. **Photograph**: 65

Sanskrit Name: Vidarikand, Vidarika, Bhumikushmand.

Local Name : Fagado.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-10.33, Abundance-3.78, Density-0.97.

Distribution in Gujarat: Occasional in deciduous forests of Gujarat except Kachchh (Bedi, 1968).

Pueraria tuberosa (Roxb. ex. Willd.) DC. In Ann. Sci. Nat. 4 : 97. 1825; Baker in Hook. f. Fl. Brit. India 2; 197 1876; Cooke, Fl. Pres. Bombay 1 : 399. 1958 (Repr.). Shah, Fl. Guj. 1:237; 1978, Sanj. Legumes of india 235. 1991. *Hedysarum tuberosum* Roxb. Ex Willd. Sp. Pl. 3: 1197.

Habit : Twiners, extensive. leaflets terminal ones broadly ovate, apex acumintae, base cuneate, laterals ovate- oblong, inequilateral, base truncate. Flowers axillary or terminal, in lax, leafless racemes. pods linear, flat, constricted between seeds. Seeds reddish – brown, ellipsoid – oblong.

FLS and FRTS : February – April.

Herbarium No and date of Collection: 568, 22/04/01. **Photograph**: 66

Sanskrit Name: Vidarikand, Vidarika, Bhumikushmand.

Local Name : Fagado.

Distribution and Status in the Study Area: It is found in zone no 4 to 15, 24 to 34.

Ecological Data : Frequency-8.00, Abundance-2.78, Density-1.58.

Distribution in Gujarat: Occasional in deciduous forests of Gujarat except Kachchh (Shah, 1978).

RHYNCHOSIA Lour.

About 150 species in the tropics, 3 in GNPS.

Rhynchosia minima (L.) DC. Prodr. 2 : 385.1825; Baker in Hook. f. Fl. Brit. India 2: 223. 1876; Cooke, Fl. Pres. Bombay 1 : 41. 1958 (Repr.). Shah, Fl. Guj. 1:239; 1978, Nooteb. In Reinwardtia 5; 439. 1961; Sanj. Legumes of india 239. 1991. *Dolichos minimus* L. Sp. Pl. 726. 1753. Cooke, op. Cit. Singh, et al Fl. Maha. Dicot. 1: 733. 2000.

Habit : Climber, slender, twining or trailing. leaflets ovate- rhomboid, lanceolate – rhomboid or nearly orbicular, pubescent below, apex obtuse, subacute or acute to acuminate at apex, base rounded or subacute. Flowers reddish – yellow, axillary, lax racemes. Pods obliquely – oblong, compressed. Seeds globose.

FLS and FRTS : September – October.

Herbarium No and date of Collection: 569, 28/10/00. **Photograph:** 67

Local Name: Hathdhamani.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 10 to 13, 20 to 23, 34 and 36.

Ecological Data: Frequency-8.90, Abundance-1.81, Density-0.64.

Distribution in Gujarat: Kachchh and Saurashtra; on hedges, rare (Shah, 1978).

Rhynchosia minima* var. *laxiflora (Camb) Baker. In HK. f. Fl. Brit. India 2:223. 1876; C 1:414; S & J 19. *Rhynchosia laxiflora* Camb. In Jacq. Voy. Bot. 44. t. 540. 1844. Shah, Fl. Guj. 1:239; 1978.

Habit : Trailing herbs Leaflets lanceolate-rhomboid, glabrous or nearly so. Flowers and fruits as in var. minima.

FLS and FRTS : August – April.

Herbarium No and date of Collection: 570, 13/12/00.

Local Name: Dariavel.

Distribution and Status in the Study Area: It is found in zone no 8, 10, 11, 16, 19, 22, 24, 26, 28 and 31.

Ecological Data : Frequency-3.05, Abundance-0.79, Density-0.39.

Distribution in Gujarat: Kutch, Saurashtra, Chhotaudepur forest division, on hedges; rare (Shah, 1978).

Rhynchosia rothii Bth. Ex. Ait. Cat. Pl. Punjab & Sind 50. 1869; Verdc. InKew Bull. 25 : 91. 1971; Sanj. Legumes of india 240. 1991. *R. sericea* Span. In Linnaea 15 : 195. 1841. Non Guill. Ex. Hook & Arn. 1833; Baker in Hook. f. Fl. Brit. India 2 : 225. 1876. Shah, Fl. Guj. 1:239; 1978, Singh, et al Fl. Maha. Dicot. 1: 733. 2000.

Habit : Twiners, extensive, woody. Leaflets softly pubescent, terminal ones rhomboid – ovate – equilateral, laterals obliquely ovate – obovate – triangular. Flowers yellow with purple dots in axillary racemes. Pods oblanceolate, hairy. Seeds ellipsoid – oblong, mottled.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 571, 20/11/00.

Local Name : Makhnali Fagiyo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 15, 16, 18 and 37.

Ecological Data : Frequency-2.10, Abundance-0.33, Density-0.14.

Distribution in Gujarat: Dangs, Songadh and Saurashtra, in forest and on hedges; rare (Shah, 1978).

SESBANIA Scop.

A genus with about 50 species widely distributed in tropics and sub-tropics of the world, 1 in GNPS.

Sesbania bispinosa (Jacq) W. F. Wight in U. S. Dept. Agr. Bur. Pl. Ind. Bull. 137. 15. 1909; Gillett inKew Bull. 17 : 129. 1963; Sanj. Legumes of india 242. 1991. *Aeschynomene bispinosa* Jacq. Ic. Pl. Rar. 3 : 13, t. 564. 1762. *Sesbania aculeata* (Willd.) Poir. In Lam. Encycl. 7 : 128. 1806 (*Sesban aculeatus*) nom illeg; Baker in Hook. f. Fl. Brit. India 2 : 114. 1876; Cooke, Fl. Pres. Bombay 1 : 350. 1958 (Repr.). Shah, Fl. Guj. 1:241; 1978. Singh, et al Fl. Maha. Dicot. 1: 735. 2000.

Habit : Shrubs or undershrubs. Leaflets linear – oblong or elliptic – oblong, apex obtuse or apiculate base rounded. Flowers in axillary lax, drooping racemes. Pods falcate, torulose, beaked.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 572, 30/10/00.

Local Name : lkad.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 6, 8 to 12, 14 to 19, 22, 24, 26 to 34 and 37.

Ecological Data: Frequency-37.14, Abundance-0.64, Density-0.39.

Distribution in Gujarat: Throughout, a weed in cultivated fields and moist places; common (Shah, 1978).

SMITHIA Ait.

About 70 species in Asia and Tropical Africa, 1 in GNPS.

Smithia conferta J. E. Sm. In Rees. Cyclop. 33 : no. 2. 1816; Cooke. Fl. Pres. Bombay 1 : 358. 1958 (Repr.). Shah, Fl. Guj. 1:244; 1978, Steenis in Reinwardita 5 : 445. 1961; Sanj. Legumes of india 246. 1991. *S. geminiflora* Roth, Nov. Pl. Sp. 352. 1821; Baker in Hook. f. Fl. Brit. India 2; 149. 1876. Singh, et al Fl. Maha. Dicot. 1: 739. 2000.

Habit : Herbs, straggling, leaflets in 5 pairs, linear – oblong, bristly on margins and midrib beneath. Flowers yellow. Pods joints turgid, papillose.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 573, 27/10/00.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 5, 7 to 13, 16, 18 to 21, 25, 26, 27, 30, 31, 34 to 36.

Ecological Data: Frequency-6.81, Abundance-1.28, Density-0.45.

Distribution in Gujarat: South Gujarat (Bulsar, Dangs, Vyara, Rajpipla), North Gujarat (Khedbrahma) and Saurashtra, among grasses; common (Shah, 1978).

TEPHROSIA Pers.

About 300 species, pantropical, 6 in GNPS.

Tephrosia pumilia (Lam.) Pers. Syn. Pl. 2 : 330. 1807; Sanj Legumes of india 257. 1991. *Galega pumilia* Lam. Encycl. 2 : 599. 1786. *Tephrosia purpurea* var. *pumilia* (Lam.) Baker in Hook. f. Fl. Brit. India 2 : 113. 1876; Cooke, Fl. Pres. Bombay 1 : 347. 1958 (Repr.). Shah, Fl. Guj. 1:249; 1978, Singh, et al Fl. Maha. Dicot. 1: 752. 2000.

Habit : Herbs; stem hairy. Leaflets obovate – oblong or lanceolate, appressed hairy, apex truncate to retuse, base subacute. Flowers rosy purple, in terminal or leaf opposed racemes.

FLS and FRTS : February – March.

Herbarium No and date of Collection: 574, 21/03/01.

Local Name : Sarpankho.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 7, 8, 10, 13 to 16, 18 to 21, 24, 26, 27, 28, 30 to 36.

Ecological Data: Frequency-4.95, Abundance-1.48, Density-0.27.

Distribution in Gujarat: Throughout, in plains; not common (Shah, 1978).

Tephrosia purpurea (L.) Pers. Syn. Pl. 2 : 329. 1807; Baker in Hook. f. Fl. Brit. India 2 : 112. 1876 p.p.; Cooke, Fl. Pres. Bombay 1 : 346. 1958 (Repr.). Shah, Fl.

Guj. 1:249; 1978, Bosman & de Hass in Blumea 28 : 464. 1983; Sanj. Legumes of india 258. 1991. *Cracca purpurea* L. Sp. Pl. 752. 1753. *T. purpurea* var, pubescens Baker in Oliver, Fl. Trop. Africa 2 : 125. 1871 & Hook. f. op. Cit. 113. *T. hamiltonii* J. Drumm. Ex. Gamble, Fl. Pres. Madras 520. 1918 [1 : 226. 1967 (Repr.)]. Singh, et al Fl. Maha. Dicot. 1: 752. 2000.

Habit : Herbs or undershrubs, leaflets oblanceolate, apex obtuse, retuse or mucronate, base cuneate. Flowers bright rosy – purple or violet. Pods linear, slightly curved, mucronate.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 575, 30/10/00. **Photograph**: 68

Sanskrit Name: Sharapunkha, Plihari.

Local Name : Sarpankho.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-15.78, Abundance-7.54, Density-3.54.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Tephrosia senticosa (L.) Pers. Syn. Pl. 2 : 330. 1807; Baker in Hook. f. Fl. Brit. India : 2 : 112. 1876; Cooke. Fl. Pres. Bombay 1 : 348. 1958 (Repr.). Shah, Fl. Guj. 1:250; 1978, Sanj. Legumes of india 258. 1991. *Galega senticosa* L. Sp. Pl. 752. 1753. *Tephrosia tinctoria* var. *intermedia* (Wight & Arn.) Baker in Hook. f. op. Cit. ; Cooke, op. Cit. Singh, et al Fl. Maha. Dicot. 1: 753. 2000.

Habit : Shrubs or undershrubs, much branched, argenteo – canescent. Leaves alternate; leaflets oblanceolate, argenteo – canescent beneath, apex emarginate, base cuneate, densely hairy. Seeds oblong – ellipsoid.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 576, 28/10/00.

Local Name : Betho – Sarpankho.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: Kutch and Saurashtra; frequent among grasses (Shah, 1978).

Tephrosia strigosa (Dalz) Sant & Mahesh. In J. Bombay Nat. Hist. Soc. 54. 805. 1957; Sanj. Legumes of india 259. 1991. *Macronyx strigosus* Dalz. In Hook. Kew. J. Bot 2 : 35. 1850. *Tephrosia tenuis* Wall. Ex. Dalz. & Gibs. Bombay Fl. 61. 1861; Baker in Hook. f. Fl. Brit. India 2 : 111. 1876; Cooke, Fl. Pres. Bombay 1: 344. 1958 (Repr.). Shah, Fl. Guj. 1:250; 1978, Singh, et al Fl. Maha. Dicot. 1: 753. 2000.

Habit : Herbs, erect or suberect, caespitose. Leaves linear – lanceolate, densely hairy beneath, apex narrow, long apiculate, base narrowed, subacute. Flowers pink, solitary or in leaf – opposed racemes. Pods linear, compressed. Seeds roundish.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 577, 28/12/99.

Local Name : Jhinko Sarpankho.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 7, 10, 13 to 16, 18 to 21, 24, 26, 27, 28, 30 to 36.

Ecological Data: Frequency-8.98, Abundance-0.59, Density-0.49.

Distribution in Gujarat: Throughout among grasses (Shah, 1978).

Tephrosia tinctoria (L.) Pers. Syn. Pl 2. 329. 1807; Baker in Hook. f. Fl. Brit. Indi a2 : 111. 1876; Cooke, Fl. Pres. Bombay 1 : 345. 1958 (Repr.). Shah, Fl. Guj. 1:250; 1978, Sanj. Legumes of india 259. 1991. *Galega tinctoria* L. Syst. Nat. ed. 10, 1172. 1759. Singh, et al, Fl. Maha. Dicot. 1: 754. 2000.

Habit : Undershrubs. Leaflets elliptic – oblong or oblanceolate, subcoriaceous, densely silky beneath, terminal largest, apex acute, obtuse or emarginate, base rounded or subacute. Flowers pale – scarlet or brick – pink in racemes. Pods flat, oblong, hairy.

FLS and FRTS : July – November.

Herbarium No and date of Collection: 578, 30/10/01.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-15.21, Abundance-4.66, Density-2.77.

Distribution in Gujarat: Santapau (1962) remarks "Common along railway lines from Viramgam to Rajkot in dense patches".

Tephrosia villosa (Linn.) Pers. Syn. Pl. 2: 329. 1807; Hook. f. Fl. Brit. India. 2: 113. 1876; Cooke, Fl. Pres. Bombay 1: 347, 1958 (Repr.). Shah, Fl. Guj. 1:251; 1978, Bossman & de Hass in Blumea 28:476. 1983; Sanj. Legumes of var. incana (Roxb.) Baker in Hook. F. op. cit. Singh, et al Fl. Maha. Dicot. 1: 755. 2000.

Habit: Herbs, perennials; branches white appressed hairy. Leaflets obovate-oblanceolate, silky pubescent beneath, apex emarginated, base subacute. Flower fascicled, in racemes. Pods linear-oblong, falcate. Seeds rectangular.

FLS and FRTS : August - September.

Herbarium No and date of Collection: 579, 30/09/01.

Local Name: Sarpankho.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 8, 10, 13,

14, 17, 19, 21, 24 to 27, 29, 30, 32 to 37.

Ecological Data: Frequency-10.67, Abundance-1.93, Density-0.84.

Distribution in Gujarat: Throughout; common, scattered or subgregarious (Shah, 1978).

TERAMNUS P. Br.

About 8 species in the tropics, 1 in GNPS.

Teramnus labialis (L.f.) Spreng. Syst. Veg. 3 : 235. 1826; Baker in Hook. f. Fl. Brit. India 2 : 184. 1876; Cooke. Fl. Pres. Bombay 1 : 387. 1958 (Repr.). Shah, Fl. Guj. 1:251; 1978, Sanj. Legumes of india 261. *Glycine labialis* L. f. Suppl. 325. 1781. Singh, et al Fl. Maha. Dicot. 1: 755. 2000.

Habit : Climbers; stem twining. Leaflets ovate – elliptic or oblong, appressed – hairy beneath. Flowers violet – purple, fading pale blue or white, in axillary and terminal racemes. pods linear, flat, turgid, beaked.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 580, 01/11/01.

Sanskrit Name: Mashaparni.

Local Name : Mash Parni.

Distribution and Status in the Study Area: It is found in zone no 2 to 6, 9, 10 to 13, 16, 17, 18, 24, 25, 26, 29, 32, 33, 36 and 37.

Ecological Data : Frequency-5.14, Abundance-0.45, Density-0.12.

Distribution in Gujarat: Throughout, on hedges and low shrubs or trailing in absence of support; common (Shah, 1978).

TRIGONELLA L.

About 70 species in Mediterranean and Oriental regins, 1 in GNPS.

Trigonella foenum – graecum L. Sp. Pl. 777. 1753; Baker in Hook. f. Fl. Brit. India 2; 87. 1876; Bailey, Man. Cult. Pl. 583. 1949; Sanj. Legumes of india 264. 1991. Shah, Fl. Guj. 1:253; 1978, Singh, et al Fl. Maha. Dicot. 1: 775. 2000.

Habit : Herbs, stem glabrous or sparsely hairy. Leaflets 3, obovate or oblanceolate, glabrous. Flowers creamy – yellow, in terminal, solitary or a few in condensed racemes. Pods linear, subtorulose. Seeds oblong, yellowish – brown.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 581, 22/11/00.

Sanskrit Name: Methika, Pitbija, Bodhini.

Local Name : Mathi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 8, 10,

15, 16, 21, 22, 24, 28, 29, 32, 34 to 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated, also an escape (Shah, 1978).

VIGNA Savi.

About 150-200 species mostly tropical African and Asian, 2 in GNPS.

Vigna radiata (L.) R. Wilczek, Fl. Cong. Belg. Ruanad. Uru. 6: 386. 1954; Verde. In Kew Bull. 24: 559. 1970; Sanj. Legumes of India 275. 1991. *Phaseolus radiatus* L. Sp. Pl. 725. 1753; Baker in Hook, f. Fl. Brit. India 2:203. 1876; Cooke, Fl. Pres. Bombay 1: 403. 1958 (Repr.). Shah, Fl. Guj. 1:258; 1978. Singh, et al Fl. Maha. Dicot. 1: 776. 2000.

Habit : Climbers; stem hirsute. Leaflets ovate – rhomboid, appressed pubescent. Flowers yellow, in capitate racemes. Pods linear – cylindric, slightly curved. Seeds many, green.

FLS and FRS : September – December.

Herbarium No and date of Collection: 582, 15/12/00.

Sanskrit Name: Mugdaparni, Rajmash.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 8, 10, 15, 16, 21, 22, 24, 28, 29, 32, 34 to 37.

Ecological Data : Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Throughout in plains, everywhere (Shah, 1978).

Vigna trilobata (Linn.) Verdc. in Taxon 17: 172. 1968; in Kew Bull. 24:560. 1970; Sanj. Legumes of India 276. 1991. *Dolichos trilobatus* L. Mant. Pl. 101. 1767. *Phaseolus trilobus* Ait. Hort. Kew. Ed. 1, 3: 30. 1811 non *Dolichos trilobus* L. 1753; Baker in Hook. f. Fl. Brit. India 2:201. 1876; Cooke, Fl. Press. Bombay 1:401 1958 Repr. Shah, Fl. Guj. 1:259; 1978. Singh, et al Fl. Maha. Dicot. 1: 763. 2000.

Habit: Climbers, suberect or trailing. Leaflets middle lobe largest, spathulate, laterals spathulate with subacute or obtuse apex, hairy on both sides. Flowers yellow in subcapitate racemes. Pods slightly curved. Seeds brownish-black.

FLS and FRTS : August – September.

Herbarium No and date of Collection: 583, 27/09/01.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 21, 24, 28, 31 to 37.

Ecological Data : Frequency-13.14, Abundance-1.12, Density-0.73.

Distribution in Gujarat: Throughout in plains, everywhere (Shah, 1978).

ZORNIA J.F. Gmelin.

About 80 pantropical species, 1 in GNPS.

Zornia diphylla (L.) Pers. Syn. Pl. 2: 318.1807; Baker in Hook. f. Fl. Brit. India 2:147. 1876; Sanj. Legumes of india 279. 1991. *Hedysarum diphyllum* L. Sp. Pl.747. 1753. *Zornia diphylla* var. *zeylonensis* (Pers.) Baker in Fl. Brit. India 2 : 148. 1876; Cooke. Fl. Pres. Bombay 1; 356. 1958 (Repr.). Shah, Fl. Guj. 1:261; 1978, Singh, et al Fl. Maha. Dicot. 1: 768. 2000.

Habti : Herbs, leaves 2 – foliolate; leaflets, ovate. Flowers in spicate racemes. Pods much longer than bracts; joints longer than in type.

FLS and FRTS: August – October.

Herbarium No and date of Collection: 584, 28/09/01.

Local Name : Samara Pani.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-10.29, Abundance-1.33, Density-0.52.

Distribution in Gujarat: Throughout; common (Shah, 1978).

CAESALPINIACEAE

About 152 genera and about 2800 species mainly in tropics and sub-tropics of the world; 9 genera and 19 species in GNPS.

BAUHINIA L.

About 200 species in the tropics, 3 in GNPS.

Bauhinia purpurea L. Sp. Pl. 375. 1753; Baker in Hook. f. Fl. Brit. India. 2:284. 1878; Cooke, Fl. Pres. Bombay 1: 461, 1958 (Repr.). Shah, Fl. Guj. 1:262; 1978, de Wit in Reinwardtia 3:406. 1956; K. N. N. Nair in J. Bombay Nat. Hist. Soc. 81: 532. 1984; Sanj. Leg. India 5. 1991. Singh, et al Fl. Maha. Dicot. 1: 780. 2000.

Habit: Trees, high. Leaves suborbicular, apex obtuse, subacute, base cordate. Flowers in terminal racemes. Pods flat, pointed at both ends, reddish-brown, obliquely oriented. Seeds oblong-ellipsoid.

FLS and FRTS : October - January.

Herbarium No and date of Collection: 585, 28/09/01. **Photograph**: 69

Sanskrit Name: Kovidra, Kanchnar, Yugampatra.

Local Name : Kanchner.

Distribution and Status in the Study Area: It is found in zone no1 to 10, 18 to 22, 24 to 37.

Ecological Data: Frequency-11.05, Abundance-0.74, Density-0.23.

Distribution in Gujarat: Throughout, wild in deciduous forests; also planted in

gardens (Shah, 1978).

Bauhinia racemosa Lamk. Encycl. 1: 390. 1785; Baker in Hook. f. Fl. Brit. India. 2: 276. 1878; Cooke, Fl. Pres. Bombay 1: 459, 1958 (Repr.). Shah, Fl. Guj. 1:263; 1978, de Wit in Reinwardtia 3: 537. 1956; Sanj. Leg. India 5. 1991. Singh, et al Fl. Maha. Dicot. 1: 780. 2000.

Habit: Trees, high. Leaves, glabrous above, whitish tomentose beneath, apex obtuse, mucronate. Flowers white or yellow elongate, slender racemes. Pods stalked, flat, turgid. Seeds oblong.

FLS and FRTS : April - October.

Herbarium No and date of Collection: 586, 28/09/01.

Sanskrit Name: Yamalpatrak, Ashmantak, Sveta-kanchan, Anupushpak.

Local Name : Asotri.

Distribution and Status in the Study Area: It is found in zone no 2, 11 to 18, 25, 27 to 30 and 34.

Ecological Data: Frequency-6.56, Abundance-0.53, Density-0.23.

Distribution in Gujarat : Throughout in deciduous and scrub forests (Shah, 1978).

Bauhinia tomentosa L. Sp. Pl. 375. 1753; Baker in Hook. f. Fl. Brit. India 2 : 275. 1878; Cooke 1 : 459. 1958 (Repr.). Shah, Fl. Guj. 1:263; 1978, de Wit in Reinwardtia 3 ; 409. 1956; Sanj. Leg. India 6 : 1991. Singh, et al Fl. Maha. Dicot. 1: 781. 2000.

Habit : Trees, young parts tomentose. Leaves broader than long, glabrous above, pubescent beneath, apex obtuse or subacute, base truncate. Flowers leaf opposed racemes. Pods flat, oblong, distinctly reticulate, puberulous. Seeds ovoid.

FLS and FRTS : September – January.

Herbarium No and date of Collection: 587, 28/09/01.

Local Name : Pilo Asondaro.

Distribution and Status in the Study Area: It is found in zone no 3, 5, 8, 10, 12, 13 to 16, 19, 21, 24, 31, 33, 34, 36 and 37.

Ecological Data: Frequency-8.95, Abundance-0.29, Density-0.14.

Distribution in Gujarat: Wild in Saurashtra (Girnar, between Girnar temple and Junagadh and Barda hill); and north Gujarat (Sarneshwar and Vireshwar); abundant in Saurashtra, rare in north Gujarat (Shah, 1978).

CAESALPHINIA L.

About 60 species in tropics and sub-tropics, 1 in GNPS.

Caesalpinia bonduc (L.) Roxb. Fl. Ind. 2 : 362. 1832 p.p. excl. Pl. Descr. emend.



70



71



72



73



74



75

70) *Caesalpinia bonduc* (L.) Roxb., 71) *Cassia auriculata* L., 72) *Cassia fistula* L., 73) *Cassia occidentalis* L., 74) *Cassia siamea* Lam., 75) *Cassia tora* L.

Dandy & Exell in J. Bot. 76. 179; 1938; Hattink in Reinwardtia 9 : 17. 1974; Sanj. Leg. India 9 : 1991. *Guilandina bonduc* L. Sp. Pl. 381. 1753; *Caesalpinia bonducella* (L.) Fleming in Asiat. Res. 11 : 159. 1810 nom. Illeg. Baker in Hook. f. Fl. Brit. India 2 : 54. 1878; Cooke, Fl. Pres. Bombay 1 : 437. 1958 (Repr.). Shah, Fl. Guj. 1:264; 1978. Singh, et al Fl. Maha. Dicot. 1: 782. 2000.

Habit : Stragglers, armed; stems pubescent, armed with hooked, yellowish spines. Flowers yellow in terminal and supra – axillary racemes, dense at top and lax at bottom. Pods oblong, ellipsoid, dehiscent, valves coriaceous. Seeds globose to subglobose.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 588, 28/09/01. **Photograph**: 70

Local Name : Kasaki.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 14, 19, 30, 31 and 35.

Ecological Data : Frequency-4.43, Abundance-0.30, Density-0.19.

Distribution in Gujarat: Throughout , on hedges (Shah, 1978).

CASSIA L.

About 600 species in tropics and subtropics, 8 in GNPS.

Cassia absus L. sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. India 2 : 265. 1878; Cooke. Fl. Pres. Bombay 1 : 451. 1958 (Repr.). Shah, Fl. Guj. 1:267; 1978, de Wit in Webbia 11 : 279. 1955; Pandely in J. Bombay nat. Hist. Soc. 68. 317. 1971; Sanj. Leg. India 14. 1991. Singh, et al Fl. Maha. Dicot. 1: 785. 2000.

Habit : Herbs, annuals, glandular – pubescent. Leaflets obliquely elliptic or obovate. Flowers reddish – yellow, in terminal or leaf opposed, few flowered racemes. Pods flat, setose hairy. Seeds broadly ovoid, black, shining.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 589, 26/09/01.

Sanskrit Name: Chaksu, Aranyakulthika, Vanyakulstha.

Local Name : Chimad.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 8, 10, 11, 13, 16, 17, 19, 21, 22, 24, 25, 28, 29, 31, 32, 35 to 37.

Ecological Data: Frequency-7.37, Abundance-0.57, Density-0.70.

Distribution in Gujarat: Throughout in the forests undergrowth in shaded spots along roads and railway lines (Shah, 1978).

Cassia auriculata L. Sp. Pl. 379. 1753; Baker in Hook. f. Fl. Brit. India 2 : 264.

1878; Cooke. Fl. Pres. Bomay 1 : 448. 1958 (Repr.). Shah, Fl. Guj. 1:268; 1978, Pandey in J. Bombay nat. Hist. Soc. 68 ; 316. 1971. Sanj. Leg. India 14. 1991. Singh, et al Fl. Maha. Dicot. 1: 785. 2000.

Habit : Shrubs, branches pubescent. Leaflets elliptic – oblong, finely downy. Flowers yellow in axillary and terminal corymbs. Pods oblong- linear, flattened, pale brown, beaked. Seeds ovate- oblong, purplish – brown, compressed.

FLS and FRTS : January – July.

Herbarium No and date of Collection: 590, 28/05/01. **Photograph**: 71

Sanskrit Name: Avartaki, Charmaranga, Pitkalika.

Local Name : Aval.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-14.71, Abundance-1.10, Density-0.66.

Distribution in Gujarat: Throughout in plains; common in semi-arid and arid regions (Shah, 1978).

Cassia fistula L. Sp. Pl. 377. 1753; Baker in Hook. f. Fl. Brit. India 2 : 261. 1871; Cooke. Fl. Pres. Bombay 1 ; 444. 1958 (Repr.). Shah, Fl. Guj. 1:268; 1978, Pandey in J. Bombay nat. Hist. Soc. 68 : 313. 1971; Sanj. Leg. India 15. 1991. Singh, et al Fl. Maha. Dicot. 1: 786. 2000.

Habit : Trees, ovate. Flowers yellow, lax, drooping racemes. Pods indehiscent. Seeds numerous, embedded in dark coloured pulp.

FLS and FRTS : April – October.

Herbarium No and date of Collection: 591, 29/05/01. **Photograph**: 72

Sanskrit Name: Sampak, Suvernaka, Aragvadh.

Local Name : Garmalo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-11.81, Abundance-0.70, Density-0.22.

Distribution in Gujarat: Throughout in deciduous forests; also planted along roads and in gardens (Shah, 1978).

Cassia surattensis Burm. f. subsp. *glauca* (Lam.) K. & S. Larsen in Fl. C. L. V. 18 : 102. 1980; Sanj. Leg. India 21. 1991. *C. glauca* Lam. Encycl. 1 : 647. 1784; Baker in Hook. F. Fl. Brit. India 2; 265. 1878; Cooke. Fl. Pres. Bomba 1 : 453. 1958 (Repr.). Shah, Fl. Guj. 1:273; 1978, *C. arborescens* Vahl, Symb. Bot 3 : 56. 1794. *Senna arborescens* (Vahl) Roxb. Fl. Ind. 2 : 345. 1832; Singh, et al Fl. Maha. Dicot. 1: 790. 2000.

Habit : Shrubs. Leaves leaflets elliptic – oblong, apex acute, base rounded. Flowers

yellowish axillary, corymbose racemes. Pods straight, flat, tapering at both ends. Seeds oblong.

FLS and FRTS : September – March.

Herbarium No and date of Collection: 592, 10/02/01.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 7, 10 to 16, 21, 24, 25, 26, 28, 29, 31 to 37.

Ecological Data: Frequency-8.33, Abundance-0.41, Density-0.33.

Distribution in Gujarat: Reported by Santapau (1962) from Saurashtra.

Cassia occidentalis L. sp. Pl. 377. 1753; Baker in Hook. f. Fl. Brit. India 2; 262. 1878; Cooke. Fl. Pres. Bombay 1 ; 445. 1958 (Repr.). Shah, Fl. Guj. 1:271; 1978, de Wit. In Webbia 11 : 256. 1955; Pandey in J. Bombay nat. Hist. Soc. 68. 316, t. 2, f. 26 – 31. 1971; Sanj. Leg. India 19. 1991. Singh, et al Fl. Maha. Dicot. 1: 789. 2000.

Habit : Undershrubs. Leaflets ovate – lanceolate. Flowers yellow short peduncled racemes corymbose, axillary and forming a terminal panicle. Pods transversely septate, distinctly torulose. Seeds ovoid.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 593, 29/10/01. **Photograph:** 73

Sanskrit Name: Kasamarda, Kasari.

Local Name : Kasundro.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 14, 15, 16, 17, 21, 22, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-15.90, Abundance-2.90, Density-2.15.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Cassia pumila Lam. Encycl. 651. 1785; Baker in Hook. f. Fl. Brit. India 2 : 266. 1878; Cooke, Fl. Pres. Bombay 1 : 452. 1958 (Repr.). Shah, Fl. Guj. 1:272; 1978, de Wit in Webbia 11 : 288. 1955; Pandey in J. Bombay nat. Hist. Soc. 68 : 318, t. 2, ff. 18. – 25. 1971; V. Singh, Ibid. 75. 442. 1978; Sanj. Leg. India 19. 1991. Singh, et al Fl. Maha. Dicot. 1: 789. 2000.

Habit : Herbs, diffuse or procumbent. Leaflets linear – oblong, glands of the petioles persistent, those on the rachis deciduous or absent. Flowers yellow, solitary. Pods linear, pubescent or sparsely hairy. Seeds obliquely obovoid, brown, shining.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 594, 30/10/01.

Local Name : Chomodio.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 7, 8, 10 to

13, 15 to 22, 24 to 37.

Ecological Data: Frequency-13.52, Abundance-3.63, Density-2.33.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Cassia siamea Lam. Encycl. 1 : 648. 1785; Baker in Hook. f. Fl. Brit. India 2 : 264. 1878; Cooke. Fl. Pres. Bombay 1 ; 454. 1958 (Repr.). Shah, Fl. Guj. 1:272; 1978, Sanj Leg. India 20. 1991. *Senna sumatrana* Roxb. Fl. Ind. 2 : 254. 1832. *S. siamea* (Lam.) Irwin & Barneby Mem. N. Y. Bot. Gard. 35 ; 98. 1982. Singh, et al Fl. Maha. Dicot. 1: 800. 2000.

Habit : Trees. Leaves abruptly pinnate; leaflets ovate – elliptic or elliptic – oblong, coriaceous. Flowers yellow, panicles. Pods brown, beaked, compressed, broadly oblong.

FLS and FRTS : August – June.

Herbarium No and date of Collection: 595, 02/06/01. **Photograph:** 74

Distribution and Status in the Study Area: It is found in zone no 6, 10, 11, 16, 21, 22, 24, 28, 35 and 36.

Ecological Data: Frequency-2.79, Abundance-0.22, Density-0.11.

Distribution in Gujarat: Planted along roads and in gardens (Shah, 1978).

Cassia tora L. Sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. India 2 : 263. 1878 p.p.; Cooke. Fl. Pres. Bombay 1 : 447. 1958 (Repr.). Shah, Fl. Guj. 1:274; 1978, de Wit in Webbia 11 : 276. 1955; Panedy in J. Bombay nat. Hist. Soc. 68. 316, t. 2, ff. 32 – 38. 1971; V. Singh, Ibid. 75. 437. 1978; Sanj. Leg. India 22. 1991. Singh, et al Fl. Maha. Dicot. 1: 791. 2000.

Habit : Herbs, erect. Leaflets obovate – oblong, glaucous. Flowers yellow, axillary, solitary or in pairs. Pods obliquely septate. Seeds rhomboid.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 596, 17/12/00. **Photograph:** 75

Sanskrit Name: Chakramarda, Chakramardad.

Local Name : Kuvadio.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-26.36, Abundance-5.40, Density-4.30.

Distribution in Gujarat: Throughout, common, scattered or subgregarious (Shah, 1978).

DELONIX Raf.

3 species in tropical Africa, Madagascar and Asia, 2 in GNPS.



76) *Delonix regia* (Bojer. ex. Hook.) Rafin., 77) *Acacia catechu* (L.f.) Willd., 78) *Acacia leucophloea* (Roxb.) Willd., 79) *Acacia nilotica* (L.) Willd ex. Delile., 80) *Dichrosachys cinerea* var. *indica* Brenen., 81) *Mimosa hamata* Willd.

Delonix elata (L.) Gamble, fl. Pres. Madras 1: 396. 1919 [(1 : 280. 1957 (Repr.) Shah, Fl. Guj. 1:274; 1978,]; Sanj. Leg. India 27. 1991. *Poinciana elata* L. Cent. Pl. 2 : 16. 1756; Baker in Hook, f. Fl. Brit. India 3: 260. 1878; Cooke, Fl. Pres. Bombay 1: 441. 1958 (Repr.). Singh, et al Fl. Maha. Dicot. 1: 802. 2000.

Habit: Trees, bark ash – coloured. Leaves abruptly opposite; leaflets subsessile, linear – oblong, base rounded, apex usually apiculate. Flowers yellow on finely pubescent stout pedicels in terminal. Few flowered, cymbiform racemes. Pods attenuated at both ends, reticulately veined.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 597, 01/11/01.

Local Name : Sandesra.

Distribution and Status in the Study Area : It is found in zone no 6,10, 28 and 36.

Ecological Data : Frequency-1.49, Abundance-0.26, Density-0.19.

Distribution in Gujarat : Surat, Bharuch, Rajpipla, Panchmahals, North Gujarat, Saurashtra; wild or cultivated (Shah, 1978).

Delonix regia (Bojer ex Hook.) Rafin., Fl. Tellur 2: 92. 1836; Sanj. Leg. India 27. 1991. *Poinciana regia* Boj. in Hook. Bot. Mag. 56 : 5, t. 2884. 1829; Baker in Hook. f. Fl. Brit. India 2 : 260. 1878; Cooke, Fl. Pres. Bombay 1 : 442. 1958, Repr. Shah, Fl. Guj. 1:275; 1978. Singh, et al Fl. Maha. Dicot. 1: 803. 2000.

Habit: Trees, high; bark grey. Leaves long, pinnae pairs, long; leaflets pairs, narrowly oblong. Flowers scarlet or reddish-orange, in terminal and axillary lax racemes. Pods long, wide, linear-oblong, flattened, woody.

FLS and FRTS : April - September.

Herbarium No and date of Collection: 598, 24/07/01. **Photograph:** 76

Local Name: Gulmohar.

Distribution and Status in the Study Area: It is found in zone no.1, 2, 3, 6, 9, 10, 12, 14 to 19, 21, 22, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-7.03, Abundance-0.38, Density-0.25.

Distribution in Gujarat: Planted in gardens and along roadsides; native of Madagascar (Shah, 1978).

HARDWICKIA Roxb.

3 species in India and tropical Africa, 1 in GNPS.

Hardwickia binata Roxb., Pl. Cor. 3: 6, t. 209. 1819; Baker in Hook. f. Fl. Brit. India. 2: 270. 1878; Cooke, Fl. Pres. Bombay 1: 456, 1958 (Repr.). Shah, Fl. Guj. 1:275; 1978, Sanj. Leg. India 29. 1991. Singh, et al Fl. Maha. Dicot. 1: 792. 2000.

Habit: Trees, tall. Leaflets pair, subsessile, obliquely ovate. Flowers yellowish-green,

in axillary and terminal panicles. Pods strap-shaped, veined, narrowed at both ends. Seeds solitary.

FLS and FRTS : August - January.

Herbarium No and date of Collection: 599, 23/08/01.

Local Name : Anjan.

Distribution and Status in the Study Area : It is found in zone no 6.

Ecological Data: Frequency-0.33, Abundance-0.01, Density-0.01.

Distribution in Gujarat : Saurashtra and Bulsar, rare (Shah, 1978).

PARKINSONIA L.

3 species of which 2 are American and the other South African, 1 in GNPS.

Parkinsonia aculeata L. Sp. Pl. 375. 1753; Baker in Hook. f. Fl. Brit. India. 2: 260. 1878; Cooke, Fl. Pres. Bombay 1: 442, 1958 (Repr.). Shah, Fl. Guj. 1:275; 1978, Sanj. Leg. India 33. 1991. Singh, et al Fl. Maha. Dicot. 1: 804. 2000.

Habit: Trees, armed. Leaves bipinnate; pinnae pairs, long; leaflets numerous, minute, oblanceolate. Flowers yellow in lax, axillary, short racemes. Pods yellow, linear-oblong, torulose, moniliform, finely veined. Seeds oblong.

FLS and FRTS : April - November.

Herbarium No and date of Collection: 600, 29/09/01.

Local Name : Ram Baval.

Distribution and Status in the Study Area: It is found in zone no 22.

Ecological Data: Frequency-0.33, Abundance-0.01, Density-0.01.

Distribution in Gujarat: Planted as a hedge at many places; also an escape; native of Mexico (Shah, 1978).

PELTOPHORUM (Vogel.) Benth.

About 15 species in tropics and subtropics including N. Australia, 1 in GNPS.

Peltophorum pterocarpum (DC.) Baker ex K. Heyne in Nutt. Pl. Ned. Ind. ed. 2, 2: 755. 1927; Sanj. Leg. India 33. 1991. *Inga pterocarpa* DC. Prodr. 2 : 441. 1825. *Peltophorum ferrugineum* (Decne.) Benth. Fl. Austral 2 : 279. 1864; Baker in Hook. f. Fl. Brit India 2 : 257. 1878. *P. roxburghii* (G. Don) Degener, Fl. How. Fam. 1696. 1938; Blatt. et al. Some Beaut. Indian Trees 109. 1954. Shah, Fl. Guj. 1:276; 1978, Singh, et al Fl. Maha. Dicot. 1: 804. 2000.

Habit: Trees, high; bark black, fissured. Leaves bipinnate; leaflets pairs. Flowers across, golden yellow in axillary and terminal panicles. Pods ellipsoid-oblong, flat, dark-brown. Seeds.

FLS and FRTS : January - June.

Herbarium No and date of Collection: 601, 26/04/01.

Local Name : Tamarafali.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 9, 10, 15, 17, 21, 22, 24, 28, 29 to 33, 35 to 37.

Ecological Data: Frequency-6.39, Abundance-0.35, Density-0.38.

Distribution in Gujarat: Planted in gardens and along roads (Shah, 1978).

PILIOSTIGMA Roxb.

1 species, 1 in GNPS.

Piliostigma malabaricum (Roxb.) Bth. In Miq. Fl. Jungh. 261. 1852; S 329. *Bauninia malabarica* Roxb. Hort. Beng. 31. 1814 (nomen) & Fl. Ind. 2:321. 1832; Fl. Brit. India. 2:277; C 1:460; WI 1:160. Shah, Fl. Guj. 1:277; 1978,

Habit : 9-14 m tall trees, with dark-brown, rough bark. Leaves nearly orbicular, coriaceous, bilobed, glabrous above, sparsely hairy beneath. Pods dark-brown, glabrous, apiculate, slightly curved, flat.

FLS and FRTS : FLS. September - October FRTS. October – December.

Herbarium No and date of Collection: 602, 29/09/01.

Distribution and Status in the Study Area: It is found in the zone no 6.

Ecological Data: Frequency-0.62, Abundance-0.11, Density-0.07.

Distribution in Gujarat: Dangs and Panchmahals; rare (Shah, 1978).

TAMARINDUS L.

1 species, 1 in GNPS.

Tamarindus indica L. Sp. Pl. 34. 1753; Baker in Hook. f. Fl. Brit. India. 2: 273. 1878; Cooke, Fl. Pres. Bombay 1: 457, 1958 (Repr.). Shah, Fl. Guj. 1:278; 1978, Snaj. Leg. India 36. 1991. Singh, et al Fl. Maha. Dicot. 1: 794. 2000.

Habit: Trees tall. Leaflets pairs, oblong. Flowers yellow in lax, few flowered racemes at tips of brachlets. Pods subcompressed, brown. Seeds obovoid-oblong.

FLS and FRTS : February - June.

Herbarium No and date of Collection: 603, 29/05/01.

Sanskrit Name : Amlika, Chinchā.

Local Name : Amli.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-15.51, Abundance-0.79, Density-0.36.

Distribution in Gujarat: Throughout, planted or self-sown, rarely wild in dense forests; probably a native of tropical Africa (Shah, 1978).

MIMOSACEAE

About 56 genera and 2800 species in tropics and sub-tropics throughout the world, abundant in Southern hemisphere; 8 genera and 16 species in GNPS.

ACACIA Mill.

About 800 species in tropics and subtropics of Africa and Australia, 7 in GNPS.

Acacia auriculiformis A. Cunn. Ex. Bth. In Hook. London J. Bot. 1 : 377. 1842; Sen & Naskar in Bull. Bot. Surv. India 7 : 31. 1958; Sanj. Legumes of India 45. 1991. Singh, et al Fl. Maha. Dicot. 1: 824. 2000.

Habit : Trees, with whitish bark. Phyllodes narrowed at both, ends. Flowers in axillary spike inflorescence, yellow. Pods woody, much twisted.

FLS and FRTS : August – June.

Herbarium No and date of Collection: 604, 29/05/01.

Local Name : Australian – baval.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 16, 21, 24, 26, 28, 31, 32, 33, 35 and 36.

Ecological Data: Frequency-1.24, Abundance-0.35, Density-0.23.

Distribution in Gujarat: Planted in road side and garden (Shah, 1978).

Acacia catechu (L.f.) Willd. Sp. Pl. 4 : 1078. 1806; Baker in Hook. f. Fl. Brit. India 2: 295. 1876; Cooke. Fl. Pres. Bombay 1 : 476. 1958 (Repr.). Shah, Fl. Guj. 1:281; 1978, Sanj. Legumes of India 38. 1991. *Mimosa catechu* L. f. Suppl. Pl. 439. 1781. *Acacia polyacantha* Willd. Sp. Pl. 4 : 1079. 1806; Brennan in Kew Bull. 1956 : 195. 1957. *A. suma* (Roxb.) Buch – Ham. Ex., Voigt, Hort. Subur. Calc. 260. 1845. Baker in Hook. f. op. Cit. 294; Cooke. Op. Cit. Singh, et al Fl. Maha. Dicot. 1: 808. 2000.

Habit : Trees. Leaves bipinnate, flowers pale yellow or greenish – white in spikes; pods. Brown, stalked, beaked; reticulately veined.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 605, 29/05/01. **Photograph**: 77

Local Name : Khair.

Distribution and Status in the Study Area : It is found in all zone.

Ecological Data: Frequency-18.36, Abundance-1.22, Density-0.60.

Distribution in Gujarat: Throughout, in deciduous forests, common; sparingly seen in scrub forests (Shah, 1978).

Acacia ferruginea DC. Prodr 2 : 458. 1825; Baker in Hook. f. Fl. Brit. India 2 : 295. 1878; Cooke. Fl. Pres. Bombay 1; 477. 1958 (Repr.). Shah, Fl. Guj. 1:282; 1978,

Sanj. Legumes of india 39, 40. 1991. Singh, et al Fl. Maha. Dicot. 1: 811. 2000.

Habit : Trees, rough, rusty brown. Leaves bipinnate, leaflets linear oblong. Flowers creamy – white, sessile, densely arranged in spikes. Pods brown, reticulately veined, beaked.

FLS and FRTS : May - October.

Herbarium No and date of Collection: 606, 29/05/01.

Sanskrit Name : Somasara.

Local Name : Babarkhair.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-14.08, Abundance-0.91, Density-0.33.

Distribution in Gujarat: Dangs, Vyara, Songadh, Panchmahals, North Gujarat (Modasa), Saurashtra and Kachchh; not common (Shah, 1978).

***Acacia leucophloea* (Roxb.) Willd. Sp. Pl. 4 ; 1083. 1806; Baker in Hook. f. Fl. Brit. India 2; 294. 1878; Cooke. Fl. Pres. Bombay 1 : 475. 1958 (Repr.). Shah, Fl. Guj. 1:283; 1978, Sanj. Legumes of india 41. 1991. *Mimosa leucophloea* Roxb. Pl. Cor 2 27, .t. 150. 1800. Singh, et al Fl. Maha. Dicot. 1: 811. 2000.**

Habit : Trees, leaflets flowers whitish – yellow, in terminal panicle heads. Pods linear – oblong – flat, yellowish – brown, tomentose.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 607, 29/10/01. **Photograph:** 78

Sanskrit Name : Arimed, Irmed, Sveta-barbura, Vitkhadir.

Local Name : Herma.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-14.10, Abundance-0.90, Density-0.32.

Distribution in Gujarat: Throughout in plains (Shah, 1978).

***Acacia nilotica* (L.) Willd. ex Del. Desir. Egypte Hist. Nat. 3: 79. 1813. *Mimosa nilotica* L. SP. Pl. 521. 1753. ssp. *astringens* (Schum. & Thonn.) Roberty in Candollea 11 : 150. 1948; Ali in Nasir & Ali, Fl. W. Pak. 36: 12. 1973; Sank. Legumes of India 41. 1991. *Mimosa astringens* Schum. & Thonn. Beskr. Guin. Pl. 327. 1827. *Acacia nilotica* ssp. *indica* var. *vediana* (T. Cooke) Vajrav. & Kamble in J. Bombay Nat. Hist. Soc. 79: 708. (1982) 1983; Naik, Fl. Marathwada, 1 : 345. 1998. *A. arabica* (Lam.) Willd. Var. *vediana* T. Cooke, Fl. Pres. Bombay 1 : 444. 1903. [1 : 473. 1958 (Repr.)]. Shah, Fl. Guj. 1:283; 1978. Singh, et al Fl. Maha. Dicot. 1: 812. 2000.**

Habit: Trees, small; bark more deeply cracked and exfoliating crown formed of twisted, angular, interlocking branches, spines usually white. Pods flat, shortly

stalked, little constricted between the seeds.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 608, 01/11/01. **Photograph:** 79

Sanskrit Name: Babbula, Barburha, Abhal.

Local Name : Deshi Baval.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-17.45, Abundance-1.42, Density-0.66.

Distribution in Gujarat: Throughout in plains, more common in arid or semi-arid regions (Shah, 1978).



Acacia pennata (L.) Willd., Sp. Pl. 4: 1090. 1806; Baker in Hook. f. Fl. Brit. India. 2: 297. 1878; Cooke, Fl. Pres. Bombay 1: 480, 1958 (Repr.). Shah, Fl. Guj. 1:284; 1978, Nelsen in Adansonia 19:352. 1980; Sanj. Legumes of India 42:1991. *Mimosa pennata* L. Sp. Pl. 522. 1753. Singh, et al Fl. Maha. Dicot. 1: 813. 2000.

Habit : Scandent shrubs, armed with hooked spines on stem. Pinnae leaflets linear, obtuse. Flowers white or pale yellow. Pods stalked, strap-shaped, brown. Seeds.

FLS and FRTS : August - March.

Herbarium No and date of Collection: 609, 15/02/01.

Sanskrit Name: Ari, Khadirvallii, Valliikhadir.

Local Name: Khirvel.

Distribution and Status in the Study Area : It is found in all zones.

Ecological Data : Frequency-26.75, Abundance-7.13, Density-3.36.

Distribution in Gujarat: Frequent in deciduous forests, sparingly seen in scrub forests (Shah, 1978).

Acacia senegal (L.) Willd. Sp. Pl. 4:1077. 1806; Fl. Brit. India. 2:295; C 1:478; WI 1:19; S & J 22, *Mimosa senegal* L. Sp. Pl. 521. 1753. Shah, Fl. Guj. 1:285; 1978.

Habit : Trees. Armed trees. Pinnae 3-5 pairs, leaflets 8-15 pairs, linear, glabrous. Flowers white or creamy-white, axillary, solitary, solitary or fascicled spikes. Pods flat, glabrous linear-oblong or lanceolate, reticulate. Seeds 5-6.

FLS and FRTS : FLS. August – October FRTS. October – April.

Herbarium No and date of Collection: 610, 23/04/01.

Local Name : Gorad.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-12.21, Abundance-2.56, Density-1.02.

Distribution in Gujarat: Bulsar, Vyara, Surat, Panchmahals, mahi ravines. Tuwa, north Gujarat, Saurashtra and Kutch; frequent in arid and semiarid regions (Shah,

1978).

ALBIZZIA Durazz.

About 25 species, 2 in GNPS.

Albizzia lebbeck (L.) Benth. in Hook. Lond. J. Bot. 3: 87. 1844; p.p. ('leddek') & in Trans. Linn Soc. 30: 562. 1875 p.p. Balke in Hook. f. Fl. Brit. India 2:298. 1878; Cooke, Fl. Pres. Bombay 1: 481. 1958 (Repr.). Shah, Fl. Guj. 1:287; 1978, Sanj. Legumes of India 56. 1991. *Mimosa lebbeck* L. Sp Pl. 516. 1753. Singh, et al Fl. Maha. Dicot. 1: 816. 2000.

Habit: Trees, Leaves abruptly pinnate; leaflets lateral, elliptic-oblong, terminal ovate-oblong. Flowers white, fragrant. Pods pale yellow.

FLS and FRTS : March - December.

Herbarium No and date of Collection: 611, 29/05/01.

Sanskrit Name : Sirish, Shirisha, Mrudu-pushpa, Suktaru.

Local Name : Kalo Siris.

Distribution and Status in the Study Area: It is found in zone no 2 to 6, 8 to 19, 21, 22, 24, 25, 26, 28 to 37.

Ecological Data: Frequency-7.08, Abundance-0.57, Density-0.14.

Distribution in Gujarat: Throughout in deciduous forests, sparingly seen in scrub forests; not common; also planted as an avenue tree (Shah, 1978).

Albizzia odoratissima (L. f.) Benth. in Hook. Lond. J. Bot. 3: 88. 1844; Baker in Hook. f. Fl. Brit. India. 2: 299. 1878; Cooke, Fl. Pres. Bombay 1: 482, 1958 (Repr.). Shah, Fl. Guj. 1:288; 1978, Sanj. Legumes of India 57. 1991. *Mimosa odoratissima* L. f., Suppl. 437. 1781. *Albizia odortissima* var. *mollis* Bth. Ex Baker in Hook. f. op. cit. Singh, et al Fl. Maha. Dicot. 1: 817. 2000.

Habit : Trees, leaflets obliquely oblong, apex rounded, base obliquely rounded. Pods flat, stalked.

FLS and FRTS : May - December.

Herbarium No and date of Collection: 612, 24/07/01.

Sanskrit Name : Krishna-shirisha.

Local Name : Dholo Sirish.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 7, 10, 11, 16, 17, 22, 24, 26, 27, 28, 32, 35 and 37.

Ecological Data: Frequency-4.76, Abundance-0.65, Density-0.14.

Distribution in Gujarat: In deciduous forests, occasional, sparingly seen in scrub forests (Shah, 1978).

DICHROSTACHYS (DC.) Wight & Arn.

About 5 species, palaeotropical, 1 in GNPS.

Dichrostachys cinerea var. ***indica*** Brenen & Brummit in Bot. Soc. Borter 39 : 111. 1935; Sanj. Legumes of india 65. 1991. *D. cinerea* (L.) Wight & Arn. Proder. 271. 1834; Baker in Hook. f. Fl. Brit. India 2 : 288. 1878; Cooke. Fl. Pres. Bombay 1 : 468. 1958 (Repr.). Shah, Fl. Guj. 1:288; 1978. Singh, et al Fl. Maha. Dicot. 1: 819. 2000.

Habit : Trees. Leaves bipinnate; leaflets narrowly linear – oblong, appressed hairy beneath. Upper flowers yellow, lower red or pink. Pods flat, twisted.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 613, 30/10/01. **Photograph**: 80

Local Name : Madish.

Distribution and Status in the Study Area : It is found in all zone.

Ecological Data : Frequency-11.59, Abundance-1.23, Density-0.41.

Distribution in Gujarat: Throughout, in arid and semi-arid zones (Shah, 1978).

LEUCAENA Benth.

About 8-10 species distributed in Polynesia and Tropical America, 1 in GNPS.

Leucaena leucocephala (Lamk.) De. Wit. In Taxon 10:54. 1961; S & J 22. *Mimosa glauca* L. Sp. Pl. (ed. 2) 1504. 1763 non L. 1753. *Mimosa leucocephala* Lam. Encycl. Meth. Bot. 1:12 1783. Leucocephala Bth. In HK, Lond. Journ. Bot. 4:416. 1842; Fl. Brit. India. 2:290; C 1:469; WI 6:77. f. 34. Shah, Fl. Guj. 1:289; 1978.

Habit : Trees or large shrubs. Leaves, pinnae 3-8 pairs; leaflets membranous, linear-oblong, glabrous, sparsely hairy beneath. Heads across. Pods flat, glabrous, linear-oblong, strap-shaped, pale to dark brown.

FLS and FRTS : May - November.

Herbarium No and date of Collection: 614, 01/11/01.

Local Name : Pardesi Baval.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 6, 10, 11, 15, 16, 21, 22, 24, 28, 30, 31, 35 and 36.

Ecological Data : Frequency-6.68, Abundance-0.26, Density-0.19.

Distribution in Gujarat : Planted at some places, seldom an escapee; native of America (Shah, 1978).

MIMOSA L.

About 230-250 species mostly confined to Tropical America, 1 in GNPS.

Mimosa hamata Willd. Sp. Pl. 4 : 1033. 1806; Baker in Hook.f. Fl. Brit. India : 2 : 291. 1878; Cooke. Fl. Pres. Bombay 1: 471. 1958 (Repr.). Shah, Fl. Guj. 1:290;

1978, Sanj. Legumes of india 68. 1991. Singh, et al Fl. Maha. Dicot. 1: 821. 2000.

Habit : Shrubs, armed; prickles curved or straight. Flowers pink, in globose heads, pods reddish – brown, prickly on sutures.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 615, 10/07/00. **Photograph**: 81

Local Name : Kai Baval.

Distribution and Status in the Study Area: It is found in zone no 24 to 37.

Ecological Data: Frequency-8.44, Abundance-0.58, Density-0.37.

Distribution in Gujarat: Throughout in plains from Surat to Kachchh; common in arid and semi-arid zones (Shah, 1978).

PITHECELLOBIUM Mart.

About 100 species in tropical and subtropical America, 1 in GNPS.

Pithecellobium dulce (Roxb.) Bth. In Hook. London J. Bot. 3 : 199. 1844 ('Pithecolobium'); Baker in Hook. f. Fl. Brit. India 2 : 302. 1878; Cooke, Fl. Pres. Bombay 1 : 485. 1958 (Repr.). Shah, Fl. Guj. 1:291; 1978, Sanj. Legumes of india 71. 1991. *Mimosa dulcis* Roxb. Pl. Cor. 1 : 67, t. 99. 1798. Singh, et al Fl. Maha. Dicot. 1: 828. 2000.

Habit : Trees, with stipulate spines. Leaves with one pair of pinnae; obovate – oblong. Flowers in terminal panicles of globose heads. Pods twisted, fleshy, dehiscent. Seeds with aril.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 616, 19/01/00.

Local Name : Goras amla.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 6, 9, 10, 12, 15, 16, 17, 21, 22, 24, 28, 29, 31, 32, 35 to 37.

Ecological Data: Frequency-3.47, Abundance-0.71, Density-0.14.

Distribution in Gujarat: Throughout, in hedges, along railway lines and roadsides; native of Mexico (Shah, 1978).

PROSOPIS L.

About 45 species, in tropical and sub-tropical regions, 2 in GNPS.

Prosopis cineraria (L.) Druce in Rep. Bot Soc. Exch. Cl. Brit. Is. 1913: 3. 422. 1914; Burkart in J. Arnold Arbor 57: 450. 1976; Sanj Legumes of India 71. 1991. *Mimosa cineraria* L. Sp. Pl. Ed. 2, 2: 1500. 1763 ('cinerea') *Prosopis spicigera* L. Mant. 68. 1767; Baker in Hook f. Fl. Brit. India 2: 288. 1878; Cooke Fl. Pres Bombay 1: 467, 1958 (Repr.). Shah, Fl. Guj. 1:292; 1978. Singh, et al Fl. Maha. Dicot. 1: 823.

2000.

Habit : Trees. Leaves bipinnate; leaflets oblong. Flowers yellow. Pods long, Seeds ovoid.

FLS and FRTS : November - April.

Herbarium No and date of Collection: 617, 23/01/00.

Sanskrit Name: Shami, Agnigarbha.

Local Name : Khijado.

Distribution and Status in the Study Area: It is found in zone no 3, 11, 24, 28, 32, 33, 35 and 37.

Ecological Data: Frequency-2.22, Abundance-0.13, Density-0.06.

Distribution in Gujarat: Throughout in plains quite frequent in scrub forests (Shah, 1978).

Prosopis juliflora (Swartz) DC Prodr. 2 : 447. 1825; Burkart in J. Arnold Arbor. 57. 499. 1976; Sanj. Legumes of india 72. 1991. *Mimosa juliflora* swartz, Prodr. 85. 1788. Shah, Fl. Guj. 1:293; 1978, Singh, et al Fl. Maha. Dicot. 1: 824. 2000.

Habit : Scandent shrubs or small trees. Leaves bipinnate; flowers light green or pale yellow, in dense, axillary, pendulous spikes. Pods oblong flat.

FLS and FRTS : February – May.

Herbarium No and date of Collection: 618, 29/05/01.

Local Name : Gando baval.

Distribution and Status in the Study Area: It is found in zone no1, 6, 10, 11, 16, 21, 24, 28, 32, 35 and 36.

Ecological Data: Frequency-2.74, Abundance-0.47, Density-0.13.

Distribution in Gujarat: Throughout, planted along coastal region for soil reclamation; now naturalized in many parts; native of Mexico and Central America (Shah, 1978).

SAMANEA (Benth.) Merr.

About 20 species in tropical S. America and tropical Africa, 1 in GNPS.

Samanea saman (Jacq.) Merr.in Journ. Wash. Acad. Sci. 6 : 46. 1916; Sanj. Legumes of india 72. 1991. *Mimosa saman* Jacq. Frag. Bot. 15, t. 9. 1800. *Pithecolobium saman* (Willd) Bth. In Hook. Lond. Journ. Bot. 3 : 199. 1844; Cooke. Fl. Pres. Bombay 1 : 485. 1958 (Repr.). Shah, Fl. Guj. 1:293; 1978, Singh, et al Fl. Maha. Dicot. 1: 828. 2000.

Habit : Trees, large, evergreen with grey bark. Leaves dark green. Flowers pink or rose in globose heads. Pods fleshy with firm sutures.

FLS and FRTS : May – September.

Herbarium No and date of Collection: 619, 25/07/01.

Local Name : Rato sarasado.

Distribution and Status in the Study Area: It is found in zone no1, 3, 6, 8, 10, 11, 15, 16, 24, 30, 31, 35 to 37.

Ecological Data: Frequency-5.46, Abundance-0.50, Density-0.14.

Distribution in Gujarat: Planted along roads and in gardens; native of tropical America (Shah, 1978).

ROSACEAE

About 100 genera and 2000 species; cosmopolitan, abundant in north temperate zone; 1 genera and 1 species wild in GNPS.

ROSA L.

1 species, 1 in GNPS.

Rosa indica L. Sp. Pl. 492. 1753; Baker in Hook f. Fl. Brit. India 2 : 364. 1878. Singh, et al Fl. Maha. Dicot. 1: 817. 2000.

Habit : Prickly shrubs. Leaves stipules narrow, adnate almost to the top; leaflets elliptic – lanceolate, flowers solitary, red.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 620, 29/05/01.

Local Name : Gulab.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 13, 16, 17, 18, 21, 22, 24, 25, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-7.73, Abundance-0.44, Density-0.48.

Distribution in Gujarat: Planted in the garden.

COMBRETACEAE

About 20 genera and 600 species in tropics and subtropics, 4 genera and 8 species in GNPS.

ANOGEISSUS (DC.) Guil. & Perr.

About 8 species in tropical Africa, Arabia and S.E. Asia, 1 in GNPS.

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill. & Perr. Fl. Seneg. Tent. 1: 280. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 2: 450. 1878; Cooke, Fl. Pres. Bombay 1: 512. 1958 (Repr.). Shah, Fl. Guj. 1:297; 1978, Scott in Kew Bull. 33: 560. 1979; Gan. & T. Chakrab. in J. Econ. Tax. Bot. 21. 288. 1997; *Conocarpus latifolia* Roxb. ex DC.

Prodr. 3:17. 1828. Singh, et al Fl. Maha. Dicot. 2: 18. 2000.

Habit : Deciduous trees, high. Leaves ovate to oblong-elliptic, apex obtuse. Flowers sessile, in dense heads; calyx pubescent, teeth triangular. Fruits with persistent calyx stalk, wings entire, beaked, clustered.

FLS and FRTS : March - September.

Herbarium No and date of Collection: 621, 30/05/01.

Sanskrit Name: Dhav, Dhava, Pisach-vriksha.

Local Name : Dhavdo.

Distribution and Status in the Study Area: It is found in zone no 24 to 37.

Ecological Data: Frequency-9.81, Abundance-0.84, Density-0.70.

Distribution in Gujarat: Throughout in deciduous forests, common; in scrub forests not frequent in later habitat (Shah, 1978).

COMBRETUM Loeft.

About 250 species, throughout the tropics (except Australia), 1 in GNPS.

Combretum albidum G. Don in Trans. Linn. Soc. London 15: 429. 1824; Gang. & T. Charab. in J. Econ. Tax Bot. 21: 301. 1997. *C. ovalifolium* Roxb. Fl. Ind. 2: 226. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 2: 458. 1878; Cooke, Fl. Pres. Bombay 1: 515. 1958 (Repr.). Shah, Fl. Guj. 1:299; 1978.

Habit: Climbers. Lianas; branches divaricate. Leaves elliptic or ovate. Flowers greenish-white in large panicles. Fruits indehiscent, ovoid, 4-winged, including papery wings.

FLS and FRTS : January - May.

Herbarium No and date of Collection: 622, 23/04/01.

Local Name : Madvel.

Distribution and Status in the Study Area: It is found in zone no 1 to 7, 9, 10, 11, 13, 14, 17 to 25, 30 to 35.

Ecological Data : Frequency-15.52, Abundance-2.01, Density-1.26.

Distribution in Gujarat: Throughout in the forests; seldom on hedges; common (Shah, 1978).

QUISQUALIS L.

About 17 species mainly tropical, 1 in GNPS.

Quisqualis indica L. Sp. Pl. ed. 2: 556. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 2: 459. 1878; Cooke, Pres. Bombay 1: 517. 1958 (Repr.). Shah, Fl. Guj. 1:299; 1978, Gang. & Chakrab. in J. Econ. Tax. Bot. 21: 357, f. 22 B. 1997.

Habit: Large, straggling climbers. Leaves elliptic-oblong, acuminate at apex, rounded

or subcordate at base. Flowers in terminal, corymbose spikes; petals white, turning pink to deep red. Fruits ovoid – ellipsoid, chocolate brown.

FLS and FRTS: FLS. Throughout the year FRTS. Very rare.

Herbarium No and date of Collection: 623, 29/10/01.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 13, 18, 22, 25, 31, 32, 35 and 37.

Ecological Data : Frequency-9.58, Abundance-0.47, Density-0.27.

Distribution in Gujarat: Throughout in the forests; seldom on hedges; common (Shah, 1978).

TERMINALIA L.

About 200 species distributed throughout the tropics, 5 in GNPS.

Terminalia bellirica (Gaertn.) Roxb. Pl. Cor. 2:54, t. 198. 1805. ('bellerica'), C.B.Cl. in Hook f. Fl. Brit. India 2:445. 1878; Cooke, Fl. Pres. Bombay 1: 508. 1958 (Repr.). Shah, Fl. Guj. 1:300 1978, Gang. & T. Chakrab. in J. Econ. Tax. Bot. 21: 338. 1997. *Myrobalanus bellirica* Gaertn. Fruct. 2: 90, t. 97. 1791. *Terminalia bellirica* var. *laurinoides* C.B.Cl. in Hook f. op. cit.

Habit: Large trees, tall; young parts rufous pubescent. Leaves obovate or broadly elliptic, tomentose on both sides. Flowers yellowish-brown, in axillary spikes, foetid. Drupes subglobose, softly tomentose.

FLS and FRTS : March - November.

Herbarium No and date of Collection: 624, 16/11/99.

Sanskrit Name: Bhivitak, Vibhitak, Karshaphala, Kalidrum, Bahiva.

Local Name : Behada.

Distribution and Status in the Study Area: It is found in zone no 3 to 7, 9, 11 to 14, 17 to 20, 25, 26, 27, 29 to 35.

Ecological Data : Frequency-10.44, Abundance-0.61, Density-0.33.

Distribution in Gujarat: Throughout in deciduous forests; occasional (Shah, 1978).

Terminalia catappa L. Syst. Nat. ed. 2: 674. 1767; C.B.Cl. in Hook. f. Fl. Brit. India 2: 444. 1878; Cooke, Fl. Pres. Bombay 1: 511. 1958 (Repr.). Shah, Fl. Guj. 1:301; 1978, Gang. & T. Chakrab. in J. Econ. Tax. Bot. 21: 343, f. 18 B. 1997. **Habit:** Trees, tall; branches in horizontal whorls. Leaves crowded at ends of branches, obovate, rounded or shortly acuminate at apex, glabrous above, pubescent on nerves beneath; petioles with 1-2 glands at tip on lower surface. Flowers sessile, in axillary spikes, white or yellowish-green. Fruits ovoid or ellipsoid, usually reddish-green.

FLS and FRTS : April - October.

Herbarium No and date of Collection: 625, 23/06/01.

Local Name: Deshi Badam.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 13, 15, 16, 21, 24, 25, 28, 29, 31 to 37.

Ecological Data : Frequency-7.71, Abundance-0.54, Density-0.24.

Distribution in Gujarat : Planted in gardens and near houses (Shah, 1978).

Terminalia chebula Retz. Obs. BOT. 5: 31. 1788; C.B.Cl. in Hook. f. Fl. Brit. India 2: 446. 1878; Cooke, Fl. Pres. BOMBAY 1: 509. 1958 (Repr.). Shah, Fl. Guj. 1:301; 1978, Gang & T. Charab. in J. Econ. Tax. Bot 21: 345, f. 19B. 1997. *T. chebula* var. *tomentella* (Kurz) C.B.Cl. in Hook. f. op. cit.; Almeida, Fl. Mah. 2: 254. 1998.

Habit: Trees high. Leaves elliptic-ovate or elliptic-oblong. Flowers yellow, in simple or sparsely branched spikes. Drupes ellipsoid or ovoid, 5-ribbed when dry.

FLS and FRTS : February - May.

Herbarium No and date of Collection: 626, 23/03/00.

Sanskrit Name: Haritaki, Abhaya, Shiva, Pathya, Avyatha.

Local Name : Harde.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 19, 26 and 30.

Ecological Data : Frequency-2.59, Abundance-0.19, Density-0.09.

Distribution in Gujarat: Dangs, Vyara, Bansda, Rajpipla and Saurashtra (Girnar); occasional at Dangs; rare in other places (Shah, 1978).

Terminalia cuneata Roth, Nov. Pl. Sp. 379. 1821; Gang. & T. Chakrab. in J. Econ. Tax. Bot. 16: 556. 1922 & Ibid. 21: 349. f. 20. B. 1997. *T. arjuna* (Roxb. ex DC.) Wight & Arn. Prodr. 314. 1834; C.B.Cl. in Hook. f. Fl. Brit. India 2: 447. 1878; Cooke, Fl. Pres. Bombay 1: 1958 (Repr.). Shah, Fl. Guj. 1:300; 1978, *T. arjuna* var. *angustifolia* (Roxb). C.B.Cl. in Hook. f. op. cit.; Cooke, op. cit.

Habit: Trees, tall. Leaves elliptic-oblong, apex obtuse or subacute, base rounded or cordate. Flowers yellowish in short and terminal panicles. Drupes ovoid or obovoid.

FLS and FRTS : February - November.

Herbarium No and date of Collection: 627, 16/11/99.

Sanskrit Name : Arjun, Arjuna.

Local Name : Arjun Sadad.

Distribution and Status in the Study Area: It is found in zone no 19, 20, 25 to 37.

Ecological Data: Frequency-7.71, Abundance-0.61, Density-0.36.

Distribution in Gujarat: Rajpipla, Panchmahals, North Gujarat (Balaram-Ambaji)



82



83



84



85



86



87

82) *Eucalyptus globulus* Labill., 83) *Syzygium heyneanum* (Duthie.) Wall. ex. Gamble.,
84) *Couroupita guianensis* Abul., 85) *Ammannia baccifera* L., 86) *Lawsonia inermis* L.,
87) *Woodfordia fruticosa* (L.) Kurz.

and Saurashtra; not frequent (Shah, 1978).

Terminalia elliptica Willd. Sp. Pl. 4:969. 1806; Gang. & T. Chakrab. in J. Econ. Tax. Bot. 16: 601. 1992 & Ibid. 21: 351, f. 21 A. 1997. *T. alata* Roth, Nov. SP. Pl. 379. 1821. *T. crenulata* Roth, Nov. Sp. Pl. 380. 1821. *T. coriacea* (Roxb) Wight & Arn. Prodr. 315. 1834 non Rottl. ex Spr. 1807. *T. tomentosa* (Roxb.ex DC.) Woght & Arn. Prodr. 314. 1834 non Mart. 1829; C.B.Cl. in Hook. f. Fl. Brit. India 2: 447. 1878; Cooke, Fl. Pres. Bombay 1: 510. 1958 (Repr.). Shah, Fl. Guj. 1:301; 1978, *T. tomentosa* var. *crenulata* (Roth) C.B.Cl. in Hook. f. op. cit. 448. *T. tomentosa* var. *coriacea* (Roxb). C.B.Cl. in Hook. f. op. cit.

Habit: Trees, tall; bark rough, deeply cracked. Leaves elliptic to elliptic-lanceolate or elliptic-oblong, ovate or obovate. Flowers yellowish-brown to greenish-yellow, in pubescent panicles. Drupes across, obovoid-oblong or globose, dark brown or reddish.

FLS and FRTS : April - November.

Herbarium No and date of Collection: 628, 13/11/99.

Sanskrit Name: Saradru, Parthakakurth.

Local Name : Sadad.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-17.17, Abundance-1.39, Density-0.70.

Distribution in Gujarat: In deciduous forests, common (Shah, 1978).

MYRTACEAE

About 100 genera and 3000 species, mainly in tropical areas of Australia and America; 3 genera and 5 species in GNPS.

EUCALYPTUS L. Herit.

About 500 species mainly in Australia and Tasmania, 1 in GNPS.

Eucalyptus globulus Labill. Voy. Rech. Perouse 1:153. t. 13, 1799; Bailey Man. Cult. Pl. 727. 1949, 2nd ed.); Ashton in Dassan. Fosb. Rev. Handb. Fl. Ceylon 2:460.1981. Shah, Fl. Guj. 1:302; 1978, Singh, et al Fl. Maha. Dicot. 2: 18. 2000.

Habit: Trees, tall; bark bluish, smooth. Leaves lanceolate, falcate, coriaceous. Flowers axillary, solitary, rarely flowered. Fruits globular to conical, 4-ribbed.

FLS and FRTS : October - May.

Herbarium No and date of Collection: 629, 25/12/99. **Photograph:** 82

Sanskrit Name : Tailpatra.

Local Name : Nilgiri.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 6, 10, 11, 13, 16, 21, 24, 25, 28, 31, 32, 35 to 37.

Ecological Data: Frequency-8.31, Abundance-0.60, Density-0.26.

Distribution in Gujarat: Throughout, under plantation in forests; also in gardens (Patel, 1984).

PSIDIUM L.

About 140 species mainly in tropical America and West Indies, 1 in GNPS.

Psidium guajava L. Sp. Pl. 470. 1753; Duthie in Hook. f. Fl. Brit. India 2: 468. 1878; Cooke, Fl. Pres. Bombay 1:529. 1958 (Repr.). Shah, Fl. Guj. 1:302; 1978. Singh, et al Fl. Maha. Dicot. 2: 8. 2000.

Habit: Shrub, high; bark smooth, peeling off. Leaves oblong-elliptic, pubescent on both sides, apex acute, obtuse or rounded, base rounded. Flowers across, white, axillary, solitary; calyx and petals pubescent. Berries across, ovoid, pulpy.

FLS and FRTS: November - June.

Herbarium No and date of Collection: 630, 23/12/99.

Sanskrit Name: Perukam, Mruduphalam, Drudhbijam.

Local Name : Jamphal.

Distribution and Status in the Study Area: It is found in zone no 4, 6, 16, 22, 24, 28, 30, 33 to 37.

Ecological Data : Frequency-00 Abundance -00, Density- 00.

Distribution in Gujarat : Cultivated for edible fruits (Shah, 1978).

SYZYGIUM R. Br. ex Gaertn.

About 500 species, palaeotropical, 3 in GNPS.

Syzygium cumini (L.) Skeels, U.S.D.A. Bur. Pl. Industr. Bull. 248: 25. 1912. *Myrtus cumini* L. SP. Pl. 471. 1753. *Eugenia jambolana* Lam. Encycl. 3:198. 1789; Duthie in Hook. F. Fl. Brit. India 2: 499. 1879; Cooke, Fl. Pres. Bombay 1:523. 1958 (Repr.). Shah, Fl. Guj. 1:303; 1978. Singh, et al Fl. Maha. Dicot. 2: 10. 2000.

Habit: Trees, high, bark thick, rough. Leaves elliptic-oblong or elliptic or ovate, subcoriaceous, close veined, apex acute to acuminate or subobtus, base narrowed. Flowers white, sessile or shortly pedicelled, crowded in heads on ends of laxly paniced-cymes; calyx copular; corolla calyptrate. Berries oblong or ovoid, purple, fleshy.

FLS and FRTS : March - June.

Herbarium No and date of Collection: 631, 25/04/01.

Sanskrit Name : Jambu.

Local Name : Jambu.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 11, 12 to 20, 22, 24 to 27, 29 to 35 and 37

Ecological Data: Frequency-10.88, Abundance-1.30, Density-0.26.

Distribution in Gujarat: In forests occasional; planted along roads and in gardens self-sown in waste places (Shah, 1978).

Syzygium heyneanum Duthie) Wall. ex Gamble, Fl. Pres. Madras 482. 1919 [1:341. 1967 Repr.]. *Eugenia heyneana* Duthie in Hook. f. Fl. Brit. India 2: 500. 1879; Cooke, Fl. Pres. Bombay 1: 524. 1958 Repr.). Shah, Fl. Guj. 1:303; 1978. Singh, et al Fl. Maha. Dicot. 2: 11. 2000.

Habit: shrubs or small tress, Leaves elliptic-lanceolate or oblanceolate, subcoriaceous, apex acute, base tapering. Flowers white in small heads. In trichotmous cymes on old stem or in axils of fallen leaves, subsessile; calyx obscurely lobed; petals orbicular, calyptrate. Berries ovoid to ellipsoid, reddish-brown when ripe.

FLS and FRTS : February - June.

Herbarium No and date of Collection: 632, 24/06/01. **Photograph:** 83

Local Name : Jaljambu.

Distribution and Status in the Study Area: It is found in zone no 1 to 21, 24, 25, 26, 28, 29, 30, 32 to 36.

Ecological Data: Frequency-9.77, Abundance-2.14, Density-0.57.

Distribution in Gujarat: In riverbeds or ravines at Rajpipla, Panchmahals and North Gujarat; not common (Shah, 1978).

Syzygium rubicandum Wight & Arn. Prodr. 330. 1834; Gamble, FL. Pres. Madra 1: 339. 1967 (Repr.). Shah, Fl. Guj. 1:303; 1978, *Eugenia rubicunda* Wight, Ic. T. 538. 1842; Duthie in Hook. f. Fl. Brit. India. 2: 495. 1878; Cooke, Fl. Pres. Bombay 1: 521. 1958 (Repr.). *E. lissophylla* (Thw). Duthie in Hook. f. op. cit. 488. Singh, et al Fl. Maha. Dicot. 2: 15. 2000.

Habit: Trees, high. Leaves variable, ovate or elliptic-lanceolate; shining above, pale beneath, pellucid dotted, apex acuminate, base narrowed. Flowers pinkish-white, in terminal or axillary cymes; petals calyptrate. Berries globose, black.

FLS and FRTS : March - June.

Herbarium No and date of Collection: 633, 29/05/01.

Local Name : Vanjambu.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 16, 21, 24,

28, 36 and 37.

Ecological Data: Frequency-3.73, Abundance-0.27, Density-0.11.

Distribution in Gujarat : Planted in gardens.

LECYTHIDACEAE

About 15 genera and 325 species, mainly in tropical America; 1 genera and 1 species in GNPS.

COUROUPITA Abul.

1 species, 1 in GNPS.

Couroupita guianensis Abul. Pl. Gui. 2: 708, t. 282. 1775; Bailey, Man. Cult. Pl. 722. 1949. Singh, et al Fl. Maha. Dicot. 2: 23. 2000.

Habit : Evergreen trees, tall. Leaves , oblong, Flowers cauliflorous, borne on trunk and larger branches yellow to red outside. Fruits almost globose.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 634, 13/11/99. **Photograph:** 84

Sanskrit Name: Kumbhika, Dirghaphala, Rajvriksha, Karnikar.

Local Name : Shivlingi.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: In forests of Bulsar, Dangs, Vansda and Vyara; not common (Sabnis, 1967).

LYTHRACEAE

About 25 genera and 550 species, cosmopolitans, 4 genera and 6 species in GNPS.

AMMANNIA L.

A cosmopolitan genus with 30 species, 3 in GNPS.

Ammannia baccifera L. Sp. Pl. 120. 1753 & ed. 2, 1:175. 1762; C.B. Cl. In Hook. f. Fl. Brit. India 2: 569. 1879; Cooke, Fl. Pres. Bombay 1: 541. 1958 (Repr.). Shah, Fl. Guj. 1:305; 1978, Koehne in Engl. Pflanzenr. 17 : 54. 1903; Sant. In Rec. Bot. Surv. India 16 (1) 97. 1967 (3rd Rev. ed.); Fernandez in Launert, Fl. Zambesiaca 4 : 308. 1978. Singh, et al Fl. Maha. Dicot. 2: 23. 2000.

Habit: Erect, annual herbs. Stems and branches slender. Leaves linear – oblong or lanceolate, base attenuate – cuneate. Flowers reddish, in axillary clusters forming whorls. Capsules depressed – globes, red.

FLS and FRTS : December – March.

Herbarium No and date of Collection: 635, 22/02/00. **Photograph:** 85

Sanskrit Name : Jalagio, Agni-garbha.

Local Name : Lal agio.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6 to 11, 13, 14, 18, 20, 21, 22, 25, 26, 30, 33 to 35.

Ecological Data: Frequency-3.76, Abundance-0.48, Density-0.25.

Distribution in Gujarat: Throughout in damp places; common, gregarious (Shah, 1978).

Ammannia senegalensis Lam. Illus. 1: 312, t. 77, f. 2. 791; Sant. In Rec. Bot. Surv. India 16 (1): 97. 1967 (3rd Rev. ed.); Shah & Deshpande in Bull. Bot. Surv. India 11: 281. 1969. Shah, Fl. Guj. 1:306; 1978, Singh, et al Fl. Maha. Dicot. 2: 31. 2000.

Habit: Erect herbs, tall. Leaves linear-oblong or lanceolate. Flowers bright red, in axillary clusters. Capsules globose, reddish.

FLS and FRTS: September - February.

Herbarium No and date of Collection: 637, 19/02/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: So far found in Saurashtra and Central Gujarat (Tuwa), in moist ground; rare (Shah, 1978).

Ammannia tenuifolia L. C.B. Cl. In Hook. f. Fl. Brit. India 2: 569. 1879; Cooke, Fl. Pres. Bombay 1: 541. 1958 (Repr.). Singh, et al Fl. Maha. Dicot. 2: 23. 2000.

Habit: Erect herbs, tall. Leaves linear-oblong or lanceolate. Flowers bright red, in axillary clusters. Capsules globose, reddish.

FLS and FRTS: September - February.

Herbarium No and date of Collection: 636, 16/11/99.

Distribution and Status in the Study Area: It is found in the zone no 1, 3, 4, 6 to 11, 13, 14, 18, 21 to 24, 30, 32, 34 and 35.

Ecological Data: Frequency-4.62, Abundance-0.47, Density-0.28.

Distribution in Gujarat: So far found in Saurashtra and Central Gujarat (Tuwa), in moist ground (Desai, 2002).

LAWSONIA L.

A monotypic palaeotropical genus, 1 in GNPS.

Lawsonia inermis L. Sp. Pl. 349. 1753; Cooke, Fl. Pres. Bombay 1: 544. 1958 (Repr.). Shah, Fl. Guj. 1:309; 1978, Bole & Almeida in J. Bombay Nat. Hits. Soc. 79:

312. 1982. *L. alba* Lam. Encycl. 3: 106; C.B. Cl. In Hook f. Fl. Brit. India 2: 573. 1879. Singh, et al Fl. Maha. Dicot. 2: 40. 2000.

Habit: Shrubs, spiny. Leaves sessile, lanceolate, apex acute. Flowers white, in terminal and axillary cymes. Capsules globose.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 638, 31/10/00. **Photograph:** 86

Sanskrit Name: Madyantika, Ragangi.

Local Name : Mahendi.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 13, 16, 17, 18, 20, 21, 22, 24, 25, 26, 29, 31 to 37.

Ecological Data: Frequency-11.17, Abundance-0.44, Density-0.48.

Distribution in Gujarat: Planted as an hedge plant; at times escape (Shah, 1978).

RODALA L.

About 50 species in tropics and subtropics, 1 in GNPS.

Rotala serpyllifolia (Roth) Bremek. In Acta Bot. Neerl. 3: 149. 1954; C.D.K. Cook in Boissiera 29: 61, f.11F – H. 1979. *Micranthus serpyllifolius* Roth, Nov. Pl. Sp. 282, 1879. *Ammannia tenuis* (Wight) C.B. Cl. In Hook. f. Fl. Brit. India 2: 567. 1879; Cooke, F. Fl. Brit. India 2: 567. 1879; Cooke, Fl. Pres. Bombay 1: 538. 1958 (Repr.). Shah, Fl. Guj. 1:311; 1978, Singh, et al Fl. Maha. Dicot. 2: 38. 2000.

Habit: Tiny, erect, annual herbs. Leaves broadly ovate to elliptic. Flowers reddish, in terminal spikes or spicate racemes on filiform peduncles. Capsules ellipsoid.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 639, 19/02/00.

Local Name : Zinako Jal agio.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 7, 9, 10, 11, 13, 15, 18, 21, 22, 24, 25, 28, 30, 32, 34 and 37.

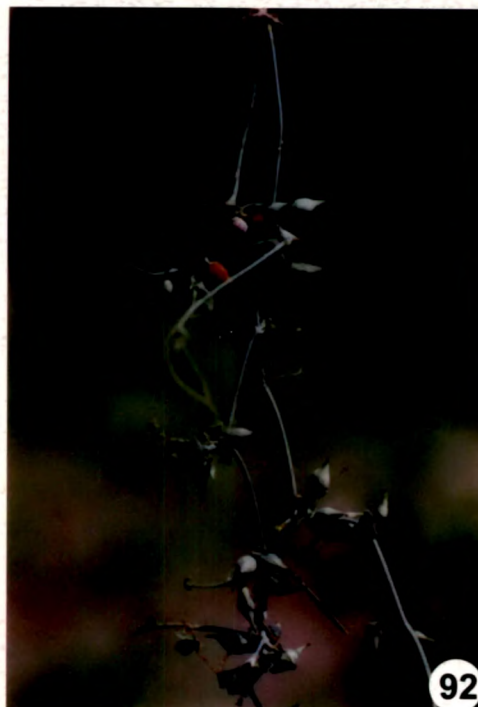
Ecological Data: Frequency-3.03, Abundance-0.52, Density-0.41.

Distribution in Gujarat: Throughout (except Kutch) in stony river bed, gregarious, common; often whole plant pinkish – purple (Shah, 1978).

WOODFORDIA Salisb.

A monotypic genus distributed in India, Sri Lanka, China, Sumatra, 1 in GNPS.

Woodfordia fruticosa (L.) Kurz in J. Asiat. Soc. Bengal 40: 56. 1871; Woward & Jayaweera in Bailey 10: 14. 1962. *Lythrum fruticosum* L. Sp. Pl. Ed. 2, 641. 1762. *Woodfordia floribunda* Salisb. Parad. Lond. T. 42. 1806; C.B. Cl. In Hook. f. Fl. Brit. India 2: 572. 1879; Cooke, Fl. Pres. Bombay 1: 543. 1958 (Repr.). Shah, Fl. Guj. 1:311; 1978. Singh, et al Fl. Maha. Dicot. 2: 39. 2000.



88) *Punica granatum* L., 89) *Carica papaya* L., 90) *Citrullus colocynthis* (L.) Schrad., 91) *Coccinia grandis* (L.) Voigt., 92) *Corallocarpus conocarpus* (Dalz. & Gibbs.) Hook. f., 93) *Momordica dioca* Roxb. ex Willd.

Habit: Shrubs or undershrubs. Leaves oblong – lanceolate, glabrous above and glandular punctuate beneath. Flowers red, in racemes in axils of fallen leaves. Capsules ellipsoid, enclosed by persistent calyx tube.

FLS and FRTS : May – June.

Herbarium No and date of Collection: 640, 19/02/00. **Photograph:** 87

Sanskrit Name : Dhataki, Madkara, Tamrapushpi, Vyahi-jvala.

Local Name : Dhavadi.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 8 to 11, 13, 15, 17, 18, 20, 21, 22, 24, 25, 26, 30, 31, 32, 34 to 36.

Ecological Data: Frequency-10.29, Abundance-0.46, Density-0.34.

Distribution in Gujarat: Throughout, on rock cuttings and river slopes, rarely in hedges; not common (Shah, 1978).

PUNICACEAE

One genus and two species, in S.E. Europe to the Himalayas and Socotra, 1 species in GNPS.

PUNICA L.

A genus with 2 species, one (*P. protopunica* Balf. f.) confined to Socotra, and the other (*P. granatum* L.) is cultivated in S. Europe, N. Africa, the Orient, tropical Asia, Malaysia and China, 1 in GNPS.

***Punica granatum* L.** Sp. Pl. 472. 1753; C. B. Cl. In Hook. f. Fl. Brit. India 2: 581. 1879. Shah, Fl. Guj. 1:312; 1978, Singh, et al Fl. Maha. Dicot. 2: 42. 2000.

Habit: Shrubs or small trees. Leaves oblong, lanceolate, obtuse at apex. Flowers across; sepals persistent; petals red; stamens many. Fruits a berry with numerous seeds surrounded by juicy pulp.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 641, 31/10/01. **Photograph:** 88

Local Name : Dadam.

Sanskrit Name : Dadim, Karak, Lohitpushpak.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 8, 10, 11, 13, 15, 16, 17, 21, 22, 24, 25, 28, 29, 31 to 33, 35 to 37.

Ecological Data: Frequency-6.53, Abundance-0.46, Density-0.29.

Distribution in Gujarat: Cultivated, probably a native of Persia, Afghanistan and Baluchistan (Shah, 1978).

ONAGRACEAE

About 18 genera and 640 species, cosmopolitan, mainly centred in South-West and North America, 1 genus and 1 species in GNPS.

LUDWIGIA L.

About 75 species distributed throughout world, 1 in GNPS.

Ludwigia perennis L. Sp. Pl. 119. 1753; Raven in Reinwardtia 6: 367. 1963. *L. parviflora* Roxb. Fl. Ind. 1: 440. 1820; C.B. Cl. In Hook. f. Fl. Brit India 2: 588. 1879; Cooke, Fl. Pres. Bombay 1: 550 1958 (Repr.). Shah, Fl. Guj. 1:313; 1978, Singh, et al Fl. Maha. Dicot. 2: 45. 2000.

Habit : Annual, erect herbs subglabrous or minutely puberulent on young parts. Leaves narrowly elliptic to lanceolate, base cuneate; flowers solitary or clustered, axillary, minutely puberulent; thin walled, irregularly dehiscent. Seeds pluriserial in each locule, free.

FLS and FRTS : July – August.

Herbarium No and date of Collection: 642, 25/07/01.

Distribution and Status in the Study Area : It is found in zone no 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 25 to 29, 31, 33, 35 to 37.

Ecological Data : Frequency-3.81, Abundance-0.88, Density-0.97.

Distribution in Gujarat: Throughout, in moist places; also a weed in cultivated fields; common (Shah, 1978).

PASSIFLORACEAE

About 12 genera and 600 species in tropical and warm temperate parts of the world, 1 genus and 1 species in GNPS.

PASSIFLORA L.

About 500 species chiefly found in America, a few in Asia and Australia and one in Madagascar, 1 in GNPS.

Passiflora edulis Sims in Curtis Bot. Mag. T. 1989. 1818; Cooke, Fl. Pres. Bombay 1: 557. 1958 (Repr.). Shah, Fl. Guj. 1:315; 1978, Bor & rainz. Some beautiful Indian climbers & shrubs 254, f. 148. 1954. Singh, et al Fl. Maha. Dicot. 2: 48. 2000.

Habit : Woody climbers. Leaves deeply 3 – lobed, terminal lobe broadly elliptic, side lobes obovate, serrate. Flowers terminal or axillary, purple, with whitish tinge. Berries ovoid – oblong, purple dotted.

FLS and FRTS : March – October.

Herbarium No and date of Collection: 643, 21/03/00.

Local Name : Krishanakamal.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 10, 12, 18, 22, 25, 31 to 34.

Ecological Data : Frequency-5.10, Abundance-0.52, Density-0.40.

Distribution in Gujarat: Ornamental; native of Brazil (Shah, 1978).

CARICACEAE

About 5 genera and 65 species mainly in tropical America, Africa and Asia, 1 genus and 1 species in GNPS.

CARICA L.

About 50 species in tropical and sub-tropical America, 1 in GNPS.

Carica papaya L. Sp. Pl. 1036. 1753; Cooke, Fl. Pres. Bombay 1: 557. 1958 (Repr.). Shah, Fl. Guj. 1:315; 1978, Bailey Man. Cult. Pl. 692, f. 137. 1949. Singh, et al Fl. Maha. Dicot. 2: 18. 2000.

Habit : Dioecious trees. Stem with copious latex. Leaves palmately and deeply 7 – lobed, each lobe is pinnately lobed again. Flowers greenish – yellow, unisexual, fragrant. Berries. Fleshy, ovoid – oblong, yellow when ripe. Seeds black.

FLS and FRTS : November – March.

Herbarium No and date of Collection: 644, 19/02/00. **Photograph:** 89

Sanskrit Name: Arundkarkati, Arundchirbat.

Local Name : Papaya.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 11, 13, 15, 16, 17, 21, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-10.68, Abundance-0.47, Density-0.34.

Distribution in Gujarat: Cultivated, native of tropical America (Shah, 1978).

CUCURBITACEAE

About 110 genera and 640 species mainly in the warmer parts of the world, 10 genera and 13 species in GNPS.

CETENOLEPIS L.

1 in species, 1 in GNPS.

Cetenolepis cerasiformis (Stocks) Hook. f. in Oliv. Fl. Trop. Afr. 2: 558. 1871; C.B. Cl. In Hook. f. Fl. Brit. India 2: 630. 1879; Jeffrey in Kew Bull. 34: 793. 1980. *Zehneria cerasiformis* Stocks in Hook J. Bot & Peyr. Pl. Tinn. 15: t 7. 1865; Cooke, Fl. Pres. Bombay 1 : 576. 1958 (Repr.). Shah, Fl. Guj. 1:320; 1978, chakr. In Rec. Bot.

Surv. India 17: 174. 1959 & in Fasc. Fl. India 11: 12. 1982. Singh, et al Fl. Maha. Dicot. 2: 54. 2000.

Habit: Climbers; stem much branched, filiform. Leaves lobed or tripartite, lobes ovate or nearly orbicular, villose – hirsute, ultimately white punctuate. Flowers pale yellow; bracts orbicular, reniform, long ciliated. Seeds ovoid, grey or dusky.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 645, 26/09/01.

Local Name: Ankhfutamni.

Distribution and Status in the Study Area: It is found in zone no 1 to 18, 20, 21, 22, 24, 25, 27, 28, 29, 31 to 37.

Ecological Data : Frequency-7.72, Abundance-0.90, Density-0.40.

Distribution in Gujarat: Throughout in plains on hedges; not common (Shah, 1978).

CITRULLUS Schrad. (nom. cons.).

Four species in Western Asia, Eastern Mediterranean region and tropical Africa, 1 in GNPS.

***Citrullus colocynthis* (L.) Schrad.** In Linnaea 12: 414. 1838; C.B. Cl in Hook. f. Fl. Brit. India 2: 620. 1879; Cooke, Fl. Pres. Bombay 1: 571. 1958 (Repr.). Shah, Fl. Guj. 1: 318; 1978, Jeffrey in Kew Bull 34: 791. 1980; Chakr. in Fasc. Fl. India 11: 20, f. 1 – 7 1982. *Cucumis colocynthis* L. Sp. Pl. 1011. 1753. Singh, et al Fl. Maha. Dicot. 2: 53. 2000.

Habit : Climbers, perennial prostrate, scabrid; stems diffuse, hirsute, angled. Leaves deeply 3 – 7 lobed, lobes ovate in female flowers obovate, hirsute. Berries. Globose – depressed, across, variengated green and white. Seeds ovoid – oblong, yellowish.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 646, 25/07/01. **Photograph:** 90

Sanskrit Name: Indravaruni, Vishala, Gavakshi, Gavadini, Mahendravaruni.

Local Name: Rakhodiyo.

Distribution and Status in the Study Area: It is found in zone no 4 to 9, 14, 15, 16, 28, 30, 32, 33, 35 to 37.

Ecological Data : Frequency-4.79, Abundance-1.07, Density-0.41.

Distribution in Gujarat: Throughout in plains, in small or large patches, as a weed in waste places and cultivated fields, common (Shah, 1978).

COCCINIA Wight & Arn.

About 13 species, mostly confined to tropical Africa, 1 in GNPS.

***Coccinia grandis* (L.) Vogt,** Hort. Suburb. Calc. 59. 1845; Chakr. in Fasc. Fl. India

11: 24, f. 1 – 9. 1982. *Bryonia grandis* L. Mant. Pl. 1: 126. 1767. *Coccinia indica* Wight & Arn. Prodr. 347. 1833; cooke, Fl. Pres. Bombay 1: 572. 1958 (Repr.). Shah, Fl. Guj. 1:319; 1978, *Cephalandra indica* (Wight & Arn.) Naud in Ann. Sci. Nat. Bot 5, 5: 16. 1859; C.B. Cl. In Hook f. Fl. Brit. India 2 : 621. 1879. Singh, et al Fl. Maha. Dicot. 2: 53. 2000.

Habit : Climbers, slender, herbaceous. Leaves broadly ovate or ovate – triangular, entire or 3 – 5 angled or palmately lobed. Flowers (male & female) white, axillary, solitary. Fruits baccate, pulp red, subglabrous, rounded at both ends. Seeds compressed, oblong, yellowish, smooth.

FLS and FRTS : March – December.

Herbarium No and date of Collection: 647, 29/05/01. **Photograph:** 91

Sanskrit Name : Bimba.

Local Name: Ghiloda.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 6, 9, 10, 11, 13, 16, 17, 18, 20, 21, 24, 27, 30, 33 and 35.

Ecological Data : Frequency-3.08, Abundance-0.46, Density-0.24.

Distribution in Gujarat: Cultivated, also as an escape or naturalized near human habitations (Shah, 1978).

CORALLOCARPUS Dalz.

1 in species, 1 in GNPS.

Corallocarpus conocarpus (Dalz & Gibs.) Hook. f. Fl. Brit. India 2:628. 1879; C 1:579; *Aechmandra conocarpa* Dalz. & Gibs. Bombay Fl. 100. 1861. Shah, Fl. Guj. 1:319; 1978.

Habit: Slender, glabrous, monoecious, climber. Leaves ash-coloured beneath, deeply lobed, minutely hairy. Male flowers in crowded racemes on axillary peduncle. Berries conical-oblong.

FLS and FRTS : June - August.

Herbarium No and date of Collection: 648, 24/07/01. **Photograph:** 92

Distribution and Status in the Study Area: It is found in the zone no 26 to 28, 30, 35 to 37.

Ecological Data : Frequency-0.93, Abundance-0.18, Density-0.05.

Distribution in Gujarat: This species is listed by Cooke from Gujarat on the authority of Dalzell and Gibson citing localities Malpore and Gundar; rare (Shah, 1978).

Corallocarpus epigaeus (Rottl.) C.B. Cl. In hook f. Fl. Brit. India 2 : 628. 1879;

Cooke, Fl. Pres. Bombay 1: 5788. 1958 (Repr.). Shah, Fl. Guj. 1:320; 1978, Charkr. In Rec. Bot. Surv. India 17: 171. 1959 & Fasc. Fl. India 11: 28. 1982; Jeffrey in Kew Bull. 34. 793. 1980. *Bryonia epigaea* Rottl. In Neue. Schr. Ges. Naturf. Fr. Berl. 4 : 212. 1803. Singh, et al Fl. Maha. Dicot. 2: 54. 2000.

Habit : Climbers, prostrate or climbing, monoecious; stem slender, sulcate. Leaves As broad as long, suborbicular, 3 – lobed, scabrid. Flowers greenish – yellow, males in axillary racemes, female flowers usually solitary on short peduncles. Berries. Ovoid, beaked.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 649, 01/10/01.

Sanskrit Name: Katunahi.

Local Name: Kadavinai.

Distribution and Status in the Study Area: It is found in zone no 1 to 9, 13, 14, 21, 22, 24, 25, 26, 28, 29, 31 to 37.

Ecological Data : Frequency-5.50, Abundance-0.92, Density-0.58.

Distribution in Gujarat: Kachchh and Saurashtra, on hedges; Saxton (1918) reports it as a weed in cultivated fields in North Gujarat (Shah, 1978).

CUCUMIS L.

About 25 species, cosmopolitan, 1 in GNPS.

***Cucumis sativus* L.** Sp. Pl. 1012. 1753; C. B. Cl. In Hook. f. Fl. Brit. India 2: 620. 1829; Cooke, Fl. Pres. Bombay 1; 570. 1958 (Repr.). Shah, Fl. Guj. 1:323; 1978, Jeffrey in Kew Bull 34. 794. 1980; Chakr. In Rec. Bot. Surv. India 17: 105. 1959 & in Fasc. Fl. India 11: 36. 1982. Singh, et al Fl. Maha. Dicot. 2: 72. 2000.

Habit: Climbing herbs, hirsute. Leaves densely hairy, lobes triangular flowers yellow, male flowers fasciculate; female flowers solitary or fasciculate. Fruits ovoid, green. Seeds white, oblong.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 650, 18/02/00.

Sanskrit Name: Avaru, Karkati.

Local Name : Kakdi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 8, 10, 15, 16, 21, 22, 24, 28, 29, 32, 34 to 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated, also as escape (Shah, 1978).

DIPLOCYCLOS (Endl.) Post. & Kuntze.

About 3 species in Tropical Africa and Indo – Malaya, 1 in GNPS.

***Diplocyclos palmatus* (L.) C. Jeffrey** in Kew Bull. 15: 352. 1962 & Ibid. 34: 800. 1980; Chakr. In Fasc. Fl. India 11: 48. 1982. *Bryonopsis laciniosa* (L.) Naud. In Ann. Sci. Nat. 4, 12: 141. 1859; Cooke, Fl. Pres. Bombay 1: 568. 1958 (Repr.) Shah, Fl. Guj. 1:324; 1978, chakr. Op. cit. Singh, et al Fl. Maha. Dicot. 2: 58. 2000.

Habit : Climbers, slender, monoecious, extensive climbers. Leaves palmately 3 – 7 lobed, membranous, base broadly sinuate, upper surface punctuate. Male & female flowers creamy – white, in axillary fascicles; calyx & corolla campanulate. Fruits baccate, spherical, variegated smooth. Seeds obovoid, white or pale yellow.

FLS and FRTS : December – January.

Herbarium No and date of Collection: 651, 19/01/00.

Sanskrit Nae: Bahupatra.

Local Name: Shivlingi.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 16, 21, 22, 24, 28, 31 to 37.

Ecological Data : Frequency-7.64, Abundance-0.40, Density-0.11.

Distribution in Gujarat: Throughout on hedges; common (Shah, 1978).

Notes : According to Jeffrey (1962.) *Bryonia laciniosa* L. Known for a long time as *Bryonopsis laciniosa* (L.) Naud. Should be called as *Cayaponia laciniosa* (L.) Jeffrey, op. cit. 346 and is endemic to Jamaica.

LUFFA MIIL.

Cosmopolitan, about 9 species, 2 in GNPS.

***Luffa acutangula* (L.) Roxb.** Fl. Ind. 3: 713. 1832; C.B. Cl. In Hook. f. Fl. Brit. India 2: 615. 1879; cooke, Fl. Pres. Bombay 1: 556. 1958 (Repr.) Shah, Fl. Guj. 1:326; 1978, Jeffrey in Kew Bull. 34: 792. 1980; Chakr. In Fasc. Fl. India 11: 67, f. 1 – 7. 1982. *Cucumis acutangula* L. sp. Pl. 1: 1011. 1753. op. cit. 567; chakr. Op. cit. L. amara Roxb. Fl. Ind. 3: 715. 1832. Singh, et al Fl. Maha. Dicot. 2: 59. 2000.

Habit : Annuals, extensive climbers; stems slender. Leaves broadly ovate, entire or 3- 7 lobed, membranous with glands on upper surface. Flowers pale yellow, across, male & female flowers in same axil. Berries linear – obovoid or clavate – oblong, angled. Seeds black, ovoid, flat.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 652, 19/02/00.

Sanskrit Name: Jalani, Mrudagphala, Koshataki.

Local Name: Turiya.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 16, 21, 22, 24, 28, 31 to 37.

Ecological Data : Frequency-6.67, Abundance-0.68, Density-0.60.

Distribution in Gujarat: Throughout on hedges and on low bushes or trees in forests; common and abundant (Shah, 1978).

Luffa echinata Roxb. Fl. Ind 3; 716. 1832; C.B. Cl in Hook. f. Fl. Brit. India 2 ; 615. 1879; Cooke, Fl. Pres. Bombay 1; 567. 1958 (Repr.). Shah, Fl. Guj. 1:196; 327 1982; Jeffrey in Kew Bull. 34: 791. 1980. *L. echinata* var *longistyla* C.B. Cl in Hook. f. Brit. India 2 : 615. 1839. Singh, et al Fl. Maha. Dicot. 2: 61. 2000.

Habit : Climbers, herbaceous; stems elongate, sulcate; plants dioecious. Leaves shallowly 3 – 5 angled or lobed, subreniform, scabrid on both surfaces. Flowers yellow; calyx villous; (male flowers 5 – 12; females solitary.) Berries ellipsoid or ovoid, ashy, densely bristly. Seeds ovoid, black, slightly verrucose.

FLS and FRTS : August – September.

Herbarium No and date of Collection: 653, 27/09/01.

Local Name: Kukadvel.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 16, 18, 21, 22, 24, 31, 33 to 37.

Ecological Data : Frequency-7.25, Abundance-1.08, Density-0.60.

Distribution in Gujarat: On hedges; not frequent (Shah, 1978).

MELOTHRIA L.

Cosmopolitan with about 88 species, 1 in GNPS.

Melothria maderaspatana (L.) Cogn.in DC. Mon. Phan. 3:623. 1881: C 1:573; WI 5:336; Ch & O 112.

Habit: Prostrate or climbing, scabridly hairy, monoecious annuals. Leaves entire or shallowly angled or lobed, ovate-triangular, seldom subreniform. Flowers pale to bright yellow, male and female in same axil, male pedicellate, female sessile. Berries broad, spherical, glabrous, smooth. Seeds grey or light black, ovoid-oblong, compressed, somewhat wrinkled, scrobiculate.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 654, 28/07/01.

Local Name : Jangli Parval.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 7, 8, 11, 14, 19, 21, 22, 24, 27, 29, 32, 33, 34 and 36.

Ecological Data : Frequency-4.40, Abundance-0.37, Density-0.11.

Distribution in Gujarat: Throughout, on hedges or on low herbs or shrubs; common (Yogi, 1970).

MOMORDICA L.

About 60 species, cosmopolitan, 2 in GNPS.

Momordica charantia L. Sp. Pl. 1009. 1753; C. B. Cl. In Hook. f. Fl. Brit. India 2: 616. 1879; Duthie, Fl. Gangetic Plain 1; 369. 1903; Jeffrey in Kew Bull. 34. 789. 1980; Chakr. In Fasc. Fl. India 11: 89, 8 – 10 1982. Shah, Fl. Guj. 1:329; 1978, Singh, et al Fl. Maha. Dicot. 2: 74. 2000.

Habit: Climbers, climbing or trailing leaves deeply 5 – 9 lobed, membranous, glabrous. Flowers bright yellow, solitary, axillary. Berries fusiform, tuberculate. Seeds flat, yellowish – brown.

FLS and FRTS : April – October.

Herbarium No and date of Collection: 655, 25/07/01.

Local Name: Kerela.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 16, 18, 21, 22, 24, 28, 31 to 37.

Ecological Data : Frequency-7.50, Abundance-2.83, Density-0.18.

Distribution in Gujarat: Throughout under cultivation or an escape (Shah, 1978).

Momordica dioica Roxb. Ex. Willd. Sp. Pl. 4: 605. 1805; C. B. Cl. In Hook f. Fl. Brit. India 2: 617. 1879 (excl. syn); cooke, Fl. Pres. Bombay 1: 563. 1958 (Repr.). Shah, Fl. Guj. 1:329; 1978, Jeffrey in Kew Bull 34: 790. 1980. Singh, et al Fl. Maha. Dicot. 2: 63. 2000.

Habit: Climbers, perennial with tuberous roots; stems slender. Leaves variable, cordate at base, 3 – 5 lobed, lobes triangular, ovate or oblong, margins serrate. Male flowers solitary, yellow, on slender peduncles, bracteate; female flowers with ebracteate peduncles. Fruits baccate, ellipsoid, shortly beaked, densely echinate with soft spines. Seeds many, broadly ellipsoid, enclosed in a red pulp.

FLS and FRTS : June - October.

Herbarium No and date of Collection: 656, 29/09/01. **Photograph:** 93

Sanskrit Name: Vahishi, Kakortak, Kakortaki.

Local Name: Vanz-kantoli.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 10, 11, 16, 18, 21, 22, 28, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-6.86, Abundance-0.29, Density-0.11.

Distribution in Gujarat: Throughout on hedges and low shrubs and herbs in the forests (Shah, 1978).

TRICHOSANTHES L.

An Indo-Malayan genus with about 44 species, 1 in GNPS.

Trichosanthes cucumerina L. Sp. Pl. 1008. 1753; C. B. Cl. in Hook. F. Fl. Brit. India 2: 609. 1879; Cooke, Fl. Pres. Bombay 1: 560. 1958 (Repr.). Shah, Fl. Guj. 1:332; 1978, Kundu in J. Bombay nat. Hist. Soc. 43; 1942; Chakr. In Rec. Bot. Surv. India 17: 31. 1959. Singh, et al Fl. Maha. Dicot. 2: 66. 2000.

Habit : Extensive climbers; stems herbaceous, slender. Leaves broadly ovate or orbicular – reniform, shallowly to deeply 5 – 7 lobed, margins, denticulate. Flowers white : male and female flowers in same or different axils; male flowers racemes; female solitary, ovary oblong. Berries ovoid – fusiform, scarlet to orange when ripe. Seeds ovoid undulate, compressed, truncate.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 657, 26/09/01.

Sanskrit Name: Tikotam, Mahakala, Patola, Katupatol.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 9 to 15, 19 to 22, 27 to 30 and 35.

Ecological Data : Frequency-3.81, Abundance-0.49, Density-0.17.

Distribution in Gujarat: Throughout; common on hedges and in forests (Shah, 1978).

CACTACEAE

About 50-150 genera and 2000 species chiefly in the drier regions of tropical America, extending to British Columbia and Patagonia, 1 genus and 1 species in GNPS.

OPUNTIA Mill.

About 250 species mainly in America and Galapagos, 1 in GNPS.

Opuntia elatior Mill. Gard. Dict. Ed 8, n. 4. 1768; Ramam in N. C. Nair et al. Fl. Tamilnadu 1: 176. 1983. *O. dillenii* Grah. Ex Dalz. & Gibbs. Bombay Fl. Suppl. 39. 1861; C. B. Cl. In Hook f. Fl. Brit. India 2: 657. 1879; p.p. *O. nigricans* Woodr. In Rec. Bot. Surv. India 1: 89. 1895 non Haw. 1819; Cooke, Fl. Pres. Bombay 1: 587. 1958 (Repr.). Shah, Fl. Guj. 1:333; 1978. Singh, et al Fl. Maha. Dicot. 2: 83. 2000.

Habit : Shrubs, large, succulent with ovate – oblong limbs having 2- 5 spines on each areole; spines straight, slender, tawny or brownish in colour. Flowers at first



94



95



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97



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94) *Opuntia elatior* Mill., 95) *Centella asiatica* (L.) Urban., 96) *Anthocephalus indicus* A. Rich., 97) *Catunaregam spinosa* (Thumb.) 98) *Hymenodictyon orixense* (Roxb. Mabb., 99) *Ixora pavetta* Andr.

yellow, turning to pink or bright red later. Fruits fleshy, bright red to reddish- purple when mature.

FLS and FRTS : January – July.

Herbarium No and date of Collection: 658, 22/03/00. **Photograph:** 94

Sanskrit Name : Nagphani.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 8, 10, 11, 13, 15, 16, 17, 21, 22, 24, 28, 29, 31 to 37.

Ecological Data: Frequency-7.88, Abundance-0.56, Density-0.29.

Distribution in Gujarat: Frequently raised as hedge along cultivated fields; in scrub forests as escape (Shah, 1978).

AIZOACEAE

About 115 genera and 1050 species mainly centered in S. Africa, extending to tropical Africa, Australia and S. America, 2 genera and 2 species in GNPS.

TRIANTHEMA L.

About 15 species, widely spread in tropical and subtropical regions of both hemisphere, 1 in GNPS.

Trianthema portulacastrum L. Sp. Pl. 223. 1753; Jeffrey in Kew. Bull. 14: 235. 1960. *T. monogyna* L. Mant. 1: 69. 1767; C. B. Cl. In Hook. f. Fl. Brit. India 2: 660. 1879; Cooke, Fl. Pres. Bombay 1: 589. 1958 (Repr.). Shah, Fl. Guj. 1:338; 1978. Singh, et al Fl. Maha. Dicot. 2: 89. 2000.

Habit : Herbs, somewhat succulent, prostrate; stems procumbent or ascending, spreading, glabrous or pubescent. Leaves subfleshy, opposite, one pair much smaller than other petiolate; stipulate, blades, obovate or broadly so, entire; petioles extended into a sheathing membranous base. Flowers partly hidden by sheathing leaf bases, hermaphrodite, pinkish or white; stamens inserted on calyx tube; ovary bilobed. Capsules mitrofirm. Seeds with concentric muricate lines.

FLS and FRTS : June - September.

Herbarium No and date of Collection: 659, 26/09/01.

Sanskrit Name: Punarnavi, Sveta-punarnava.

Local Name : Satodo.

Distribution and Status in the Study Area: It is found in zone no 4 to 7, 9, 10, 12, 13, 15, 16, 19, 20, 21, 24, 26 to 29, 31, 33, 35 and 36.

Ecological Data: Frequency-10.10, Abundance-3.71, Density-2.10.

Distribution in Gujarat: Throughout, in plains, in small or large patches; common (Shah, 1978).

ZALEYA L.

1 species, 1 in GNPS.

Zaleya decandra (L.) Burm f. Fl. Ind. 110, t. 31. 1768. *Trianthema decandra* L. Mant. 1: 70. 1767; C. B. Cl. In Hook f. Fl. Brit. India 2 : 661. 1879; Cooke, Fl. Pres. Bombay 1: 591. 1958 (Repr.). Shah, Fl. Guj. 1:339; 1978, Singh, et al Fl. Maha. Dicot. 2: 90. 2000.

Habit: Herbs, prostrate; stems much branched, angular, striate. Leaves elliptic – oblong, petiolate; petioles much dilated and amplexicaul t base; flowers in axillary clusters. Capsules truncate at top with annular rim. Seeds with concentric muricate lines.

FLS and FRTS : December – February.

Herbarium No and date of Collection: 660, 19/01/00.

Distribution and Status in the Study Area: It is found in zone no 6 to 9, 11, 13, 15, 17, 19, 21, 24, 26, 29, 31, 33, 35 and 37.

Ecological Data: Frequency-4.86, Abundance-0.83, Density-0.37.

Distribution in Gujarat: Saurashtra and Bharuch; rare (Shah, 1978).

MOLLUGINACEAE

About 15 genera and 150 species, mostly in the tropics and sub-tropics, 2 genera and 3 species in GNPS.

GLINUS L.

About 12 species in tropical and sub-tropical regions, 1 in GNPS.

Glinus lotoides L. Sp. Pl. 463. 1753; Sant. In Bull. Bot. Surv. India 3 : 17. 1961. *Mollugo hirta* Thunb. Prodr. Fl. Cap. 24. 1794; C. B. Cl. In Hook. f. Fl. Brit. India 2 : 622. 1879; Cooke, Fl. Pres. Bombay 1; 593. 1958 (Repr.). Shah, Fl. Guj. 1:334; 1978. Singh, et al Fl. Maha. Dicot. 2: 92. 2000.

Habit: Prostrate herbs. Leaves opposite or apparently verticillate, obovate, apiculate, petioled. Capsules ovoid.

FLS and FRTS : February - May.

Herbarium No and date of Collection: 661, 23/06/01.

Sanskrit Name: Phaniya, Grishma sundarakha.

Local Name : Okharad.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8, 10 to 14, 16, 18, 20, 22, 24, 26, 28, 31 to 35.

Ecological Data: Frequency-6.32, Abundance-0.93, Density-0.72.

Distribution in Gujarat : Throughout in drying moist ground; common (Shah, 1978).

MOLLUGO L.

About 20 species, in tropical and sub-tropical parts of the world and n. America, 2 in GNPS.

Mollugo nudicaulis Lam. Encycl. 4: 234. 1797; C. B. Cl. In Hook. f. Fl. Brit. India 2: 664. 1879. Shah, Fl. Guj. 1:335; 1978, Singh, et al Fl. Maha. Dicot. 2: 94. 2000.

Habit: Herbs, erect, slender, annual. Leaves in a rosette, spatulate with membranous bracts. Flowers in trichotomous cymes. Capsules ellipsoid, compressed, granular. Seeds black, tuberculate.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 662, 26/09/01.

Distribution and Status in the Study Area: It is found in zone no 3 to 10, 13, 14, 16, 17, 21, 22, 24, 27 to 30, 33 and 35.

Ecological Data: Frequency-10.17, Abundance-2.72, Density-1.25.

Distribution in Gujarat: Throughout in drying moist ground; common (Shah, 1978).

Mollugo oppositifolia L.A. DC. in Bull. Herb. Boiss. (Ser. II) 1:559. 1901; Wi 1:136; CH & O 114; S & J 23; S 108. *Mollugo oppositifolia* L. Sp. Pl. 89. 1753; C 1: 593. *Mollugo spergula* L. Syst. (ed. 10) 881. 1759; FBI 2:662.

Habit: Diffuse, radially spreading herbs. Leaves spatulate-elliptic, whorled, glabrous. Flowers white, in axillary fascicles. Capsule long, ellipsoid, enclosed in persistent calyx. Seeds minute, many, dark-brown, reniform, tuberculate.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 663, 26/09/01.

Local Name: Kadvo Okhard.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 13, 15, 17, 19, 21, 22, 24, 27 to 30, 33 and 35.

Ecological Data: Frequency-8.31, Abundance-3.31, Density-1.47.

Distribution in Gujarat: Throughout in drying moist ground; common (Kotiwar, 1995).

APIACEAE

About 275 genera and 3000 species, cosmopolitan but mostly in north temperate regions, 4 genera and 4 species in GNPS.

ANETHUM L.

About 4 species in Europe, North Africa and West Asia, 1 in GNPS.

Anethum graveolens L. Sp. Pl. 263. 1753; P K. Mukh. & Constance. Umbelliferae (Apiaceae) of India 210. 1993. *Peucedanum graveolens* (L.) Hiren, Fl. Trop. Afr. 3: 19. 1877; C.B.Cl. in Hook. f. Fl. Brit. India 2: 709. 1879 non S. Wats. 1871. Shah, Fl. Guj. 1:340 1978, Singh, et al Fl. Maha. Dicot. 2: 108. 2000.

Habit: Slender herbs, branched above, glabrous tall. Leaves oblong-ovate, pinnately decomposed, segments filiform. Flowers in flowered umbels. Fruits ovoid or elliptic-oblong.

FLS and FRTS : June - August.

Herbarium No and date of Collection: 664, 14/07/00.

Sanskrit Name: Shataha, Shatapushpa.

Local Name : Suva.

Distribution and Status in the Study Area: It is found in zone no 2, 6, 8, 10, 15, 16, 21, 22, 24, 28, 29, 32, 36 and 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated at some places; seldom an escape in waste places (Shah, 1978).

CENTELLA L.

About 40 species in moist torpical and temperate regions, 1 in GNPS.

Centella asiatica (L.) Urban. in Mart. Fl. Bras. 11: 287, t. 78, f. 1. 1879 Buwalda in Blumea 2: 134. 1946; P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 15. 1993. *Hydrocotyle asiatica* L. Sp. Pl. 234. 1753.; C.B.Cl. in Hook. f. Fl. Brit. India 2: 668 1879; Cooke, Fl. Pres. Bombay 1:598. 1958 (Repr.). Shah, Fl. Guj. 1:341; 1978. Singh, et al Fl. Maha. Dicot. 2: 97. 2000.

Habit: Herbs; stems slender with elongated internodes, prostrate, rooting at nodes. Leaves orbicular or reniform, cordate at base; Flowers pink, in fascicled, bracteate umbels. Fruits ovoid, rugose with persistent corolla-crown.

FLS and FRTS : May - November.

Herbarium No and date of Collection: 665, 26/09/01. **Photograph:** 95

Sanskrit Name : Mandukparni.

Local Name : Bramhi.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 28, 30 and 32.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: Throughout in moist ground; not common (Shah, 1978).

CORIANDRUM L.

A Mediterranean genus of about 3 species, 1 in GNPS.

Coriandrum sativum L. Sp. Pl. 256. 1753; C.B. Cl. in Hook. f. Fl. Brit. India. 2: 717. 1879; Cooke, Fl. Pres. Bombay 1: 609, 1958 (Repr.). Shah, Fl. Guj. 1:341; 1978, P.K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 31. 1993. Singh, et al Fl. Maha. Dicot. 2: 108. 2000.

Habit: Herbs. Lower leaves ternately or pinnately lobed or pinnate with incised leaflets upto upper cauline leaves decompose with linear or filiform segments. Flowers in peduncled umbels. Fruits across.

FLS and FRTS : July - September.

Herbarium No and date of Collection: 666, 23/06/01.

Sanskrit Name: Dhanayakam, Kustumbar, Vitunak.

Local Name : Kothmir.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 15, 16, 20, 21, 22, 28, 31 to 37.

Ecological Data: Frequency-9.19, Abundance-1.00, Density-0.59.

Distribution in Gujarat: Cultivated; also an escape in waste places (Shah, 1978).

DAUCAS L.

1 species, 1 in GNPS.

Daucas carota L. SP. Pl. 242. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 718. 1879; Cooke, Fl. Pres. Bombay 1: 609. 1958 (Repr.). Shah, Fl. Guj. 1:342; 1978, P.K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 27. 1993. Singh, et al Fl. Maha. Dicot. 2: 109. 2000.

Habit: Herbs, usually biennial. Leaves oblong, pinnately decompose with linear ultimate segments. Flowers white or yellowish, umbels. Fruits ovoid.

FLS and FRTS : February - May.

Herbarium No and date of Collection: 667, 29/05/01.

Local Name : Gajar.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 15, 16, 20, 21, 22, 28, 31 to 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated at some places (Shah, 1978).

ALANGIACEAE

About 20 genera and 125 species in temperate and tropical regions of the world, 1 genera and 1 species in GNPS.

ALANGIUM Lamk.

About 30 species in tropics and subtropics, mostly in Asia, 1 in GNPS.

Alangium salvifolium (L. f.) Wangerin, in Engl. Pflanzenr. 41:9, f. 2A-E. 1910. Mukerjee in Bull. Bot. Surv. India 10:330. 1968; Matthew in Nayer et al. Fasc. Fl. India 19: 4. 1988. *Grewia salvifolia* L. f. Suppl. 409. 1781. *Alangium lamarkit* Thw. Enum. 133. 1859; C.B.Cl. in Hook. f. Fl. Brit. India 2:741. 1879; Cooke, Fl. Pres. Bombay 2:1. 1958 (Repr.). Shah, Fl. Guj. 1:347; 1978, Singh, et al Fl. Maha. Dicot. 2: 114. 2000.

Habit: Trees, Leaves ovate, lanceolate. Flowers cream coloured, in axillary fascicles, few; pedicels pubescent; calyx turbinate. Berries across, ellipsoid or ovoid.

FLS and FRTS: February – April.

Herbarium No and date of Collection: 668, 23/04/01.

Sanskrit Name: Ankola, Ankolak, Dirghakilak, Pitsar, Tamraphala.

Local Name : Ankol.

Distribution and Status in the Study Area: It is found in zone no 3, 5, 6, 7, 10 to 14, 18 to 22, 24, 25, 33 to 35.

Ecological Data: Frequency-11.29, Abundance-0.78, Density-0.26.

Distribution in Gujarat: Throughout; common (Shah, 1978).

RUBIACEAE

About 500 genera and 6000 species in tropical and subtropical regions, extending up to temperate zones, 12 genera and 16 species in GNPS.

ANTHOCEPHALUS A. RICH. Emend. Haviland.

About 3 species in Indo-Malaysian region; one in GNPS.

Anthocephalus indicus A. Rich. Cooke, Fl. Pres. Bombay 2:1. 1958 (Repr.). Singh, et al Fl. Maha. Dicot. 2: 114. 2000.

Habit: Evergreen Trees. Leaves ovate, lanceolate. Flowers creamy green coloured, in axillary fascicles, few; pedicels pubescent.

FLS and FRTS : June – October.

Herbarium No and date of Collection: 669, 26/09/01. **Photograph:** 96

Sanskrit Name: Kadambh.

Local Name : Kadam.

Distribution in the study area : It is found in the zone no 6, 24 to 26, 29, 33 and 37.

Ecological Data: Frequency-4.74, Abundance-0.32, Density-0.07.

Distribution in Gujarat: Throughout; planted in gardens as water conservation tree (Pandya, 1995).

BORRERIA L.

1 species, 2 in GNPS.

Borreria articularis (L. f.) F. N. Will. in Bull. Herb. Boiss. (II) 5: 956, 1905; Hook. f. Fl. Brit. India. 3: 200, 1881; Cooke, Fl. Pres. Bombay 2: 53, 1958 (Repr.). Shah, Fl. Guj. 1: 349, 1978; Singh, et al., Fl. Maha. Dicot. 2:165. 2000; Ch and O 117; *Spermacoce hispida* L. Sp. Pl. 102. 1753; *Spermacoce articularis* L. f. Suppl. 119. 1781; *Borreria hispida* (L.) K. Schum. in Engl. and Prantl, Pfam. 4(4): 144, 1891 (non Spruce ex K. Schum. 1888).

Habit: Branched or unbranched, procumbent or suberect herbs; branches often dark-reddish-purple, quadrangular, hispidly hairy in younger parts, more or less glabrous in older.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 670, 27/09/01.

Sanskrit Name: Madana-ghanti.

Local Name: Madhuri – jadi.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 19, 20, 21, 25, to, 29, 32, 33, 34 and 37.

Ecological Data: Frequency-9.22, Abundance-0.44, Density-1.01.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Borreria stricta (L. f.) Schym. in Engl. and Prantl, Pfam. 4(4): 143. 1891; Hook. f. Fl. Brit. India. 3: 200, 1881; Cooke, Fl. Pres. Bombay 2: 52, 1958 (Repr.). Shah, Fl. Guj. 1:350; 1978, Shah, Fl. Guj. 1: 350, 1978. Singh, et al., Fl. Maha. Dicot. 2:165. 2000; Ch and O 118; *Spermacoce stricta* L. f. Suppl. 120. 1781.

Habit: Scabrid, annual herbs, 10-20 cm tall simple or branched.

FLS and FRTS : July - November.

Herbarium No and date of Collection: 671, 28/09/01.

Local Name : Madhuri Jad.

Distribution and Status in the Study Area: It is found in zone no 1 to 8, 10, 11 to 15, 18 to 22, 24, 25, 29, 32, 33, 34 and 37.

Ecological Data: Frequency-9.76, Abundance-3.75, Density-2.01.

Distribution in Gujarat: Throughout except Kachchh, common (Shah, 1978).

CATUNAREGAM Thunb.

1 species, 1 in GNPS.

Catunaregam spinosa (Thunb.) Tirvengadam in Taxon 27: 515. 1978 et in Bull. Mus. Hist. Nat. Paris 3, 35: 13. 1978; Verdc. in Kew Bull. 41: 44. 1986. *Gardenia*

spinosa Thunb. Diss. Gard. no. 7. 1780. *Randia dumetorum* (Retz.) Poir. in Lam. Encycl. Suppl. 2: 829. 1881; Hook. f. Fl. Brit. India 3: 110. 1880; Cook, Fl. Pres. Bombay 2: 27. 1958 (Repr.). *Xeromphis spinosa* (Thunb.) Keay in Bull. Jard. Bot. Brux. 28: 37. 1958. Shah, Fl. Guj. 1:361; 1978, Singh, et al Fl. Maha. Dicot. 2: 121. 2000.

Habit: Trees, tall, armed with strong, straight, nearly opposite decussate spines; lateral branches suppressed, short, bearing fascicles leaves. Leaves ovate or obovate, apex obtuse, more or less rounded or attenuate into a petiole young leaves hirsute, densely so on nerves of both surfaces. Flowers white, turning yellow at maturity, axillary, at ends of leaf bearing branches, fragrant, across; peduncles short. Berries globular. Seeds flat, embedded in pulp.

FLS and FRTS : March - November.

Herbarium No and date of Collection: 672, 29/09/01. **Photograph:** 97

Sanskrit Name: Madana, Madanphala, Gaalphala.

Local Name: Mindhal.

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 24 to 33 and 37.

Ecological Data: Frequency-12.20, Abundance-1.28, Density-0.51.

Distribution in Gujarat: Throughout in deciduous forests of Gujarat (Shah, 1978).

DENTELLA J. R. & G. Forst.

About 10 species in S.E. Asia and Australia, 1 in GNPS.

Dentella repens (L) J. R. & G. Forst. Char. Gen. Pl. Inst. 26, t. 13. 1776; Hook. f. Fl. Brit. India 3: 42. 1880; Cooke, Fl. Pres. Bombay 2: 12. 1958 (Repr.). Shah, Fl. Guj. 1:350; 1978, Subr. & Sharma in Bull. Bot. Surv. India 10: 386, f. 1-6. 1968. *Oldenlandia repens* L. Mant. 1: 40. 1767. Singh, et al Fl. Maha. Dicot. 2: 124. 2000.

Habit: Slender, prostrate, succulent herbs, rooting at nodes, dichotomously branched. Leaves minute, lanceolate, hairy along margins, subsessile; stipules connate, scarious. Flowers white, in axils or forks of branches. Capsules globose, indehiscent. Seeds minute, angular.

FLS and FRTS: June - January.

Herbarium No and date of Collection: 673, 16/01/01.

Distribution and Status in the Study Area: It is found in zone no 4 to 7, 9, 10, 11, 13, 14, 16, 18 to 22, 24, 25, 26, 28, 30, 32, 33, 35 and 36.

Ecological Data: Frequency-10.89, Abundance-3.98, Density-2.00.

Distribution in Gujarat: Throughout in drying moist ground (except Kutch); not common (Shah, 1978).

GARDENIA J. Ellis.

About 250 species in tropical or subtropical regions, 1 in GNPS.

Gardenia resinifera Roth, Nov. Pl. Sp. 150. 1821. *G. lucida* Roxb. Fl. Ind. 2: 553. 1824; Hook. f. Fl. Brit. India. 3: 115. 1880; Cooke, Fl. Pres. Bombay 2: 30. 1958 (Repr.). Shah, Fl. Guj. 1:351; 1978. Singh, et al Fl. Maha. Dicot. 2: 126. 2000.

Habit: Trees, tall; bark greenish-grey, fleky. Leaves elliptic or elliptic-oblong, thinly coriaceous, shining, apex acute, attenuate at base into a short petiole, long; nerves pairs, parallel. Flowers white, turning yellow, fragrant, across, solitary; corolla tube long. Berries ellipsoid or subglobose, surmounted by calyx limbs.

FLS and FRTS: January - September.

Herbarium No and date of Collection: 674, 02/06/01.

Sanskrit Name: Nadihingu.

Local Name: Dikamali.

Distribution and Status in the Study Area: It is found in zone no 6, 16, 21, 24, 26 and 28.

Ecological Data: Frequency-3.43, Abundance-0.13, Density-0.04.

Distribution in Gujarat: Some times planted in gardens, but wild in Dangs and Central Gujarat (Shah, 1978).

HALDINIA Ridsd.

A monotypic genus distributed in Asia, 1 in GNPS.

Haldinia cordifolia (Roxb) Ridsd. in Blumea 24: 361. 1978. *Nauclea cordifolia* Roxb. Pl. Cor. 1: 40, t. 53. 1796. *Adina cordifolia* (Roxb.) Hook. f. ex Brandis, For. Fl. 263, t. 33. 1874; Hook f. Fl. Brit. India 3: 24. 1880; Cooke, Fl. Pres. Bombay 2: 7. 1958 (Repr.). Shah, Fl. Guj. 1:349; 1978. Singh, et al Fl. Maha. Dicot. 2: 127. 2000.

Habit: Trees, tall; bark thick, grey, rough. Leaves crowded at ends of branchlets, orbicular, abruptly acuminate at apex, cordate at base, lower surface densely pubescent. Flowers in globose, yellow, peduncled heads, across; calyx tube angled; corolla tube funnel-shaped. Capsules long, pubescent.

FLS and FRTS: May - August.

Herbarium No and date of Collection: 675, 20/08/01.

Local Name: Haldervo.

Distribution and Status in the Study Area: It is found in zone no 4, 5, 6, 11, 12, 15, 17, 19, 22, 26, 27, 30, 33 to 36.

Ecological Data: Frequency-12.20, Abundance-1.20, Density-0.76.

Distribution in Gujarat: Throughout (except Kutch), in deciduous forests (Shah, 1978).

HYMENODICTYON Wall.

About 20 species in tropical Asia and Africa, 1 in GNPS.

Hymenodictyon orixense (Roxb.) Mabb. in Taxon 31:66. 1982; Deb. in J. Econ. Tax. Bot. 13: 679. f. 3. 1989. *Cinchona orixensis* Roxb. Bot. Descr. Swietenia 21. 1793 & Med. Facts Obs. 6: 152. 1795. *Hymenodictyon excelsum* (Roxb.) Wall. in Roxb. Fl. Ind. 2:149. 1824; Hook. f. Fl. Brit. India 3:35. 1880; Cooke, Fl. Pres. Bombay 2:9. 1958 (Repr.). Shah, Fl. Guj. 1:352; 1978. Singh, et al Fl. Maha. Dicot. 2: 138. 2000.

Habit: Trees, tall; bark grey, smooth. Leaves crowded at ends of branchlets, broadly elliptic-oblong or elliptic-lanceolate, apex abruptly acuminate, attenuate at base into long petiole, pubescent on both surfaces. Inflorescence pendulous; flowers greenish, fragrant, pedicelled in fascicles or umbels on a thyrsoide panicle. Capsules dehiscent, brown, ellipsoid locular. Seeds winged.

FLS and FRTS : April - September.

Herbarium No and date of Collection: 676, 02/06/01. **Photograph:** 98

Sanskrit Name: Bhiringhava, Bhramarchhalli, Uragandha.

Local Name: Bhamar chal.

Distribution and Status in the Study Area: It is found in zone no 3 to 21, 24 to 33 and 36.

Ecological Data: Frequency-11.04, Abundance-0.86, Density-0.63.

Distribution in Gujarat: In deciduous forests of Dangs, Saurashtra (Barda and Girnar) and in scrub forests in North Gujarat (Shah, 1978).

IXORA L.

About 400 species in the tropical region, 2 in GNPS.

Ixora brachiata Roxb. Fl. Ind. 1:391. 1820; Hook. f. Fl. Brit. India 3: 142. 1880; Cooke, Fl. Pres. Bombay. 2:39. 1958 (Repr.). Shah, Fl. Guj. 1:354; 1978. Singh, et al Fl. Maha. Dicot. 2: 139. 2000.

Habit: Small trees, tall; bark grey, smooth. Leaves opposite, shining, elliptic, apex obtuse, coriaceous, acute at base; petioles long. Flowers in sessile or shortly peduncled, brachiate cymes; corolla tube long, lobes oblong, tip rounded, deflexed; pedicels and peduncles pubescent. Drupes globose, redish tinged, across, purplish-black when ripe, edible.

FLS and FRTS : November - February.

Herbarium No and date of Collection: 677, 17/02/00.

Sanskrit Name: Nemali, Vasanti, Vanvasini.

Local Name: Navri.

Distribution and Status in the Study Area: It is found in zone no 1 to 9, 13 to 17, 19, 20, 22, 24, 26, 28, 30, 31, 33 to 35 and 37.

Ecological Data: Frequency-8.57, Abundance-0.46, Density-0.13.

Distribution in Gujarat: Dangs, Panchmahals and Saurashtra; not common (Shah, 1978).

Ixora pavetta Andr. Bot. Rep. t. 78. 1799; Swaminathan in A. N. Henry et al. Fl. Tamilnadu Anal. 2: 11. 1987. *I. arborea* Roxb. ex. J. E. Sm. in R. S. S. Cyclop. 19: 5. 1811; Sant. in Rec. Bot. Surv. India 16 (1); 199. 1967 (3rd Rev. ed.). *I. parviflora* Vahl, Symb. 3: 11, t. 52. 1794 non Lam. 1791; Hook. f. Fl. Brit. India 3:142. 1880; Cooke, Fl. Pres. Bombay 2:39. 1958 (Repr.). Shah, Fl. Guj. 1:353; 1978. Singh, et al Fl. Maha. Dicot. 2: 138. 2000.141

Habit: Trees. Bark dark brown, smooth. Leaves elliptic-obovate or oblong, shining, thickly coriaceous, upper surface dark green, dull beneath, base rounded or cordate; petioles rugose. Flowers white, fragrant, in dense terminal corymbose-cymes; anthers reflexed. Drupes reddish-green.

FLS and FRTS: Throughout the year.

Herbarium No and date of Collection: 678, 24/08/00. **Photograph:** 99

Local Name: Navri.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-12.63, Abundance-1.03, Density-0.28.

Distribution in Gujarat: Pavagadh, north Gujarat (Modasa) and Saurashtra (Shah, 1978).

MITRYAGYANA Korth.

About 12 species in tropical Africa and Asia, 1 in GNPS.

Mitryagyna parviflora (Roxb.) Korth., Obs. Nacl. Ind. 19. 1839; Hook. f. Fl. Brit. India. 3: 25. 1881; Cooke, Fl. Pres. Bombay 2: 8, 1958 (Repr.). Shah, Fl. Guj. 1:355; 1978, *Nauclea parviflora* Roxb., Pl. Cor. 1: 40, t. 52. 1796; *Stephegyne parviflora* Korth., Verh. Nat. Gesch. Bot. Nederl. 161. 1840. Hook. f. Fl. Brit. India 3:25. 1880. Singh, et al Fl. Maha. Dicot. 2: 145. 2000.

Habit: Trees, tall. Leaves at ends of branches, variable in shape, orbicular, obovate, elliptic, ovate, nerves prominent on lower surface, acute or rounded at apex, base rounded or cuneate. Flowers in greenish-yellow, across, fragrant, globose heads; corolla-tube reddish, lobes greenish-yellow, salver-shaped. Fruits in globose heads of capsules, across; single capsule bluntly ribbed.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 679, 15/11/99.

Local Name: Kalam.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-9.95, Abundance-1.32, Density-0.35.

Distribution in Gujarat: Throughout in deciduous and scrub forests; sometimes planted in gardens (Shah, 1978).

MORINDA L.

About 80 species in tropical region, 2 in GNPS.

Morinda citrifolia L. Sp. Pl. 76. 1753.; Hook. f. Fl. Brit. India 3: 155. 1880; Cooke, Fl. Pres. Bombay 2:42. 1958 (Repr.). *M. citrifolia* var. *bracteata* Hook. op. cit, Cooke, op cit. Singh, et al Fl. Maha. Dicot. 2: 146. 2000.

Habit: Trees, bark smooth. Leaves elliptic-lanceolate, coriaceous, shining, acute; Flowers white, in solitary peduncled heads, usually in axil of every other pair or leaf-opposed.

FLS and FRTS : August - March.

Herbarium No and date of Collection: 680, 19/02/00.

Local Name: Rangari.

Distribution and Status in the Study Area: It is found in zone no 3 to 12, 25 to 31, 33 to 37.

Ecological Data: Frequency-7.05, Abundance-0.44, Density-0.14.

Distribution in Gujarat: Throughout Gujarat except Kachchh; common in dry deciduous forests (Chavan, 1993).

Morinda pubescens J. E. Sm. In Rees, Cyclop. 24, n. 3. 1813; Verdc. in Kew Bull. 37:543. 1983. *M. tinctoria* Roxb. var. *tomentosa* (Heyne ex Roth) Hook. f. Fl. Brit India 3:156. 1880; Cooke, Fl Pres. Bombay 2:43.1958 (Repr.). Shah, Fl. Guj. 1:355; 1978. *M. tomentosa* Heyne ex Roth, Nov. Pl. Sp. 147. 1821. Singh, et al Fl. Maha. Dicot. 2: 146. 2000.

Habit : Trees, bark grayish-brown, vertically fissured; branches. Leaves opposite, decussate, usually one of the pair suppressed, broadly elliptic or oblong-lanceolate, young leaves tomentose on both surfaces, upper surface glabrous at length; petioles long. Flowers creamy-white, in globose-heads, fragrant. Syncarps of pyrenes ellipsoid, fleshy, across, not winged.

FLS and FRTS : March - December.

Herbarium No and date of Collection: 681, 27/06/01.

Sanskrit Name: Achchhuka.

Local Name: Rangari.

Distribution and Status in the Study Area: It is found in zone no 1 to 29, 31, 32, 34 to 37.

Ecological Data: Frequency-12.24, Abundance-0.54, Density-0.21.

Distribution in Gujarat : Throughout Gujarat except Kachchh; common in dry deciduous forests (Shah, 1978).

Notes : It was through that *M. Pubescens* Sm. Was an extinct Mascarene endemic but further work by Verdcourt (op. cit.) has demonstrated that it is the earliest name for the well know India species and must have been introduced at a very early date.

OLDENLANDIA L.

About 300 species mainly in warmer parts of the world, 2 in GNPS.

***Oldenlandia corymbosa* L. Sp. Pl. 119. 1753; *Hedyotis corymbosa* Lamk., Encycl. 1: 272. 1792; Hook. f. Fl. Brit. India. 3: 64. 1881; Cooke, Fl. Pres. Bombay 2: 15, 1958 (Repr.). Shah, Fl. Guj. 1: 358, 1978; Singh, et al., Fl. Maha. Dicot. 2:130. 2000.**

Habit: Annual, diffuse, slender, glabrous herbs with sometimes reddish-purple, obtusely 4-gonous branches.

FLS and FRTS: May - December.

Herbarium No and date of Collection: 682, 25/12/99.

Sanskrit Name: Parpata.

Local Name: Parpat.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4, 5, 7 to 10, 14, 15, 16, 18, 19, 22, 25 to 31, 34 to 36.

Ecological Data: Frequency-8.54, Abundance-5.88, Density-2.96.

Distribution in Gujarat: Throughout in deciduous forests, common (Shah, 1978).

***Oldenlandia herbacea* (L). Roxb. Hort. Beng. 11. 1814 (nomen) & Fl. Ind. 1:424. 1820; C 2:16; S & j 27. *Hedyotis herbacea* L. Sp. Pl. 102. 1753; WI 5:15. *Oldenlandia heynii* G. Don, Gen. Syst. 3:531. 1834; Fl. Brit. India 3:65. Shah, Fl. Guj. 1:358; 1978.**

Habit : Erect, tall, slender, glabrous herbs Leaves linear or linear-lanceolate. Flowers pale-or bright-purple, minute, axillary. Capsule across, ovoid or subglobose, somewhat didymous glabrous. Seeds many, ellipsoidal.

FLS and FRTS : October.

Herbarium No and date of Collection: 683, 29/10/00.

Sanskrit Name: Parpata.

Local Name: Parpat.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4, 5, 7 to 13, 17 to 20, 24, 26, 28, 30, 33 and 37.

Ecological Data: Frequency-9.39, Abundance-3.56, Density-1.54.

Distribution in Gujarat: Dangs, Saurashtra, Kutch; not common (Shah, 1978).

TAMILNADIA Retz.

1 species, 1 in GNPS.

Tamilnadia uliginosa (Retz.) Tirveng. & Sastre in Mauritius Inst. Bull. 8 (4): 85. 1979. *Gardenia uliginosa* Retz. Obs. Bot. 2: 14. 1781. *Randia uliginosa* (Retz.) DC. Prodr. 4: 386. 1830; Hook. f. Fl. Brit. India 3: 110. 1880; Cooke, Fl. Pres. Bombay 2: 27. 1958 (Repr.). Shah, Fl. Guj. 1:361; 1978, *Xeromphis uliginosa* (Retz.) Mahes. in Bull. Bot. Surv. India 3: 92. (1961) 1962; Tirveng. in Bull. Mus. natn. Hist. nat. Paris, 3e, 521, Bot. 35:19. 1978. *Catunaregam uliginosa* (Retz.) Sivar. in Manilal & Sivar. Fl. Calicut 132. 1982. Singh, et al Fl. Maha. Dicot. 2: 167. 2000.

Habit: Shrubs or small trees, tall; bark reddish-brown; spines short, branches 4-angled. Leaves elliptic or oblanceolate, apex obtuse. Flowers white, across, solitary, fragrant; calyx-lobes fleshy, green; corolla lobes broadly orbicular. Berries ovoid, across, yellowish brown. Seeds compressed, closely packed in pulp.

FLS and FRTS : March - April.

Herbarium No and date of Collection: 684, 15/04/00.

Sanskrit Name: Gangati, Pinditak, Karhat.

Local Name: Gangada.

Distribution and Status in the Study Area: It is found in zone no 4, 6 to 9, 12 to 18, 26 to 36.

Ecological Data: Frequency-6.71, Abundance-0.41, Density-0.14.

Distribution in Gujarat: Rajpipla, Pavagadh, Panchmahals, Saurashtra and Kachchh; not common (Shah, 1978).

Notes: This species was treated under *Randia* L. Hoojk. F. (op. cit.) and Cooke (op. cit.) Keay (1958) observed that *Randia* is a very heterogeneous pantropical. Assemblage of species (Maheshwari, 1962). He proposed that *Randia* sect. *Cericus* Hook f. should be transferred to the genus *Xeromphis* Rafin. This separation was supported by pollen and floral morphology. Convinced by this argument Maheshwari (op. cit.) affected the new combination *Xeromphis uliginosa* Maheshwari in Bull. Bot. Surv. India 3:92. 1962. However, Tirvengadum & Saatre (1979) observed that this species is totally unrelated to *Xeromphis* and excluded it from the genus.



100) *Ageratum conyzoides* L., 101) *Bidens bipinnata* L., 102) *Cyathocline purpurea* (Ham. ex D. Don) O. Kitze., 103) *Echinops echinatus* Roxb., 104) *Parthenium hysterophorus* L., 105) *Tricholepis amplexicaulis* C. B. Cl.

Later Tirvengandum & Sastre (1979) decided to erect a new genus *Tamilandia* to accommodate this species.

ASTERACEAE

(Compositae)

About 700 genera and 13500 species, cosmopolitan, 28 genera and 33 species in GNPS.

ACANTHOSERPNUM Schrank.

About 8 species, native to South America introduced into tropical Africa and Asia, 1 in GNPS.

Acanthoserpnum hispidum DC. Prodr 5: 522. 1836; Stuessy in Rhodora 72: 106. 1970; Rao et al. Fl. Ind. Enum. Aster. 1. 1988. Shah, Fl. Guj. 1:366; 1978, Singh, et al Fl. Maha. Dicot. 2: 179. 2000.

Habit: Annual herbs, tall, dichotomously branched, hispid, covered with spreading hirsute glandular hairs. Leaves opposite, elliptic, oblanceolate or obovate, attenuate at base. Heads yellow; ray flowers ligulate, disc flowers tubular 5-lobed. Achenes triangular, covered with stiff hooked bristles and with divergent awns at apex.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 685, 11/12/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 19, 22, 24, 25, 26, 28 to 33, 35 to 37.

Ecological Data: Frequency-11.27, Abundance-6.40, Density-2.50.

Distribution in Gujarat: Throughout except Kachchh, scattered or gregarious; native of Central Gujarat (Shah, 1978).

AGERATUM L.

About 60 species in tropical America and all warm countries, 1 in GNPS.

Ageratum conyzoides L. Sp. Pl. 1: 839. 1753; Hook. f. Fl. Brit. India. 3: 343. 1881; Cooke, Fl. Pres. Bombay 2: 70, 1958 (Repr.). Shah, Fl. Guj. 1:367; 1978, Rao et al. Fl. Ind. Enum. Aster. 2. 1988. Singh, et al Fl. Maha. Dicot. 2: 181. 2000.

Habit: Annual herbs, high, erect, hairy. Leaves ovate, more or less hairy on both sides, apex subacute. Heads small, in dense terminal corymbs, white or pale blue. Pappus paleaceous, awned or aristate, little longer than achenes, pappus scales 5, aristate, Achenes long, sharply 5-angled, black, sparsely speculate on angles.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 686, 12/01/01. **Photograph:** 100

Local Name: Ajgandha.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-18.86, Abundance-5.48, Density-4.18.

Distribution in Gujarat: Throughout, in moist ground, scattered or gregarious, common and abundant; native of Mexico (Shah, 1978).

BIDENS L.

About 230 species in tropical America Africa, India S. E. Asia, Australia and New Zealand, 2 in GNPS.

Bidens bipinnata L. Sp. Pl. 832 1753; Ch & O in Ind. For 87 : 251. 1961 & Fl. Pavagadh 126. 1966. *Bidens pilosa* L. var. *bipinnata* (L.) HK. f. Fl. Brit. India 3:309. 1881. Shah, Fl. Guj. 1:369; 1978.

Habit : This species is similar to *B. biternata* (Lour.) Merr. & Sherff but differs in the leaf character. common.

FLS and FRTS : September.

Herbarium No and date of Collection: 687, 29/09/01. **Photograph:** 101

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: Throughout; common, gregarious (Shah, 1978).

Bidens biternata (Lour.) Merr. & Sherff. in Bot. Gaz. 88: 293. 1929; Rao et al. FL. Ind. Enum. Aster. 13. 1988. *Coreopsis biternata* Lour. Fl Cochinch. 508. 1790. *Bidens pilosa* auct. non. L. 1753; Hook. f. Fl. Brit. India 3: 309. 1881 p. p; Cooke, Fl. Pres. Bombay 2: 101. 1958 (Repr.). Shah, Fl. Guj. 1:369; 1978, Singh, et al Fl. Maha. Dicot. 2: 184. 2000.

Habit: Annual herbs erect; stem quadrangular, ribbed, hairy. Leaves ternate or imparipinnate to bipinnate, ultimate leaflets ovate, acute. Heads yellow in terminal or leaf opposed peduncles.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 688, 22/02/00.

Local Name: Samarokadi.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 8 to 12, 14, 16, 19, 21, 24, 25, 27, 28, 30, 32, 35 and 37.

Ecological Data: Frequency-14.22, Abundance-2.10, Density-1.95.

Distribution in Gujarat: Throughout; common, gregarious (Shah, 1978).

BLAINVILLEA Cass.

About 10 pantropical species, 1 in GNPS.

Blainvillea acmella (L.) Philipson in Blumea 6: 350. 1950; Hook. f. Fl. Brit. India. 3: 305. 1881; Cooke, Fl. Pres. Bombay 2: 97, 1958 (Repr.). Shah, Fl. Guj. 1: 370, 1978. *Verbesina acmella* L. Sp. Pl. 901. 1753; *Blainvillea latifolia* (L. f.) DC. ex Wight, Contrib. Bot. Ind. 71. 1834; *B. rhomboidea* Cass. Dict. Sci. Nat. 29: 493. 1823. Singh, et al Fl. Maha. Dicot. 2: 184. 2000.

Habit: Annuals herbs high, erect, hairy. Leaves ovate, ovate-lanceolate or ovate-rhomboid, hispid. Heads yellow or white, in diam., in axillary and terminal cymes with long peduncles; bifid. Pappus setae few, antrorsely barbed, upto long. Achenes hispidulous near top.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 689, 23/11/00.

Local Name: Dholu Fuldu.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-15.93, Abundance-3.21, Density-2.21.

Distribution in Gujarat: Throughout; common (Shah, 1978).

BLUMEA DC.

About 50 species in tropical South Africa, India up to East Asia, Australia and Pacific Islands, 3 in GNPS.

Blumea fistulosa (Roxb) Kurz in J. Asiat. Soc. Bengal 46(2): 187. 1877; Randeria in Blumea 10:256. 1960; Rao et al Fl. Ind. Enum. Aster. 15. 1988; S. Kumar in Hajra et al. Fl. India 13: 124. 1995. *Conyza fistulosa* Roxb. Fl. Ind. 3: 429. 1832. *Blumea glomerata* DC. in Wight, Contrib. 15. 1834; Hook. f. Fl. Brit. India 3: 262. 1881; Cooke, Fl. Pres. Bombay 2:76. 1958 (Repr.). Shah, Fl. Guj. 1:372; 1978. Singh, et al Fl. Maha. Dicot. 2: 188. 2000.

Habit: Herbs, erect or diffuse. Leaves radical and cauline, shortly dentate-serrate. Heads solitary, on slender peduncles or mostly in cymose clusters. Achenes minute, pilose.

FLS and FRTS : December - February.

Herbarium No and date of Collection: 690, 20/01/00.

Local Name: Bhaunpatri.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 9, 12 to 16, 19, 20, 21, 24 to 27, 30, 31, 32, 35 and 36.

Ecological Data: Frequency-9.07, Abundance-2.90, Density-1.35.

Distribution in Gujarat: Throughout except Kachchh in shaded spots and forests

undergrowth (Mehta, 1997).

Blumea membranacea DC. Prodr. 5: 440. 1836 Hook. f. Fl. Brit. India. 3: 265. 1881; Cooke, Fl. Pres. Bombay 2: 77, 1958 (Repr.). Shah, Fl. Guj. 1:374; 1978, Randeria in Blumea 10: 269. 1960; Rao et al. Fl. Ind. Enum. Aster. 17. 1988. *B. membranacea* var. *muralis* (DC.) Hooke. F. op. cit. Singh, et al Fl. Maha. Dicot. 2: 191. 2000.

Habit: Herbs tall, annual, stout, striate, more or less glandular-pubescent. Leaves obovate or often lyrate or runcinate, thinly membranous, apex acute or obtuse, base tapering. Heads across, numerous, on slender, glandular-hairy, peduncles, in much branched, open panicles. Achenes oblong, ribbed, pubescent.

FLS and FRTS : January - May.

Herbarium No and date of Collection: 691, 30/05/01.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 5, 7 to 11, 14, to 18, 20, 22, 25, 28, 29, 30, 32, 34 to 37.

Ecological Data: Frequency-15.93, Abundance-3.21, Density-2.21.

Distribution in Gujarat: Throughout except Kachchh in shaded spots and forests undergrowth (Shah, 1978).

Blumea mollis (D. Don) Merr. in Philipp. J. Sci. 5: 395. 1910; Randeria in Blumea 10: 261. 1960; Rao et al. Fl. Ind. Enum. Aster. 18. 1988. *Erigeron molle* D. Don, Prodr. 172. 1825. *Blumea wightiana* DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3:261. 1881; Cooke, Fl. Pres. Bombay 2: 75. 1958 (Repr.). Shah, Fl. Guj. 1:374; 1978, Singh, et al Fl. Maha. Dicot. 2: 193. 2000.

Habit: Herbs, erect, aromatic; stems and branches villous. Leaves ovoate-oblong, ovate, densely hairy beneath, base tapering into petiole, margins dentate-serrate. Heads across, in spiciform panicles; florets purple. Achenes 5-angled, oblong, pubescent.

FLS and FRTS : December - May.

Herbarium No and date of Collection: 692, 02/06/01.

Local Name: Bhutaco.

Distribution and Status in the Study Area: It is found in the zones no 2 to 5, 8, 11 to 15, 18 to 20, 22 to 25, 28 to 30, 35 and 36.

Ecological Data: Frequency-14.22, Abundance-2.10, Density-1.95.

Distribution in Gujarat: Throughout except Kachchh, everywhere; common (Shah, 1978).

CYATHOCLINE Casss.

Three species distributed from India to Burma, 1 in GNPS.

Cyathocline purpurea (Ham. ex D. Don) O. Ktze, Rev. Gén. Pl. 1: 333. 1891; Rao et al. Fl. Ind. Enum. Aster. 32. 1988; Hajra in Hajra et al. Fl. India 12: 111, f. 32. 1995. *Tanacetum purpureum* Buch. – Ham. ex D. Don, Prodr. Fl. Nepal. 181. 1825. *Cyathocline lyrata* Cass. in Ann. Sci. Nat. 1, 17:420. 1829; Hook. f. FBI 3: 246. 1881; Cooke, Fl. Pres. Bombay 2: 71. 1958 (Repr.). Shah, Fl. Guj. 1:378; 1978, Singh, et al Fl. Maha. Dicot. 2: 203. 2000.

Habit: Suberect herbs, viscid and glandular, silky hairy. Basal leaves radical and cauline, sessile, segments toothed. Heads across, in terminal corymbose-panicles, involucre bracts linear, acute, hairy on margins. Achenes oblong.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 693, 20/03/00. **Photograph:** 102

Local Name: Okharad.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 6, 13, 17, 20, 22, 25, 27, 28, 31, 34 and 36.

Ecological Data: Frequency-9.07, Abundance-2.90, Density-1.35.

Distribution in Gujarat: Throughout in moist ground (Shah, 1978).

ECHINOPS L.

About 100 species in Eastern Europe, Africa and Asia, 1 in GNPS.

Echinops echinatus Roxb. Fl. Ind. 3:447. 1832; Hook. f. Fl. Brit. India 3:358, 1881; Cooke, Fl. Pres. Bombay 2:112. 1958 (Repr.). Shah, Fl. Guj. 1:378; 1978, Rao et al. Fl. Ind. Enum. Aster. 34. 1988. Singh, et al Fl. Maha. Dicot. 2: 207. 2000.

Habit : Herbs, high, much branched, rigid, annual, high. Leaves sessile, oblong, deeply pinnatifid, glabrous or minutely pubescent. Heads across (excluding spines). White, surrounded by strong white bristles. Pappus short, yellow, forms a short cylindric tuft above achenes. Achenes, obconic, densely villous.

FLS and FRTS : September – January.

Herbarium No and date of Collection: 694, 22/01/00. **Photograph:** 103

Sanskrit Name: Kantalu, Utati, Utkantaka, Kantaphala.

Local Name: Shuliyo.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 6, 8, 11, 15, 17, 19, 21, 24, 26, 28, 30, 32 to 36.

Ecological Data: Frequency-7.97, Abundance-0.48, Density-0.18.

Distribution in Gujarat: Throughout in plains, scattered or subgregarious; common (Shah, 1978).

ECLIPTA L. nom. Cons.

Eclipta prostrata (L.) L. S & J 27, S 133. *Verbesina prostrate* L. Sp. Pl. 902. 1753.

Eclipta erecta L. Mant. 2: 286. 1771; C 2:95. Fl. Brit. India 3:304, WI 3:127. f. 76.

Shah, Fl. Guj. 1:379; 1978.

Habit: Strigosely hairy, erect or diffuse herbs. Leaves elliptic, elliptic-lanceolate, lanceolate-oblong, strigosely hairy. Heads white, axillary, terminal.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 695, 26/09/01.

Local Name: Bhangro.

Distribution in the study area : It is found in the zone no 1 to 17, 19 to 26, 29 to 35.

Ecological Data: Frequency-17.91, Abundance-6.96, Density-4.70.

Distribution in Gujarat: Throughout in damp places, common (Shah, 1978).

ELEPHANTOPUS L.

About 32 species in tropics, 1 in GNPS.

Elephantopus scaber L. Sp. Pl. 814. 1753; Hook. f. Fl. Brit. India 2:242. 1881;

Cooke, Fl. Pres. Bombay 2: 68. 1958 (Repr.). Shah, Fl. Guj. 1:379; 1978, Rao et al.

Fl. Ind. Enum. Aster. 34. 1988. Singh, et al Fl. Maha. Dicot. 2: 208. 2000.

Habit: Herbs, erect, softly pubescent. Leaves redical, obovate – oblong, few cauline. Heads arranged in terminal dichotomous cymes; flowers bluish.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 696, 30/10/01.

Local Name: Hastipad.

Distribution and Status in the Study Area: It is found in zone no 1 to 7, 11, 12, 13, 14, 15, 18, 19, 20, 22, 25, 27, 30 and 35.

Ecological Data: Frequency-12.93, Abundance-4.81, Density-2.98.

Distribution in Gujarat: Bulsar, Dangs and Saurashtra, in shaded spots and in forest undergroeth; frequent (Shah, 1978).

EMILIA Cass.

About 30 species, palacotropical, 1 in GNPS.

Emilia sonchifolia (L.) DC. in Wight, Contrib. Bot. Ind. 24. 1834; Hook. f. Fl. Brit.

India 3: 336. 1881; Cooke, Fl. Pres. Bombay 2: 107. 1958 (Repr.). Shah, Fl. Guj.

1:380; 1978, Rao et al. Fl. Ind. Enum. Aster 35. 1988. *Cacalia sonchifolia* L. Sp. Pl.

836. 1753. Singh, et al Fl. Maha. Dicot. 2: 209. 2000.

Habit : Herbs, erect or diffuse, sometimes decumbent. Leaves variable, lower with petioles, lyrate – pinnatifid, cauline. Heads small, in terminal. Lax corymbose panicles, with purplish flowers. Pappus copious, white. Achenes narrow, 5 – ribbed, obtuse with scabrid ribs, brown.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 697, 02/11/01.

Local Name: Hiankhuri.

Distribution and Status in the Study Area: It is found in zone no 4 to 19, 28 to 37.

Ecological Data: Frequency-11.23, Abundance-4.28, Density-1.30.

Distribution in Gujarat: Throughout; common (Shah, 1978).

GLOSSOCARDIA Cass.

Only 2 specise in W. & C. India, 1 in GNPS.

Glossocardia bosvallea (L. f.) DC. In Wight, Contrib. Bot. Ind. 19. 1834; Rao et al. Fl. Ind. Enum. Aster. 40. 1988. *Verbascena bosvallea* L. f. Suppl. 379 1781. *Glossocardia linearifolia* Cass. In Dist. Sci. Nat. 19 : 62. 1821; Hook f. Fl. Brit. India 3: 308, 1881; Cooke, Fl. Pres Bombay 2: 100. 1956 (Repr.). Shah, Fl. Guj. 1:381; 1978. *G. setosa* Blatt. & Hallb. In J. Bombay nat. Hist. Soc. 26:536. 1919; Rao et al. cit. 41. Singh, et al Fl. Maha. Dicot. 2: 213. 2000.

Habit : Annual herbs, postrate or erect. Leaves bipinnatisect. Heads yellow. Pappus awns glabrous or setose. Spreading at an acute angle Achenes flat, oblong, villous on angle and edges.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 698, 13/12/00.

Local Name: Adbau Suva.

Distribution and Status in the Study Area: It is found in zone no 3, 5, 7, 9, 12, 14, 17 to 21, 24, 26, 27, 30, 32, 35 and 37.

Ecological Data: Frequency-10.07, Abundance-2.88, Density-1.41.

Distribution in Gujarat: Throughout among grasses; not common (Shah, 1978).

Notes: It is endemic to India. Pradhan (J.Econ. Tax. Bot 6: 477. 1985) treated *G. setosa* Blatt. & Hallb. as synonymous to *G. bosvallea* (L.f.) DC.

GONIOCAULON Cass.

Monotypic Indo-Malayan in distribution, 1 in GNPS.

Gonicaulon indicum (Klein ex Wild.) C.B.Cl. Comp. Ind. 236. 1876.; C. Jeffrey in kew Bull. 22: 134. 1968; Shah & Yogi in J. Bombay Nat. Hist. Soc. 69:446. 1972.

Serratula indica Klein ex Wild. Sp. Pl. 3:1642. 1803. *Goniocaulon glabrum* Cass. In Bull. Soc. Philom. 1817:34.1817; Hook. f. Fl. Brit. India 3: 377. 1881; Cooke, Fl. Pres. Bombay 2:113. 1958 (Repr.). Shah, Fl. Guj. 1:383; 1978, Rao et al. Fl. Ind. Enum. Aster. 42. 1988; Hajra in Hajra et al. Fl. India 12: 181. 1995. Singh, et al Fl. Maha. Dicot. 2: 218. 2000.

Habit : Annual herbs erect. Leaves linear or oblong-obovate. Heads with rose coloured flowers. Pappus paleaceous, scales unequal, linear or slightly obovate, subobtus. Achenes closely ribbed, subcylindric.

FLS and FRTS : December – January.

Herbarium No and date of Collection: 699, 12/01/01.

Distribution and Status in the Study Area: It is found in zone no 1 to 12, 25 to 30, 32, 33, 34, 36 and 37.

Ecological Data: Frequency-6.47, Abundance-2.61, Density-1.31.

Distribution in Gujarat: Dangs, Vyara, Rajpipla, Bharuch, Chhotaudepur, north Gujarat and Saurashtra; not frequent (Shah, 1978).

HELIANTHUS L.

About 110 species, cosmopolitan, several species are ornamentals, 1 in GNPS.

Helianthus annus L. Sp. Pl. 904. 1753; Cooke, Fl. Pres. Bombay 2: 124. 1958 (Repr); Rao et al. Fl. Ind. Enum. Aster. 43. 1988; Hajra et al. Fl. India 12: 431. 1995; Naik, Fl Marathwada 1: 485. 1998. Singh, et al Fl. Maha. Dicot. 2: 260. 2000.

Habit: Erect, woody annuals, high stem hispid, branched above middle. Lower leaves opposite, upper alternate, broadly ovate, acute at apex, narrowed at base into a long petiole, hispid on both sides. Heads solitary, terminal on short peduncles. Involucral bracts strongly ciliate; marginal florets with ligulate yellow corollas; brownish-purple corollas. Achenes obovoid, black. Pappus deciduous.

FLS and FRTS : April - May.

Herbarium No and date of Collection: 700, 02/06/01.

Local Name: Suryamukhi.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 11, 16, 21, 22, 24, 28, 31, 32, 35 to 37.

Ecological Data: Frequency-1.71, Abundance-0.20, Density-0.06.

Distribution in Gujarat: Cultivated in Gujarat (Nagar, 2000).

LACTUCA L.

About 100 species cosmopolitan, 1 in GNPS.

Lactuca runcinata DC. in Wt. contrib.. 26. 1834; C 2:118; S & J 28. *Lactuca*

heyneana DC. Prodr. 7:140. 1838; Fl. Brit. India 3:403; WI 6:15. Shah, Fl. Guj. 1:385; 1978.

Habit : It is listed by Thaker J. I. from Saurashtra (1910) and Kutch (1926). Santapau & Janardhanam (1967). List it as doubtful in Saurashtra

FLS and FRTS : August – November.

Herbarium No and date of Collection: 701, 30/10/01.

Local Name: Sonki.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 8 to 12, 14, 15, 16, 18 to 22, 26 to 30, 33 to 35.

Ecological Data: Frequency-11.90, Abundance-0.93, Density-0.46.

Distribution in Gujarat: It is listed by Thaker J. I. from Saurashtra (1910) and Kutch (1926). Santapau & Janardhanam (1967).

LAGGERA Schultz-Bip. ex Hochst.

About 20 species in tropical Africa, Arabia, India, 1 in GNPS.

Lagera aurita (L.f.) Bth. ex C.B. Cl. Comp. Ind. 42. 1876; Hook. f. Fl. Brit. India. 3: 271. 1881; Cooke, Fl. Pres. Bombay 2: 80. 1958 (Repr.). Shah, Fl. Guj. 1:386; 1978, Rao et al. Fl. Ind. Enum. Aster. 50. 1988; S. Kumar in Hajra et al. Fl. India 13: 150 1995. *Conyza aurita* L. f. Suppl. 367 1781. *Blumea oblique* var. *aurita* (L. f.) Naik & Bhogaonkar in Acta Bot. Ind. 20: 49. 1992; Naik, Fl. Marathwada 1: 463. 1998 syn. Nov. Singh, et al Fl. Maha. Dicot. 2: 223. 2000.

Habit : Herbs stout, aromatic; branches many. Leaves sessile ovate or elliptic, lower ones lyrate or irregularly lobed, narrowed at base, upper ones smaller, broadly serrate, all with large free auricles at base, acute. Heads across. Axillary, solitary or in terminal lax corymbs. Marginal and central florets with pink corollas. Achenes oblanceolate, brown, glabrescent. Pappus bristles many, scabrid, grayish.

FLS and FRTS : December.

Herbarium No and date of Collection: 702, 13/12/00.

Local Name: Bhintmulo.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-10.19, Abundance-3.27, Density-1.24.

Distribution in Gujarat: Throughout a road side weed; common (Shah, 1978).

LAUNAEA Cass.

About 40 species from Mediterranean to East Asia, tropical and South Africa, 2 in GNPS.

Launaea glomerata (Jaub & Spach.) HK. f. Fl. Brit. India 3:417. 1881; C 2:123; WI

6:42; S & J 28. *Microhynchus glomeratus* Jaub. & Spach. III. P. Orient. 3:105. t. 275. 1849. Shah, Fl. Guj. 1:387; 1978.

Habit : Glaucous, glabrous, diffuse or suberect herbs. Leaves radical sessile, pinnatifid. Heads yellow long, bell-shaped, clustered at branches. Achenes long, oblong, truncate at both ends.

FLS and FRTS : October.

Herbarium No and date of Collection: 703, 30/10/01.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 8 to 16, 18 to 25, 29 to 34 and 36.

Ecological Data: Frequency-13.80, Abundance-1.50, Density-1.01.

Distribution in Gujarat: Saurashtra (Shah, 1978).

Launaea procumbens (Roxb.) Ramayya & Rajagopal in kew Bull. 23 : 465. 1969; Rao et al. Fl. Ind. Enum. Aster. 51. 1988. *Prenanthes procumbens* Roxb. Fl. Ind. 3: 404. 1832. *Launaea nudicalis* sensu auct. Plur. (India) non *L. nudicaulis* (L) Hook. f. sensu stricto Fl. Brit. India 3 : 416. 1881; Cooke, Fl. Pres. Pres. Bombay 2:122. 1958 (Repr.). Shah, Fl. Guj. 1:387; 1978. Singh, et al Fl. Maha. Dicot. 2: 226. 2000.

Habit : Annual herbs. Leaves mostly radical, sessile. Obovate-oblong, pinnatifid. Heads yellow, terminal, in long branched or unbranched racemes. Pappus copious, multiseriate, caduceous. Achenes brown.

FLS and FRTS : August - October.

Herbarium No and date of Collection: 704, 27/09/01.

Local Name : Moti Bhonpatri.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 8, 10, 11, 12, 14, 16, 17, 18, 20, 22 to 30, 33, 34, 35 and 37.

Ecological Data: Frequency-11.63, Abundance-0.81, Density-0.61.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

PARTHENIUM L.

About 15 species, tropical and subtropical America, 1 in GNPS.

Parthenium hysterophorus L. Sp. Pl. 988. 1753; Rolla Rao in J. Bombay Nat. Hist. Soc. 54:218, t. 1. 1956; Rao et al. Fl. Ind. Enum. Aster. 56. 1988; S. Kumar in Hajra et al. India 12: 403. f. 113. 1995. Shah, Fl. Guj. 1:388; 1978. Singh, et al Fl. Maha. Dicot. 2: 227. 2000.

Habit : Herbs. Stems hairy, angular, branched. Leaves alternate, irregularly much dissected, margins entire, pubescent on both surfaces. Heads white, in terminal or axillary peduncles, bracteate. Achenes compressed, triquetrous, puberulous along

sides.

FLS and FRTS : September - January.

Herbarium No and date of Collection: 705, 16/01/01. **Photograph:** 104

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 8, 10, 11, 13, 16 to 19, 21, 22, 24, 27, 28, 29, 31 to 37.

Ecological Data: Frequency-7.70, Abundance-0.95, Density-0.25.

Distribution in Gujarat: Dangs, Broach, Rajpipla (Netrang) and almost throughout Gujarat; a weed now naturalized in India; native of West Indies (Shah, 1978).

PULICARIA Gaertn.

About 24 species in Europe, Asia and Africa, 1 in GNPS.

Pulicaria angustifolia DC. Prodr. 4: 476. 1836; Hook. f. Fl. Brit. India. 3:299. 1881; Cooke Fl. Pres. Barmby 2:90. 1958 (Repr.). Shah, Fl. Guj. 1:391; 1978, Rao et al. Fl. Ind. Enum. Aster. 60. 1988; S. Kumar in hajra et al. Fl. India 13: 33. 1995. Singh, et al Fl. Maha. Dicot. 2: 235. 2000.

Habit : Annual herbs, softly pubescent; branches ascending. Leaves sessile, linear-oblong, pubescent base amplexicaul, margins entire or sometimes slightly serrulate. Heads florets yellow. Achenes terete, pappus white to reddish.

FLS and FRTS : February - August.

Herbarium No and date of Collection: 706, 26/07/01.

Local Name: Sishoriya.

Distribution and Status in the Study Area: It is found in zone no 8, 10, 11, 12, 16, 19, 22, 26, 28, 30, 31, 33, 36 and 37.

Ecological Data: Frequency-9.39, Abundance-3.56, Density-1.54.

Distribution in Gujarat: Chhotaudepur, north Gujarat, Saurashtra and Kutch, Rare (Shah, 1978).

SCLEROCARPUS Jacq.

About 15 species from Southern United States and tropical Africa, 1 in GNPS.

Sclerocarpus africanus Jacq. In Ic. Pl. Rar. 1: 17, t. 176. 1780-1784; Hook. f. Fl. Brit. India 3: 305. 1881; Cooke, Fl. Pres. Bombay 2: 96. 1958 (Repr.). Shah, Fl. Guj. 1:392 ; 1978, Rao et al. Fl. Ind. Enum. Aster. 67. 1988,; H. J. Chowdhery in Hajra et al. Fl. India 12: 495. f. 114. 1995. Singh, et al Fl. Maha. Dicot. 2: 236. 2000.

Habit : Herbs, erect, hairy, Leaves ovate or ovate-oblong, appressed hairy. Heads solitary, terminal or Leaf-opposed, yellow. Achenes ovoid, enclosed in boat shaped false receptacle, ribbed.

FLS and FRTS : September - October.

Herbarium No and date of Collection: 707, 30/10/01.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 7, 8, 11, 12, 14 to 17, 19, 20, 24 to 27, 30, 32, 34 and 37.

Ecological Data : Frequency-13.29, Abundance-2.04, Density-1.49.

Distribution in Gujarat: Throughout in hedges and forest undergrowth (Shah, 1978).

SONCHUS L.

About 50 species in Eurasia and tropical Africa, 1 in GNPS.

Sonchus brachyotus DC. Prodr. 6:136. 1838; Rao et al. Fl. Ind. Enum. Aster. 72. 1988; Naik, Fl. Marathwada 1: 495, f. 61. 1998. *S. arvensis* auct. Non. L. 1753; Hook. f. Fl. Brit. India. 3 : 414. 1881; Cooke, Fl. Pres. Bombay 2: 120. 1958 (Repr.). Shah, Fl. Guj. 1:394; 1978, Singh, et al Fl. Maha. Dicot. 2: 241. 2000.

Habit : herbs perennial, umbellately branched. Leaves mostly radical, spinous toothed oblong-lanceolate, acute. Heads bright yellow, in umbellate panicles. Achenes brown, ribbed.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 708, 23/09/00.

Distribution and Status in the Study Area: It is found in zone no 2 to, 22, 24 to 27, 33 to 37.

Ecological Data : Frequency-18.24, Abundance-2.82, Density-1.81.

Distribution in Gujarat: Saurashtra and north Gujarat rare a weed in cultivated fields or waste places (Shah, 1978).

SPHAERANTHUS L.

About 40 species in Africa, Madagascar, Iraq to Persia and South East Asia, 1 in GNPS.

Sphaeranthus senegalensis DC. Prodr 5: 370. 1836; Rao et al. Fl. Ind. Enum. Aster. 73. 1988; S. Kumar in Hajra et al. Fl. India 13:162, 1995; Shah, Fl. Guj. 1:395; 1978, Naik, Fl. Marathwada 1: 497. 1998. *S. indicus* auct. Non L. 1753; Hook. f. Fl. Brit. India 3:275, 1881 p.p.; Naik, Fl. Osmanabad 174. 1979. Singh, et al Fl. Maha. Dicot. 2: 243. 2000.

Habit : Herbs, procumbent, strongly aromatic; branched, terete,. Leaves obovate to oblanceolate, obtuse to subacute at apex, decurrent on stems, serrate – dentate along margins, glandular – pubescent. Heads compound, containing several. Small. Sessile, few – flowered simple heads. Achenes ovoid – oblong.

FLS and FRTS : November – February.

Herbarium No and date of Collection: 709, 21/02/00.

Local Name: Gorakhamundi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 7 to 10, 12 to 15, 19, 21, 22, 23, 29 to 34 and 36.

Ecological Data : Frequency-7.09, Abundance-2.97, Density-1.28.

Distribution in Gujarat: Throughout in drying moist ground, common, often gregarious (Shah, 1978).

SPILANTHES Jacq.

About 60 species in tropical America, Africa, Malaya, Borneo and North Australia, 1 in GNPS.

Spilanthus calva DC. In Wight, Contrib. Bot. Ind. 19. 1834; Koster & Philpi. In Blumea 6: 354. 1950; Rao et al. Fl. Ind. Enum. 73. 1988. *S. acmella* acut. Non Murr. 1774; Hook f. Fl. Brit. India 3: 307. 1881; Cooke Fl. Pres. Bombay 2 : 99. 1958 (Repr.). Shah, Fl. Guj. 1:395; 1978. Singh, et al Fl. Maha. Dicot. 2: 243. 2000.

Habit : Herbs, suberect. Leaves opposite, ovate, apex acute or subobtuse, base suddenly tapering, margins irregularly crenate – serrate. Heads yellow, solitary or subpanicked; involucre bracts uniseriate. Achenes oblong or obovoid, truncate, much compressed, nearly glabrous.

FLS and FRTS : September – January.

Herbarium No and date of Collection: 710, 20/01/00.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 16, 21, 24, 26, 28, 32, 36 and 37.

Ecological Data : Frequency-7.30, Abundance-2.56, Density-1.15.

Distribution in Gujarat: Bulsar, Dangs, Vyara, Rajpipla, Chhotaudepur and Saurashtra, common in forest undergrowth (Shah, 1978).

SYNEDRELLA Gaertn.

About 150 species in tropical America, Africa, Madagascar and India, 1 in GNPS.

Synedrella nodiflora (L.) Gaertn. Fruct. 2: 456, t. 171, f. 7. 1791; Hook. f. Fl. Brit. India 3: 308. 1881; Rao et al Fl. Ind. Enum. Aster 74. 1988. *Verbesina nodiflora* L. Cent. Pl. 1: 28. 1755. Shah, Fl. Guj. 1:395; 1978, Singh, et al Fl. Maha. Dicot. 2: 244. 2000.

Habit : Herbs erect. Leaves ovate or elliptic, apex acute, base cuneate, margins serrate. Heads pale yellow, axillary and terminal, solitary or clustered. Pappus or ray florets, paleaceous, toothed. Achenes of ray florets achenes of disc florets ribbed, ribs torulose.

FLS and FRTS : July – February.

Herbarium No and date of Collection: 711, 30/10/01.

Distribution and Status in the Study Area: It is found in zone no 8, 9, 11, 12, 13, 16, 22, 28, 29 and 30.

Ecological Data : Frequency-11.63, Abundance-0.81, Density-0.61.

Distribution in Gujarat: Dangs (Mahal), along river banks, rare (Shah, 1978).

TRICHOLEPIS DC.

1 species, 1 in GNPS.

Tricholepis amplexicaulis C. B. Cl. Comp. Ind. 240. 1876; Hook f. Fl. Brit. India 3: 381. 1881; Cooke. Fl. Pres. Bombay 2 115. 1958 (Repr.). Shah, Fl. Guj. 1:398; 1978, Rao. Et al. Fl. Ind. Enum. Aster. 84. 1988; Chaudhary & Pandey in Rheede 4: 41, fig. 1. 1991. Singh, et al Fl. Maha. Dicot. 2: 245. 2000.

Habit : Herbs, annual, erect. Leaves oblong, semi-amplexicaul at base. Heads purple, in terminal, leafy peduncles. Achenes oblong-obovoid, smooth. Pappus paleaceous, caduceus in fruiting.

FLS and FRTS : October - January.

Herbarium No and date of Collection: 712, 19/01/00. **Photograph**: 105

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6 to 11, 14 to 17, 18, 19, 25 to 30, 33 to 37.

Ecological Data : Frequency-7.45, Abundance-0.90, Density-0.47.

Distribution in Gujarat: Dangs (Saputara), scattered, not common, also in Saurashtra (Shah, 1978).

TRIDAX L.

About 26 species from Mexico to tropical South Africa, 1 in GNPS.

Tridax procumbens L. Sp. Pl. 900. 1753; Hook. f. Fl. Brit. India 3:311. 1881; Cooke, Fl. Pres. Bombay 2:102. 1958 (Repr.). Shah, Fl. Guj. 1:397; 1978, Rao et al. Fl. Ind. Enum. Aster. 85. 1988. Singh, et al Fl. Maha. Dicot. 2: 247. 2000.

Habit : Annuals or perennials, erect or procumbent herbs, branched at base. Leaves opposite, ovate or lanceolate, margins serrate to coarsely incised dentate or trilobed. Heads heterogamous, produced on erect, retrorsely hirsute and sparsely glandular peduncles, ray florets white, ligules mostly bilabiate, disc florets tubular-campanulate, yellow, Pappus of many aristate bristles, unequal in length. Achense long, narrowly obconical, blackish, terate or ribbed, sparsely scarious, truncate at apex.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 713, 30/10/01.

Local Name: Pardesi Bhangro.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-21.60, Abundance-5.18, Density-3.74.

Distribution in Gujarat: Throughout, common (Shah, 1978).

VERNONIA Schreb.

About 1000 species in America, Asia and Australia, 2 in GNPS.

Vernonia anthelmintica (L.) Willd. Sp. Pl. 3:1634. 1803; Hook. f. Fl. Brit. India.3: 236. 1881; Cooke, Fl. Pres. Bombay 2:66. 1958 (Repr.). Shah, Fl. Guj. 1:398; 1978, Rao et al. Fl. Ind Enum. Aster. 86. 1988; Uniyal in Hajra et al. Fl. India 13: 357, f. 111. 1995. *Centratherum anthelminticum* (L.) o. Ktze. Rev. Gen. Pl. 1: 320. 1891. Singh, et al Fl. Maha. Dicot. 2: 248. 2000.

Habit : Herbs. Erect, annual. Leaves elliptic-lanceolate or obovate, pubescent on both surfaces. Heads across, subsolitary, Leaf-opposed on peduncles combined into terminal leafy corymbs. Pappus inner whorl cauducous, outer paleaceous. Achenes oblong-cylindric, black.

FLS and FRTS : September - February.

Herbarium No and date of Collection: 714, 19/02/00.

Sanskrit Name: Somraji, Aranyajirak, Vanjirak, Tiktajirak.

Local Name: Kalijiri.

Distribution and Status in the Study Area: It is found in zone no 1 to 16, 19, 24 to 33, 36 and 37.

Ecological Data : Frequency-10.94, Abundance-5.14, Density-1.74.

Distribution in Gujarat: Bulsar, Dangs, Vyara, Rajpipla, Cambay, Saurashtra; a roadside weed; not frequent (Shah, 1978).

Vernonia cinerea (L.) Less. In Linnaea 4:291. 1829; Hook. f. Fl. Brit. India 3: 233. 1881; Cooke, Fl. Pres. Bombay 2: 65. 1958 (Repr.). Shah, Fl. Guj. 1:398; 1978 Rao et al. Fl. Ind. Enum. Aster. 87. 1988; Uniyal in Hajra et al. Fl. India 13: 367 1995. *Conyza cinerea* L. Sp. Pl. 862. 1753. Singh, et al Fl. Maha. Dicot. 2: 248. 2000.

Habit : Herbs, erect, Leaves petioled, broadly elliptic or lanceolate, pubescent on both surfaces, obtuse or acute at apex. Heads across, terminal or axillary, in corymbose cymes. Outer pappus small, connate at base, inner longer than achenes, plumose. Achenes terete.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 715, 21/01/00.

Sanskrit Name: Sahadevi.



106) *Vicoa indica* (L.) DC., 107) *Xanthium indicum* Koen., 108) *Plumbago zeylanica* L.,
109) *Manilkara hexandra* (Roxb.) Dubard., 110) *Diospyros melanoxylon* Roxb., 111)
Jasminum azoricum L.

Local Name: Sahadevi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-16.42, Abundance-1.67, Density-1.08.

Distribution in Gujarat: Throughout, common (Shah, 1978).

VICOA DC.

About 1 species, 1 in GNPS.

Vicoa indica (L) DC. in Wt. Contrib. 10. 1834; Ch & O 133; S & J 29; S 132. *Inuc indica* L. Sp. Pl. (ed. 2.) 1236. 1762; Willd. Sp. Pl. 3:2092. 1804. *Vicoa auriculata* Cass. in Ann. Sci. Nat. 17:418. 1829; Fl. Brit. India 3:297; C 2:88. Shah, Fl. Guj. 1:399; 1978.

Habit: Lignose herbs or undershrubs. Leaves sessile, linear or linear-lanceolate, appressed-hairy, deflexed. Heads across, bright-yellow, axillary, solitary, culminating in terminal or leaf-opposed paniculate cymes. Achenes minute, brown, sparsely hairy.

FLS and FRTS : August - February.

Herbarium No and date of Collection: 716, 21/01/00. **Photograph:** 106

Sanskrit Name: Sonasali.

Local Name: Sonasali.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-15.29, Abundance-2.69, Density-2.33.

Distribution in Gujarat: Throughout, a weed in cultivated fields and in open waste lands (Shah, 1978).

XANTHIUM L.

About 30 species, cosmopolitan, 1 in GNPS.

Xanthium indicum Koen. In Roxb. Fl. Ind. 3: 601. 1832.; H. J. chowdhery in Hajra et al. Fl. India 12: 427, f. 123. 1995. *X. strumarium* L. Sp. Pl. 987. 1753; Hook. f. Fl. Brit. India 3:306. 1881; Cooke, Fl. Pres. Bombay 2:98. 1958(Repr.). Shah, Fl. Guj. 1:400 ; 1978, Rao et al. Fl. Ind. Enum. Singh, et al Fl. Maha. Dicot. 2: 251. 2000.

Habit : Herbs, annual; stem rough with short hairs. Leaves broadly ovate, triangular, appressed hairy. Heads across, green (Young) in terminal and axillary spikes. Fruits long, having 2 erect mucronate beaks, covered with hooked prickles. Achense oblong or ovoid, compresses, black.

FLS and FRTS : January - May.

Herbarium No and date of Collection: 717, 02/06/01. **Photograph:** 107

Sanskrit Name: Aristha.

Local Name: Gokhru.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13 to 17, 21, 22, 24 to 37.

Ecological Data : Frequency-20.93, Abundance-4.34, Density-3.58.

Distribution in Gujarat: Throughout; common and abundant, often gregarious (Shah, 1978).

PLUMBAGINACEAE

Cosmopolitan, about 19 genera and 775 species, 1 genera and 1 species in GNPS.

PLUMBAGO L.

About 12 species distributed in the tropics, 1 in GNPS.

Plumbago zeylanica L. Sp. Pl. 151. 1753; C.B.Cl in Hook. f. Fl. Brit. India. 3: 480. 1879; Cooke, Fl. Pres. Bombay 2: 136, 1958 (Repr.). Shah, Fl. Guj. 1:404; 1978. Singh, et al Fl. Maha. Dicot. 2: 282. 2000.

Habit: Undershrubs, tall, perennial, erect or scandent. Leaves ovate or ovate-lanceolate. Inflorescence of terminal spikes. Flowers white. Capsules long, oblong, pointed with persistent calyx.

FLS and FRTS : March - December.

Herbarium No and date of Collection: 718, 14/07/00. **Photograph:** 108

Sanskrit Name: Agnidahan.

Local Name: Chitrak.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 9, 10, 11, 13, 16, 21, 22, 24, 25, 26, 29, 30, 31, 32, 34 to 36.

Ecological Data : Frequency-10.78, Abundance-1.12, Density-0.54.

Distribution in Gujarat: Throughout in hedges, not common (Shah, 1978).

SAPOTACEAE

About 116 genera and 1100 species; tropical to temperate regions, 3 genera and 4 species in GNPS.

MADHUCA Buch – Ham. ex. J. F. Gmel.

About 85 species, Indo-Malesia especially from W. Malesia to Australia, 1 in GNPS.

Madhuca indica J. F. Gmel in. Syst. Nat. 799. 1791; Hook. f. Fl. Brit. India 3: 544. 1882; Cooke, Fl. Pres. Bombay 2: 152, 1958 (Repr.). Shah, Fl. Guj. 1: 407, 1978; Singh, et al, Fl. Maha. Dicot. 2:293. 2000; *Bassia latifolia* Roxb., Pl. Corrom. 1: 20. t. 19. 1795; *Madhuca latifolia* (Roxb.) Macbr. in Contr. Gray Herb. Harv. Univ. N. S. 53:

17. 1918; *Bassia longifolia* J. Koenig. in L. Mant. Pl. App. 563. 1771.

Habit: Deciduous tree with thick, dark, brown cracked bark. Leaves coriaceous, elliptic or elliptic-oblong, at length glabrous. Flowers creamy- white, in dense, axillary fascicles. Seeds ovoid, smooth, shining, brownish-black.

FLS and FRTS: March - June.

Herbarium No and date of Collection: 719, 15/04/00.

Sanskrit Name: Madhuka, Vanprastha, Madhustil, Madhustrav, Gudpushpa.

Local Name: Mahudo.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 7, 26, 32 and 35.

Ecological Data: Frequency-1.55, Abundance-0.10, Density-0.07.

Distribution in Gujarat: Throughout in dry deciduous forests, less frequent in scrub forests (Shah, 1978).

MANILKARA Adams. nom. cons.

About 70 species, tropical regions, 2 in GNPS.

Manilkara hexandra (Roxb.) Dubard in Ann. Mus. Col. Mars. 3:3:9. f. 2: 1915; van Royen in Blumea 7: 408. 1953. *Mimusops heandra* Roxb. Pl. Cor. 1: 16. t. 15. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 3: 549. 1882; Cooke, Fl. Pres. Bombay 2: 155. 1958 (Repr.). Shah, Fl. Guj. 1:407; 1978. Singh, et al Fl. Maha. Dicot. 2: 294. 2000.

Habit: Trees evergreen tall; bark deeply furrowed. Leaves obovate to obovate-oblong, dark glossy green above rounded or emarginated at apex, acute at base. Flowers whitish, solitary, axillary or in fascicles, calyx rusty tomentose outside. Berries 1-seeded. Seeds ovoid, reddish, shining.

FLS and FRTS : September - November.

Herbarium No and date of Collection: 720, 27/09/01. **Photograph:** 109

Sanskrit Name: Rajadani.

Local Name: Rayan.

Distribution and Status in the Study Area: It is found in zone no 1 to 20, 25 to 37.

Ecological Data: Frequency-8.08, Abundance-0.67, Density-0.11.

Distribution in Gujarat: Wild or self-sown near villages, throughout in plains (Shah, 1978).

Manilkara zapota (L.) P. Royen in Blumea 7: 410. 1953; Moore & Stearn in Taxon 16: 383. 1967; Naik, FL. Osmanabad 193. 1979. *Achras zapota* L. Sp. Pl. 2: 1190. 1753, quoad typum synonymis sloqnei & Plukenetii exclusis. *A. sapota* L. Sp. P. ed. 2: 470. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 3: 534. 1882. *Manilkara achras* (Mill.)

Fosb. In Taxon 13: 255. 1964. Shah, Fl. Guj. 1:408; 1978, Singh, et al Fl. Maha. Dicot. 2: 296. 2000.

Habit: Evergreen trees. Leaves alternate, elliptic to elliptic-lanceolate, acute at base, acute to acuminate at apex. Flowers white, solitary, axillary; calyx in 2 whorls of 3 sepals each, brown-hairy outside; corolla urceolate; staminodes petaloid. Berries across, globose. Seeds ellipsoid, black.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 721, 21/03/01.

Local Name: Chiku.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 11, 16, 21, 24, 25, 32, 35 to 37.

Ecological Data: Frequency-2.87, Abundance-0.22, Density-0.03.

Distribution in Gujarat: Planted in gardens and in orchards (Shah, 1978).

MIMUSOPS L.

About 57 species, tropical Africa including one from Malesia to Pacific regions, 1 in GNPS.

Mimusops elengi L. Sp. Pl. 349. 1753; C. B. Cl. in. Hook. f. Fl. Brit. India 3: 548. 1882; Cooke. Fl. Pres Bombay 2: 155. 1958 (Repr.). Shah, Fl. Guj. 1:408; 1978, Oza in J. Bombay nat. Hist. Soc. 72: 601. 19775. Singh, et al Fl. Maha. Dicot. 2: 294. 2000.

Habit: Trees, evergreen, leaves elliptic, shortly acuminate or acute at base. Flowers white, fragrant, solitary. Berries, ovoid, yellow when ripe. Seeds solitary, ovoid, shining brown.

FLS and FRTS : January – March.

Herbarium No and date of Collection: 722, 19/02/00.

Local Name: Borsali.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 6, 7, 9, 11, 12, 13, 17 to 20, 25 to 27, 29, 30 and 34.

Ecological Data: Frequency-7.52, Abundance-0.60, Density-0.12.

Distribution in Gujarat: Planted in gardens and along roads (Shah, 1978).

EBENACEAE

Two genera and about 485 species; tropical and subtropical to temperate regions; 1 genus with 1 species in GNPS.

DIOSPYROS L.

About 475 species; tropical regions; 1 in GNPS.

Diospyros melanoxylon Roxb Pl. Cor 1: 36. t. 46. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 3: 564. 1882; Cooke, Fl. Pres. Bombay 2: 159, 1958 (Repr.). Shah, Fl. Guj. 1:409; 1978. Singh, et al Fl. Maha. Dicot. 2: 301. 2000.

Habit: Trees. Leaves alternate or subopposite, elliptic to elliptic-oblong, obtuse to subacute at apex, usually acute at base. Male flowers 3-12, in tomentose, paniculate cymes; female flowers subsessile, solitary. Fruits wide, globose or ovoid; fruiting calyx flat with thick undulate lobes. Seeds 2-8.

FLS and FRTS : February - April.

Herbarium No and date of Collection: 723, 25/04/01. **Photograph:** 110

Sanskrit Name: Tinduk, Kalskandha, Asithsarak, Shitisarak, Dirghapatraka.

Local Name: Timru.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-19.50, Abundance-1.32, Density-0.76.

Distribution in Gujarat: Throughout, frequent in deciduous forests (Shah, 1978).

OLEACEAE

About 29 genera and 900 species, subcosmopolitan especially Asia, 3 genera and 4 species in GNPS.

JASMINUM L.

About 450 species; tropical and temperate regions of Old World, 2 in GNPS.

Jasminum azoricum L. Sp. Pl. 7. 1753; Backer & Bakh. f. Fl. Java 2: 217. 1968. *J. flexile* Vahl, Symb. Bot. 3: 1. 1794; C.B.Cl. in Hook. f. Fl. Brit. India 3: 601. 1852; Cooke, Fl. Pres. Bombay 2: 175. 1958 (Repr.). Shah, Fl. Guj. 1:410; 1978. Singh, et al Fl. Maha. Dicot. 2: 307. 2000.

Habit: Extensive climbers; leaflets: terminal one elliptic-oblong or oblong-lanceolate, acute to acuminate at apex, subacute to rounded at base, lateral ones smaller in size. Flowers white, bracteate, in lax, paniculate, axillary cymes. Berries long, ovoid, stalked.

FLS and FRTS : March - April.

Herbarium No and date of Collection: 724, 26/04/01. **Photograph:** 111

Sanskrit Name: Parijata, Sephalika, Ragpushpi.

Local Name: Jui.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 13, 22, 24, 28, 31, 32, 35 and 37.

Ecological Data: Frequency-1.77, Abundance-0.20, Density-0.04.

Distribution in Gujarat: Wild at Rajpipla, Panchmahals, Mahi ravines and North Gujarat; also cultivated; common (Shah, 1978).

Jasminum multiflorum (Brum.f) Andr. Bot. Rep. 8, t. 496. 1807; Kobuskin in J. Arnold Arbor. 13 : 172. 1932. *Nyctnthes multiflora* Burm. F. Fl. Ind. 5, t. 3, f. 1. 1768. *Jasminum pubescens* Willd. Sp. Pl. 1: 37. 1797; C.B. Cl. In Hook. f. Fl. Brit. India 3: 592. 1882; Cooke, Fl. Pres. Bombay 2: 173. 1958 (Repr.). Shah, Fl. Guj. 1:411; 1978. Singh, et al Fl. Maha. Dicot. 2: 309. 2000.

Habit: Climbers. Stems scandent, young parts velvety pubescent. Leaves ovate, tomentose, acute, mucronate at apex, rounded or cordate at base. Flowers white, bracteate, sessile, in terminal capitate cymes.

FLS and FRTS : December – June.

Herbarium No and date of Collection: 725, 23/04/01.

Local Name: Jui, Mogro.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 13, 16, 22, 24, 25, 28, 31, 32, 34 to 37.

Ecological Data: Frequency-12.62, Abundance-0.39, Density-0.44.

Distribution in Gujarat: Cultivated for flowers, reported wild from Dangas by Santapau (1955) (Shah, 1978).

NYCTANTHES L.

Two species, India to Java, 1 in GNPS

Nyctanthes arbor – tristis L. Sp. Pl. 6. 1753; C. B. Cl. In Hook. f. Fl. Brit. India 3; 603. 1882; Cooke, Fl. Pres. Bombay 2 ; 176. 1958 (Repr.). Shah, Fl. Guj. 1:411; 1978. Singh, et al Fl. Maha. Dicot. 2: 311. 2000.

Habit : Trees or shrubs, branches quadrangular. Leaves ovate, acute to acuminate at apex, cuneate to rounded at base, margins entire or distantly dentate. Flowers white, bracteate, in terminal cymes. Capsules obcordate, flattened.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 726, 30/10/01.

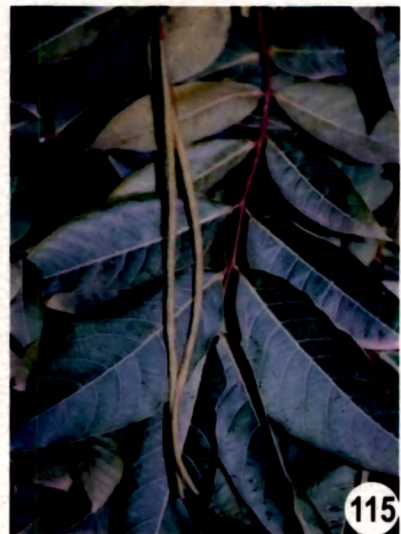
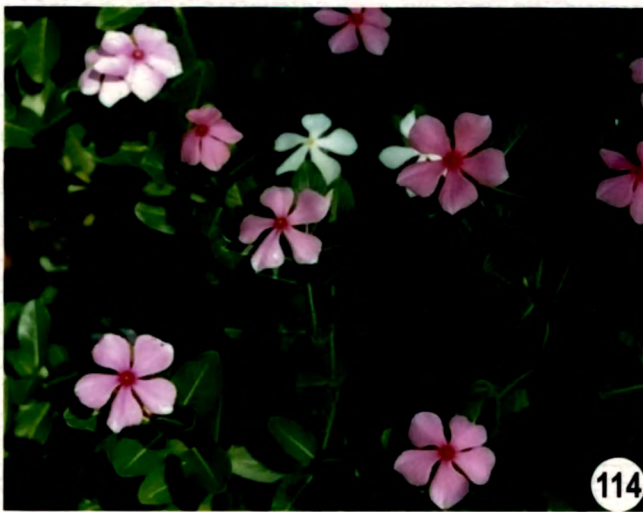
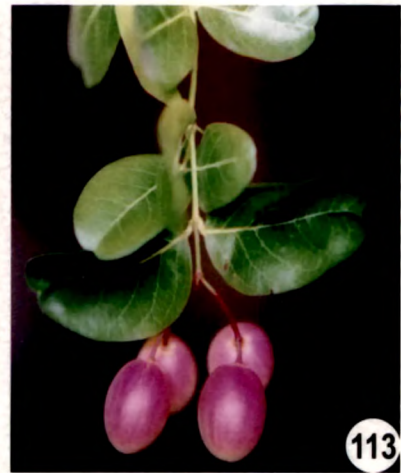
Sanskrit Name: Parijata, Sephalika, Ragpushpi.

Local Name: Parijatak.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 10, 13, 21, 22, 24, 25, 28, 31, 35 to 37.

Ecological Data: Frequency-13.62, Abundance-0.64, Density-0.15.

Distribution in Gujarat: Wild at Rajpipla, Panchmahals, Mahi ravines and North



112) *Schrebera swietenoides* Roxb., 113) *Carissa congesta* Wight., 114) *Catharanthus roseus* (L.) G. Don., 115) *Holarrhena pubescens* (Buch-Ham.) Wall. ex G. Don., 116) *Plumeria alba* L., 117) *Plumeria rubra* Linn.

Gujarat; also cultivated; common (Shah, 1978).

SCHREBERA Roxb. nom. Coms.

About 8 species; tropical regions¹ in GNPS.

Schrebera swietenoides Roxb. Pl. Cor. 2:1, t. 101. 1799; C.B.Cl. in Hook. f. Fl. Brit. India 3: 604. 1882; Cooke, Fl. Pres. Bombay 2: 177. 1958 (Repr.). Shah, Fl. Guj. 1:412; 1978. Singh, et al Fl. Maha. Dicot. 2: 312. 2000.

Habit: Trees tall. Leaves imparipinnate; leaflets ovate, acute to acuminate at apex, oblique at base. Flowers yellowish-brown, many, in cymes. Capsules obovoid, pendulous, clothed with scabrous specks. Seeds each cell, winged.

FLS and FRTS : April - June.

Herbarium No and date of Collection: 727, 02/06/01. **Photograph:** 112

Local Name: Nakhati.

Distribution and Status in the Study Area: It is found in zone no 5, 6, 9, 17, 19, 20, 26, 27, 29, 30, 33 and 35.

Ecological Data: Frequency-6.00, Abundance-0.45, Density-0.22.

Distribution in Gujarat: Dang, Vyara, Rajpipla, Chhotaudepur, Pavagadh, Panchmahals, Saurashtra ; rare (Shah,1978).

APOCYNACEAE

About 215 genera and 2100 species; mostly tropical regions, 8 genera and 10 species in GNPS.

CARISSA L. nom. cons.

About 37 species; subtropical regions of Old World and Australia; 1 in GNPS.

Carissa congesta Wight, Ic. t. 1289. 1848. *C. carandas* auct. non L. 1767; Hook. f. Fl. Brit. India 3: 630. 1882 p.p.; Cooke, Fl. Pres. Bombay 2: 186. 1958 (Repr.). Shah, Fl. Guj. 1:415; 1978, Naik, Fl. Marathwada 2: 530. 1998. Singh, et al Fl. Maha. Dicot. 2: 320. 2000.

Habit: Shrub, stems with stout, horizontal spines, long. Leaves elliptic or obovate, coriaceous, obtuse and mucronate at apex, subacute at base. Flowers white, in terminal corymbose cymes. Fruits long, 4-seeded, dark purplish when ripe.

FLS and FRTS : June - April.

Herbarium No and date of Collection: 728, 10/07/00. **Photograph:** 113

Local Name: Karamda.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-18.71, Abundance-1.10, Density-0.47.

Distribution in Gujarat: Ornamental, native of trop Amerca (Shah,1978).

CATHARANTHUS G. Don.

About 8 species; tropical regions; 1 in GNPS.

Catharanthus roseus (L.) G. Don. Gen. Syst. 4 : 95. 1837; Sant. In Bull. Bot. Surv. India 3 : 15 1961; Naik, Fl. Osmanabad 199. 1979. *Vinca rosea* L. Syst. Ed. 10. 944. 1759; C.B. Cl. In Hook. f. Fl. Brit. India 3 : 640. 1882. Shah, Fl. Guj. 1:416; 1978, Singh, et al Fl. Maha. Dicot. 2: 331. 2000.

Habit : Perennial herbs. Leaves elliptic – oblong, acute at base, obtuse and apiculate at apex. Flowers white or rosy, solitary or in pairs, shortly pedicelled; calyx hairy.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 729, 30/10/01. **Photograph:** 114

Local Name: Barmasi.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 12, 15, 16, 17, 19, 20, 21, 22, 24, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-15.90, Abundance-2.05, Density-2.13.

Distribution in Gujarat: Throughout among grasses and cultivated fields ; occasional (Shah,1978).

ERVATAMIA L.

About 1 species, 1 in GNPS.

Ervatamia divaricata (L.) Burkill. in Rec. bot. Surv. India 10:320. 1925. *Nerium divaricatum* L. Sp. Pl. 209. 1753 (quoad syr. Pl. Zeyl. Excl. syn. Hermann). *Nerium coronarium* Jacq. Coll. 1: 138. 1786. *Ervatamia coronaria* Jacq) O. Stapf in This-Dyer, Fl. Trop. Afr. 4: 127. 1902; C 2: 197; Wl 3:192. f. 122. *Tabernaemontana coronaria* Willd. Enum. Hort. Berol. 275. 1809; FBI 3: 646. *Tabernaemontana divaricata* (L) R. Br. in R. & S. Syst. Veg. 4:427. 1819; S & J 31; S 148. Shah, Fl. Guj. 1:417; 1978,

Habit: Shrubs. Leaves elliptic-lanceolate, glabrous. Flowers white, across, in terminal, paniculate cymes. Fruits not seen.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 730, 02/11/01.

Sanskrit Name: Chandni.

Local Name: Tager.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 13, 16, 17, 21, 22, 24, 25, 26, 28, 29, 31 to 33, 35 to 37.

Ecological Data: Frequency-9.22, Abundance-0.62, Density-0.42.

Distribution in Gujarat: Planted in gardens at many places (Shah, 1978).

HOLARRHENA R. Br.

Four species; tropical Africa and Indo-Malesia; 1 in GNPS.

Holarrhena pubescens (Buch – Ham.) Wall. ex G. Don, Gen. Syst. 4 : 78. 1837; Panigr. In Taxon 36 : 466. 1987. *Echites pubescens* Buch. Ham. In Trans. Linn. Soc. London 13 : 521. 1821. *Holarrhena antidyenterica* (Roth) Wall. Ex A. DC. In DC. Prodr. 8 : 413. 1844; Hook. f. Fl. Brit. India 3 : 644. 1882; Cooke, Fl. Pres. Bombay 2 : 195. 1958 (Repr.). Shah, Fl. Guj. 1:417; 1978. Singh, et al Fl. Maha. Dicot. 2: 322. 2000.

Habit : Trees or large shrubs. Leaves ovate to elliptic, obtuse at base, obtusely acuminate at apex. Flowers white, in terminal corymbose cymes, bracteate. Follicles cylindric, mottled with white spots. Seeds long, linear – oblong; coma of brown, deciduous hair.

FLS and FRTS : February – June.

Herbarium No and date of Collection: 731, 02/06/01. **Photograph:** 115

Local Name: Karakado.

Distribution and Status in the Study Area: It is found in zone no 2 to 9, 13, 17 to 21, 24 to 37.

Ecological Data: Frequency-12.76, Abundance-1.15, Density-0.65.

Distribution in Gujarat: In deciduous forests, common ; also in scrub forests (Shah, 1978).

NERIUM L.

Two species; Mediterranean region to Japan, 1 in GNPS.

Nerium indicum Mill. Gard. Dict. ed. 8. no. 2. 1768; Naik, Fl. Osmanabad 200. 1979. *N. odorum* Soland. in Ait. Hort. Kew 1: 297. 1789; C.B.Cl. in Hook. f. Fl. Brit. India 3: 655. 1882; Cooke, Fl. Pres. Bombay 2: 206. 1958 (Repr.). Shah, Fl. Guj. 1:417; 1978. Singh, et al Fl. Maha. Dicot. 2: 332. 2000.

Habit: Shrubs. Leaves whorled, linear-lanceolate to lanceolate with tapering ends. Flowers white, pink or red, fragrant, across, in terminal cymes; peduncles stout; calyx 5-partite; corolla with fimbriate scales near mouth upto long. Follicles long, lanceolate. Seeds villous, comose.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 732, 01/11/01.

Local Name: Lal Karen.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11,

13, 16, 17, 21, 22, 24, 25, 26, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-7.95, Abundance-0.26, Density-0.24.

Distribution in Gujarat: Ornamental, seldom an escape (Shah, 1978).

PLUMERIA L.

About 7 species; tropical America, 2 in GNPS.

Plumeria alba L. Sp. Pl. 210. 1753; Bailey, Man. Cult. Pl. (ed. 2) 1949; Naik, Fl. Marathwada 1: 533. 1998. Singh, et al Fl. Maha. Dicot. 2: 332. 2000.

Habit : Small trees, with milky latex. Leaves alternate, crowned at ends of branches, oblanceolate, glabrous above, pubescent beneath. Flowers cream – coloured, fragrant, in terminal, peduncled corymbs; calyx with suborbicular sepals; corolla lobes oblanceolate.

FLS and FRTS : May – September.

Herbarium No and date of Collection: 733, 14/07/00. **Photograph:** 116

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 16, 21, 22, 24, 26 and 32.

Ecological Data: Frequency-0.57, Abundance-0.15, Density-0.14.

Distribution in Gujarat: Planted in garden as ornamental (Shah, 1978).

Plumeria rubra L. Sp. Pl. 209. 1753; Woodson in Ann. Missouri Bot. Gard. 25 : 297. 1938. *P. acutifolia* Poir. In Lam. Encycl. Suppl. 2 : 667. 1812. C. B. Cl. In Hook. f. Fl. Brit. India 2 : 641. 1882; Cooke, Fl. Pres. Bombay 2 : 205. 1958 (Repr.). Shah, Fl. Guj. 1:418; 1978, Bailey, Man. Cult. Pl. (ed. 2) 810. 1949. Singh, et al Fl. Maha. Dicot. 2: 332. 2000.

Habit : Trees. Leaves alternate, oblong – lanceolate or oblanceolate, narrowed at base, acuminate at apex. Flowers white or red, in terminally peduncled corymbs;

FLS and FRTS : March – September.

Herbarium No and date of Collection: 734, 23/06/01. **Photograph:** 117

Local Name: Khad – Champo.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 16, 21, 22, 24, 26 and 32.

Ecological Data: Frequency-0.76, Abundance-0.21, Density-0.15.

Distribution in Gujarat: Ornamental; native of tropical America (Shah, 1978).

THEVETIA L. nom. cons.

About 8 species; tropical America, 1 in GNPS.

Thevetia neriifolia Juss. ex Steud., Nomen. Bot. ed. 2. 2: 680. 1841; Cooke, Fl.

Pres. Bombay 2: 207, 1958 (Repr.). Shah, Fl. Guj. 1: 419, 1978; Singh, et al., Fl. Maha. Dicot. 2:331. 2000; *Cerbera peruviana* Pers., Syn. Pl. 1: 267. 1805; *Thevetia peruviana* (Pers.) K. Schum., in Engl. and Prantl. Nat. Pflanzenfam. 4(2): 159. 1895.

Habit: Large shrubs or small trees. Flowers are yellow.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 735, 01/11/01.

Local Name: Pili Karen.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 13, 16, 17, 21, 22, 24, 25, 26, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-13.88, Abundance-0.59, Density-0.47.

Distribution in Gujarat: Planted at some place as ornamental oa a hedge; native of tropical America (Shah, 1978).

WRIGHTIA R. Br.

About 24 species; tropical regions of Old World, 2 in GNPS.

Wrightia arborea (Dennst.) Mabb. in Taxon 26: 533. 1977. *Periploca arborea* Dennst. Schluss. 13, 23 & 25. 1818 in Forts. Allg. Deutsch. Gaerten.-Mag. 3: 32, 41, 83. 1818. *Wrightia tomentosa* (Roxb) R. & S. Veg. ed. Nov. 4: 414. 1819; Hook. f. Fl. Brit. India 3: 653. 1882; Cooke, Fl. Pres. Bombay 2: 199. 1958 (Repr.). Shah, Fl. Guj. 1:420; 1978, Ngan in Ann. Missouri Bot. Gard. 52: 148. 1965. Singh, et al Fl. Maha. Dicot. 2: 327. 2000.

Habit: Trees young parts tomentose. Leaves elliptic-oblong, acuminate at apex, acute at base. Flowers white, or more across, in terminal, corymbose cymes. Fruits long, cylindriec. Seeds long with tapering apex; coma long, white.

FLS and FRTS : April - June.

Herbarium No and date of Collection: 736, 01/06/01.

Local Name: Dhudhlo.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.57, Abundance-0.03, Density-0.01.

Distribution in Gujarat: Dangs, Rajpipla, Pavagadh, Chhotaudepur, not common (Shah, 1978).

Wrightia tinctoria R. Br., in Mem. Wern. Nat. Soc. 1: 74. 1811; Hook. f. Fl. Brit. India 3: 653. 1882; Cooke, Fl. Pres. Bombay 2: 200, 1958 (Repr.). Shah, Fl. Guj. 1:420; 1978, Ngan in Ann. Missouri Bot. Gard. 52: 143. 1965. Singh, et al Fl. Maha. Dicot. 2: 327. 2000.

Habit: Trees. Leaves acuminate at apex, rounded at base, pubescent along midrib



118



119



120



121



122



123

118) *Calotropis gigantea* (L.), 119) *Calotropis procera* (Ait.) R. Br., 120) *Ceropegia bulbosa* Roxb., 121) *Hemidesmus indicus* (L.) Schult., 122) *Canscora diffusa* (Vahl.) R.Br., 123) *Enicostemma hyssopifolium* (Lam.) Willd.

below, occasionally glabrous. Flowers white, fragrant, in terminal cymes. Follicles paired, drooping, cylindric, apices connate. Seeds long, pointed; coma long.

FLS and FRTS : March - May.

Herbarium No and date of Collection: 737, 25/04/01.

Local Name: Dhudhlo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-19.22, Abundance-2.40, Density-1.12.

Distribution in Gujarat: In deciduous forests; common; very rarely in scrub forests (Shah, 1978).

ASCLEPIADACEAE

About 348 genera and 2900 species; tropical and subtropical regions especially Africa while few in temperate areas, 8 genera and 10 species in GNPS.

CALOTROPIS R. Br.

Six species; tropical and subtropical regions of Old World, 2 in GNPS.

***Calotropis gigantea* (L.) Ait.** Hort. Kew ed. 2, 2: 78. 1811; Hook. f. Fl. Brit. India 4: 17. 1883; Cooke, Fl. Pres. Bombay 2: 214. 1958 (Repr.). Shah, Fl. Guj. 1:423; 1978, Sant. & Irani in Univ. Bombay Bot. Mem. no. 4: 17. 1962; Jagtap et N.P. Singh in Fasc. Fl. India 24: 9. 199. *Asclepias gigantea* L. Sp. Pl. 214. 1753. Singh, et al Fl. Maha. Dicot. 2: 341. 2000.

Habit: Erect shrubs, high; stems woody, terete, branched. Leaves subsessile, broadly obovate or elliptic-oblong, fugaciously pubescent on both sides, base cordate. Flowers in lateral, umbellate or subcorymbose cymes; peduncle cottony pubescent; corolla across, lobes spreading, divided two-third of way down; corona 5, laterally compressed, completely adnate to staminal column. Follicles pubescent. Seeds broadly ovoid, coma silky.

FLS and FRTS : October - July.

Herbarium No and date of Collection: 738, 01/11/01. **Photograph:** 118

Local Name: Akado.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13 to 18, 21, 22, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-17.49, Abundance-0.93, Density-0.62.

Distribution in Gujarat: Throughout ; common (Shah, 1978).

***Calotropis procera* (Ait.) R. Br.,** in W. T. Ait. Hort. Kew. ed. 2. 2: 78. 1811; Hook. f. Fl. Brit. India 4: 18. 1883; Cooke, Fl. Pres. Bombay 2: 215, 1958 (Repr.). Shah, Fl.

Guj. 1:423; 1978, Sant. & Irani in Univ. Bombay Bot. Mem. no. 4:19. 1962; Jagtap et N.P. Singh in Fasc. Fl. India 24: 11. 1999. *C. procera* (Ait.) Ait. f. subsp. *hamiltonii* (Wight) Ali in Notes R.B.G. Edinb. 38 (2): 287-290. 1980. Singh, et al Fl. Maha. Dicot. 2: 342. 2000.

Habit: Erect shrubs high; stems woody, cylindrical, branched. Leaves sessile or shortly petiolate broadly ovate, obovate or obovate-oblong, fugaciously cottony on both sides, base cordate. Flowers in lateral, umbellate cymes; corolla across, hemispherical in bud, lobes divided 2/3 of way down; corona, 5, laterally compressed, lobes completely adnate to column, recurved at base. Follicles long, in pairs, recurved. Seeds ovoid, coma silky-white.

FLS and FRTS : FLS. Most of the year FRTS. August - December.

Herbarium No and date of Collection: 739, 02/11/01. **Photograph:** 119

Local Name: Akado.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 8, 11, 12, 13, 17, 18, 19, 28, 29, 30, 36 and 37.

Ecological Data: Frequency-5.54, Abundance-0.21, Density-0.11.

Distribution in Gujarat: Throughout ; common (Shah, 1978).

CEROPEGIA L.

About 160 species; tropical regions of Old World to Australia and subtropical Africa; 1 in GNPS.

Ceropegia bulbosa Roxb. Pl. Cor. 1:11. t. 7. 1795 & Fl. Ind. 2:28. 1824; FBI 4:67 C 2:240; WI 2:125; S & J 31. Shah, Fl. Guj. 1:423; 1978, Singh, et al Fl. Maha. Dicot. 2: 347. 2000.

Habit : Twining. Slender, perennial bers, with an underground, tuberous stem. Leaves orbicular, ellipticoblong ovate-oblong or obovate, glabrous. Flowers lateral, umbellate cymes. Corolla long tube greenishgrey outside; purplish inside. Lobes dark-purple. Follicles long, glabrous.

FLS and FRTS : July - December.

Herbarium No and date of Collection: 740, 01/11/01. **Photograph:** 120

Local Name: Kundher.

Distribution and Status in the Study Area: It is found in zone no 3 to 22, 24 to 37.

Ecological Data: Frequency-20.21, Abundance-2.94, Density-1.61.

Distribution in Gujarat: Throughout in plains on hedges; frequent (Shah, 1978).

HOLOSTEMMA R. Br.

Two species; Indo-Malesia and China, 1 in GNPS.

Holostemma annulare (Roxb.) K. Schum. In Engl. & Prantl, Pflanzenf. 4 (2) : 250, f. 71, J – K 1895; Sant & Irani in Univ. Bombay Bot. Mem. No. 4 : 53. 1962; Jagtap et N. P. Singh in Fasc. Fl. India 24. 29. 1999. *Asclepias annularia* Roxb. Fl. Ind. 2 : 37. 1832. *Sarcostemma annulare* Roth, Nov. Pl. Spec. 178. 1821. *Holostemma ada – kodien* Schl. in L. Syst. Veg. 6 : 95. 1820 nom. Illeg.; Naik, Fl. Marathwada 1 : 548. 1998. *Holostemma rheedei* Wall. Pl. Asiat. Rar. 2; 51. 1831; Hook. f. Fl. Brit. India 4: 21. 1883. *H. rheedianum* Spreng. Syst. 1 : 851. 1825; Cooke, Fl. Pres. Bombay 2: 220. 1958 (Repr.). Shah, Fl. Guj. 1:426; 1978. Singh, et al Fl. Maha. Dicot. 2: 347. 2000.

Habit: Twining climbers. Leaves petiolate, broadly ovate, glabrous, few glands at the base of midvein on the upper surface, acuminate at apex. Flowers fleshy, pinkish – red, in axillary, few – flowered lax cymes.

FLS and FRTS : FLS. June – October FRTS. September - October.

Herbarium No and date of Collection: 741, 02/06/01.

Local Name: Khirdodi.

Distribution and Status in the Study Area: It is found in zone no 10, 11, 14, 16, 20, 21, 27, 29 to 37.

Ecological Data: Frequency-5.52, Abundance-0.82, Density-0.55.

Distribution in Gujarat: In the forests of Rajpipla, chhotaudepur, panchmahals and Saurashtra. Rare (Shah, 1978).

LEPTADENIA R. Br.

Four species; tropical regions of Old World, 2 in GNPS.

Leptadenia pyrotechnica (Forssk.) Decne. in Ann. Sc. Nat. 2, 9 : 270. 1838; Sant & Irani in Univ. Bombay Bot. Mem. No. 4 : 59. 1962; Jagtap et N. P. Singh in Fasc. Fl. India 24 : 259. 1999. *Cynanchum pyrotechnicum* Forssk. Fl. Aegypt. Arab. 53. 1775. *Leptadnia spartium* Wight, Contrib. 48. 1834; Hook. f. Fl. Brit. India 34 : 64. 1883; Cooke, Fl. Pres. Bombay 2: 238. 1958 (Repr.). Shah, Fl. Guj. 1:426; 1978, Singh, et al Fl. Maha. Dicot. 2: 369. 2000.

Habit : Climbers, stems branched, cylindric, glabrous or appressedly puberulous. Leaves absent or present on young shoots only, sessile, linear, appressedly puberulous on both sides, apex acute. Flowers small, in lateral, umbellate cymes; long, lanceolate, pubescent on both sides; corona double, coralline of 5 small scales, inserted at sinuses of corolla, staminal of undulate, fleshy ring, adnate to base of staminal column. Follicles lanceolate. Seeds ovate – lanceolate.

FLS and FRTS : FLS. October – January. FRTS. January - February.

Herbarium No and date of Collection: 742, 01/11/01.

Local Name: Khip.

Distribution and Status in the Study Area: It is found in zone no 2 to 6, 11, 12, 13, 14, 19 to 22, 24, 30, 33 to 37.

Ecological Data: Frequency-7.95, Abundance-0.79, Density-0.48.

Distribution in Gujarat: So far found at Broach, in Mahi ravines, chhotaudepur, Panchmahal, north Gujarat, Saurashtra and Kutch, rare (Shah, 1978).

***Leptadenia reticulata* (Retz.) Wight & Arn.** in Wight, Contrib. 47. 1834; Hook. f. Fl. Brit. India 4; 63. 1883; Cooke, Fl. Pres. Bombay 2: 237. 1958 (Repr.). Shah, Fl. Guj. 1:427; 1978, Sant & Iranin in Univ. Bombay Bot. Mem. No. 4 : 60. 1962; Jagtap et N. P. Singh in Fasc. India 24: 260. 1999. *Cynanchum reticulatum* Retz. Obs. 2: 15. 1781. Singh, et al Fl. Maha. Dicot. 2: 370. 2000.

Habit: Climbers, stems much branched, swollen at nodes, appressedly puberulous. Leaves petiolate, ovate or ovate – lanceolate, densely pubescent on lower side, less on upper, apex acute, base rounded. Flowers many, small, in lateral, umbellate cymes; peduncless pedicels and calyx pubescent without; corolla lanceolate, acute, pubescent mouth of corolla – tube staminal fleshy ring, adnate to base of staminal column. Follicles linear – oblong or broadly lanceolate.

FLS and FRTS : FLS. April – November FRTS. October - March.

Herbarium No and date of Collection: 743, 01/11/01.

Local Name: Nani dodi.

Distribution and Status in the Study Area: It is found in zone no 5 to 10, 16, 17, 18, 19, 24 to 27, 30 to 33 and 37.

Ecological Data: Frequency-8.71, Abundance-0.78, Density-0.47.

Distribution in Gujarat: Throughout on hedges or trailing on ground; common (Shah, 1978).

MARSDENIA R. Br.

About 100 species; tropical and subtropical regions, 1 in GNPS.

***Marsdenia tenacissima* (Roxb.) Moon,** Cat. Pl. Ceylon 21. 1824; Hook. f. Fl. Brit. India 4 : 35. 1883; Cooke, Fl. Pres. Bombay 2 : 230. 1958 (Repr.). Shah, Fl. Guj. 1:427; 1978, Sant & Iranin in Univ. Bombay Bot. Mem. No. 4 : 62 : 1962; Jagtap et N. P. Singh in Fasc. Fl. India 24: 132. 1999. *Asclepias tenacissima* Roxb. Pl. Cor. 3 : 35, t. 240. 1819. Singh, et al Fl. Maha. Dicot. 2: 370. 2000.

Habit : Climbers, extensive or twining shrubs; stems cylindrical, sparingly branched, young branches tomentose. Leaves petiolate; petioles tomentose; lamina broadly ovate, apex acuminate, base cordate, tomentose on both sides. Flowers in large

drooping panicles, peduncles, pedicels and calyx tomentose without; corolla salver – shaped. Follicles ovoid – lanceolate or cylindrical. Seeds broadly ovate.

FLS and FRTS : FLS. April – July FRTS. January - March.

Herbarium No and date of Collection: 744, 10/07/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-7.10, Abundance-1.77, Density-0.63.

Distribution in Gujarat: So far reported in dense forests of Dangs, Vyara, Rajpipla and Vireshwar (North Gujarat); not common (Shah, 1978).

PERGULARIA L.

About 35 species; Africa to India, 1 in GNPS.

Pergularia daemia (Forssk.) Choiv. Result. Sc. Miss. Stefan. Paoli Somal Ital. 1: 115. 1916; Sant & Irani in Univ. Bombay Bot. Mem. No. 4: 74. 1962; Jagtap et N. P. Singh in Fasc. Fl. India 24: 41. 1999. *Asclepias daemia* Forssk. Fl. Aeg. – Arab. 51: 1775; Hook. f. Fl. Brit. India 4 : 20. 1838; Cooke., Fl. Pres. Bombay 2: 219. 1958 (Repr.). Shah, Fl. Guj. 1:429; 1978. Singh, et al Fl. Maha. Dicot. 2: 375. 2000.

Habit: Climbers. Stems terete, branched, densely pubescent. Leaves petiolate, ovate, pubescent, on lower side, acuminate at apex. Flowers pale yellowish –green, drooping, corymbose or racemose; peduncles hairy; pedicels and calyx villous; corolla campanulate, slightly inflated, elliptic, membranous, oblong, pubescent within; corona double. Follicles lanceolate. Seeds ovoid.

FLS and FRTS : March – December.

Herbarium No and date of Collection: 745, 01/11/01.

Local Name: Chamar – dudhali.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 19 to 30, 32, 35 and 36.

Ecological Data: Frequency-15.15, Abundance-0.54, Density-0.46.

Distribution in Gujarat: Throughout, common and abundant (Shah, 1978).

TELOSMA coville.

About 10 species; tropical regions of Old World, 1 in GNPS.

Telosma pallida (Roxb.) Craib in Kew. Bull. 1911. 418. 1911; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4 : 83. 1962; Jagtap et N. P. Singh in Fasc. Fl. India 24 :143. 1999. *Asclepias pallida* contrib. 42. 1834; Hook. f. Fl. Brit. India 4 ; 38. 1883; Cooke. Fl. Pres. Bombay 2 : 229. 1958 (Repr.). Shah, Fl. Guj. 1:430; 1978, Singh, et al Fl. Maha. Dicot. 2: 377. 2000.

Habit : Climbers. Stems branched, cylindric. Leaves petiolate, ovate, sparingly

pubescent when young, apex shortly acuminate, base cordate. Flowers many, pale cream, in umbellate cymes; peduncles and pedicels pubescent; corolla salver – shaped, slightly hairy within; lobes linear.

FLS and FRTS : FLS. August – September FRTS. November - December.

Herbarium No and date of Collection: 746, 29/10/01.

Local Name: Vacheti.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 10 to 13, 15, 18 to 21, 27 to 32, 36 and 37.

Ecological Data: Frequency-13.90, Abundance-1.21, Density-0.86.

Distribution in Gujarat: Throughout on hedges except Kachchh during monsoon (Shah, 1978).

TYLOPHORA R. Br.

About 50 species; tropical regions of Old World and S. Africa, 1 in GNPS.

Tylophora dalzellii Hook. f. Fl. Brit. India 4 : 43. 1883; Cooke, Fl. Pres. Bombay 2 : 227. 1958 (Repr.). Shah, Fl. Guj. 1:431; 1978, Sant & Irani in Univ. Bombay Bot. Mem. No. 4 : 87. 1962; Jagtap & N. P. Singh in Fasc. Fl. India 2 4: 151. 1999. Singh, et al Fl. Maha. Dicot. 2: 378. 2000.

Habit : Twining herbs; stems terete, branched, pubescent when young; glabrous at length. Leaves petiolate, ovate – oblong, apex acute or shortly acuminate, base rounded, ciliolate on margins. Flowers small, many in lateral, umbellate cymes.

FLS and FRTS : FLS. April – November FRTS. July – December.

Herbarium No and date of Collection: 747, 02/06/01.

Local Name: Radarudi.

Distribution and Status in the Study Area: It is found in zone no 10, 11, 16, 19 and 22.

Ecological Data : Frequency-5.76, Abundance-1.81, Density-0.96.

Distribution in Gujarat: Dangs, (Mahegaon-Saputara forest range), rare; also listed from Saurashtra (Shah, 1978).

PERIPLOCACEAE

About 4 genus and 10 species.

HEMIDESMUS R. Br.

A monotypic genus; S.E. Asia and Malesia., 1 in GNPS.

Hemidesmus indicus (L.) Schult. In Roem. & Schult. Syst. Veg. 6 : 126. 1819; Hook. f. Fl. Brit. India 4 : 5. 1883; Cooke, Fl. Pres. Bombay 2 : 210. 1958 (Repr.). Shah, Fl. Guj. 1:433; 1978, Sant. & Iranin in Univ. Bombay Bot. Mem. No. 4 : 96.

1962; Jagtap et N. P. Singh in Fasc. Fl. India 24 : 301. 1999. *Periploca indica* L. Sp. Pl. 211. 1753. Singh, et al Fl. Maha. Dicot. 2: 386. 2000.

Habit : Climbers. Twining; stems terete, swollen at nodes. Leaves petiolate – linear – lanceolate, elliptic – oblong or obovate – oblong, apex acute or apiculate, base rounded. Flowers in axillary, subsessile cymes. Follicles in pairs, slender – long, tapering to a point at apex. Seeds many, elliptic – oblong, ventrally ridged.

FLS and FRTS : July – May.

Herbarium No and date of Collection: 748, 20/08/01. **Photograph:** 121

Local Name: Dudhvel.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-24.28, Abundance-2.52, Density-1.14.

Distribution in Gujarat: Throughout on hedges and in forests, not frequent (Shah, 1978).

LOGANIACEAE

About 29 genera and 600 species; tropical, subtropical, subtropical and temperate regions; 1 genera and 1 species in GNPS.

STRYCHNOS L.

About 190 species; tropical and subtropical regions, 1 in GNPS.

Strychnos potatorum L. f. Suppl. 148. 1782; C. B. Cl. In Hook. f. Fl. Brit. India 4 : 90. 1883; Cooke, Fl. Pres. Bombay 2 : 251. 1958 (Repr.). Shah, Fl. Guj. 1:435; 1978. Singh, et al Fl. Maha. Dicot. 2: 392. 2000.

Habit : Trees, Leaves ovate or elliptic shining. Flowers white, axillary cymes globose, yellow.

FLS and FRTS : June – January.

Herbarium No and date of Collection: 749, 20/01/00.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.57, Abundance-0.15, Density-0.07.

Distribution in Gujarat: Forests of Lunawada and north Gujarat, rare (Shah, 1978).

GENTIANACEAE

About 74 genera and 1200 species; cosmopolitan especially temperate and subtropical regions; 4 genera and 7 species in GNPS.

CANSCORA Lam.

About 30 species; tropical regions of Old World, 1 in GNPS.

Canscora diffusa (Vahl.) R. Br. ex Roem. and Schult. Syst. Veg. 3: 301. 1818; Hook. f. Fl. Brit. India 4: 103. 1883; Cooke, Fl. Pres. Bombay 2: 257, 1958 (Repr. ed). Shah, Fl. Guj. 1:437; 1978, *Gentiana diffusa* Vahl. Symb. Bot. 3: 47. 1794. Singh, et al Fl. Maha. Dicot. 2: 400. 2000.

Habit: Herbs, high, annual, highly branched. Leaves upper sessile, broadly ovate, acute at apex, rounded at base, lower petiolate, elliptic. Inflorescence of lax, diffuse, panicle-cymes. Flowers pink. Capsules long, membranous, narrowly oblong.

FLS and FRTS : September - April.

Herbarium No and date of Collection: 750, 25/04/01. **Photograph:** 122

Local Name: Zinku Kariyatu.

Distribution and Status in the Study Area: It is found in zone no 2 to 9, 15, 16, 17 to 20, 25, 26, 28 to 37.

Ecological Data : Frequency-11.23, Abundance-1.27, Density-0.57.

Distribution in Gujarat: Throughout except Kachchh in damp places (Shah, 1978).

ENICOSTEMA Blume. nom. cons.

Three species; West Indies, Central America, Africa, Madagascar, India, Indonesia and Lesser Sudna Islands, 1 in GNPS.

Enicostemma hyssopifolium (Lam.) Willd. Raynal in Adansonia 2, 9:75. 1969. *Gentiana axillaries* Lam. III. Gen. 487. 1793. *Enicostema hyssopifolium* (Wild) I. C. Verdoorn in Bothlia 7: 462. 1961. *E. littorale* non Bl. 1826, C. B. Cl. In Hook. f. Fl. Brit. India 4: 101. 1883; Cooke, Fl. Pres. Bombay 2: 255. 1958 (Repr.). Shah, Fl. Guj. 1:439; 1978. Singh, et al Fl. Maha. Dicot. 2: 405. 2000.

Habit: Herbs, high, erect, perennial. Leaves sessile, linear-oblong, elliptic-oblong or lanceolate, strongly long. Capsules long, ellipsoid, apiculate with remains of the style.

FLS and FRTS : July - November.

Herbarium No and date of Collection: 751, 30/10/01. **Photograph:** 123

Local Name: Mamejava.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 13 to 18, 22, 24 to 33, 35 and 37.

Ecological Data : Frequency-20.68, Abundance-5.46, Density-3.73.

Distribution in Gujarat: Throughout, mostly in plains among grasses and cultivated fields, common (Shah, 1978).

EXACUM L.

About 25 species; tropical regions of Old World, 4 in GNPS.

Exacum pedunculatum L. Sp. Pl. 112. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4: 97. 1883; Cooke, Fl. Pres. Bombay 2:253. 1958 (Repr.). Shah, Fl. Guj. 1:440; 1978, Klackenberg in Nord. J. Bot. 3: 367. 1983; Garg, Indian Gentianaceae 7. 1988. Singh, et al Fl. Maha. Dicot. 2: 407. 2000.

Habit: Herbs, high, erect; stems quadrangular. Leaves elliptic-oblong or oblong-lanceolate. Inflorescence of terminal and axillary cymes. Flowers blue or pink, Capsules across, globose, smooth, shining.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 752, 30/10/01.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 11 to 14, 20, 21, 22, 24, 25, 29 to 34 and 37.

Ecological Data : Frequency-15.98, Abundance-4.17, Density-3.44.

Distribution in Gujarat: There is a specimen in the herbarium of Sardar patel University collected near about surat, without collector's name.

Exacum petiolare Griseb. in DC. Prodr. 9:46. 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 95. 1883 p. p. (excl. syn); Garg, Indian Gentianaceae 7: 1988. *E. pedunculatum* var. *petiolare* (Griseb.) Trim. Fl. Ceylon 3: 182. 1893; Cooke, Fl. Pres. Bombay 2:253. 1958 (Repr.). Shah, Fl. Guj. 1:440; 1978, Singh, et al Fl. Maha. Dicot. 2: 408. 2000.

Habit: Herbs high, annual, erect; stems quadrangular. Leaves broadly elliptic. Inflorescence of terminal and axillary cymes. Flowers bluish-violet. Capsules across, globose, smooth, shining.

FLS and FRTS : September - December.

Herbarium No and date of Collection: 753, 30/10/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-4.95, Abundance-0.87, Density-0.52.

Distribution in Gujarat: Rajpipla, Pavagadh, Chhotaudepur, Panchmahals, north Gujarat and Saurashtra; rare among grasses (Shah, 1978).

Exacum pumilum Griseb. in DC. Prodr. 9:46 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 98. 1883; Cooke, Fl. Pres. Bombay 2: 254. 1958 (Repr.). Shah, Fl. Guj. 1:440; 1978, Singh, et al Fl. Maha. Dicot. 2: 408. 2000.

Habit: Herbs high, annual, erect; stems tetragonal. Lower leaves long, linear, acute at apex, upper leaves lanceolate. Inflorescence of lax cymes. Flowers blue, long.

Capsules across, subglobose or ovoid.

FLS and FRTS : August - October.

Herbarium No and date of Collection: 754, 29/10/01.

Distribution and Status in the Study Area: It is found in zone no 9, 11, 12, 13, 18, 21, 26, 28 to 31.

Ecological Data : Frequency-7.66, Abundance-0.82, Density-0.47.

Distribution in Gujarat: Bulsar, Dangs and Saurashtra, among grasses (Shah, 1978).

***Exacum tetragonum* Roxb:** Fl. Ind. Ed. Carey & Wall. 1: 413. 1820; C.B.Cl. IN hook. f. Fl. Brit. India 4: 95. 1883; Garg, Indian C.B.Cl. in Hook. f. op. cit. *E. tetragonum* var. *stylosa* (Wall. ex. D. Don) C.B. Cl. In Hook. f. op. cit. *E. perottetii* Griseb. in DC. Prodr. 9: 45. 1845; C. B. Cl. in Hook. f. op. cit. *E. bicolor* Roxb. Fl. - Ind. Op. cit.; C. B. Cl. in Hook. f. op. cit. 96; Cooke, Fl. Pres. Bombay 2: 252. 1958 (Repr.). Singh, et al Fl. Maha. Dicot. 2: 408. 2000.

Habit: Herbs, high, annual, erect; stems quadrangular. Leaves ovate, elliptic or lanceolate, acute or obtuse at apex, sometimes apiculate. Inflorescence of copious, terminal cymes, ellipsoid, smooth, shining, yellowish-brown.

FLS and FRTS : August - February.

Herbarium No and date of Collection: 755, 01/11/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-8.43, Abundance-0.81, Density-0.61.

Distribution in Gujarat: Pavagadh, Bulsar and Dangs, rare (Shah, 1978).

HOPPEA Hayne. ex. Willd.

Two species; S. Asia and Africa, 1 in GNPS.

***Hoppea dichotoma* Heyne. ex. Willd.** in Ges. Naturf. Fr. Neue Schriften 3: 435. 1801; Hook. f. Fl. Brit. India 4: 100. 1883; Cooke, Fl. Pres. Bombay 2: 256, 1958 (Repr.). Shah, Fl. Guj. 1:441; 1978, Singh, et al Fl. Maha. Dicot. 2: 409. 2000.

Habit: Herbs, erect, dichotomously branched; stems Leaves ovate. Flowers pale yellow, in terminal, dichasial cymes. Seeds many, minute, obscurely reticulate.

FLS and FRTS : October - December.

Herbarium No and date of Collection: 756, 26/09/01.

Local Name: Zinku Kariyatan.

Distribution and Status in the Study Area: It is found in zone no 6 to 16, 19 to 22, 24, 28 to 33 and 37.

Ecological Data : Frequency-7.36, Abundance-1.08, Density-0.45.

Distribution in Gujarat: In moist places at many places except Kachchh; not common (Shah, 1978).

BORAGINACEAE

About 156 genera and 2500 species; tropical and temperate regions especially Mediterranean; 3 genera and 8 species in GNPS.

COLDENIA L.

A monotypic genus; tropical and subtropical regions of Old World, 1 in GNPS.

Coldenia procumbens L. Sp. Pl. 125. 1753; Hook. f. Fl. Brit. India 4: 144. 1883; Cooke, Fl. Pres. Bombay 2: 271, 1958 (Repr.). Shah, Fl. Guj. 1:449; 1978, Kazmi in J. Arnold Arbor. 51: 148. 1970. Singh, et al Fl. Maha. Dicot. 2: 416. 2000.

Habit: Spreading herbs, white hairy. Leaves ovate-oblong or obovate-oblong, hairy on both sides, crisped, apex obtuse, base acute, oblique, margins crenate-dentate. Flowers white, wide subsessile, merous; calyx-lobes ovate; corolla lobes long, oblong, spreading. Calyx-lobes ovate; corolla lobes long, oblong, spreading. Drupes long, beaked, lobed and breaking into pyrenes.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 757, 02/06/01.

Local Name: Okharad.

Distribution and Status in the Study Area: It is found in zone no 1, 4, 5, 8, 11, 14, 17, 20, 24, 26, 29, 32, 34 and 36.

Ecological Data : Frequency-10.11, Abundance-5.89, Density-4.49.

Distribution in Gujarat: Throughout in moist grounds (Shah, 1978).

HELIOTROPIUM L.

About 250 species; tropical and temperate regions; 5 in GNPS.

Heliotropium bacciferum Forsk. Fl. Aegpt.-Arad. 38. 1775; S & J 33. *Heliotropium tuberosum* Boiss. Fl. Orient. 4:147. 1879; C 2:278. Shah, Fl. Guj. 1:451; 1978.

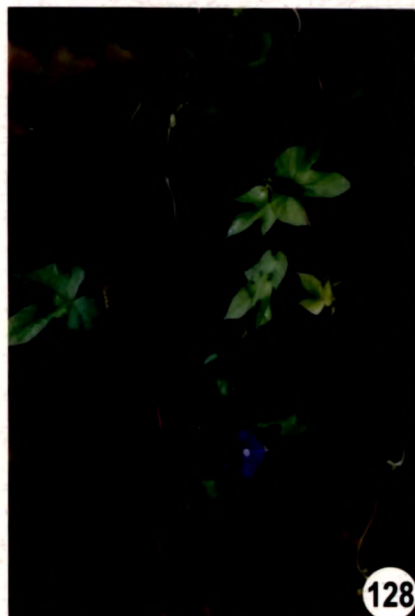
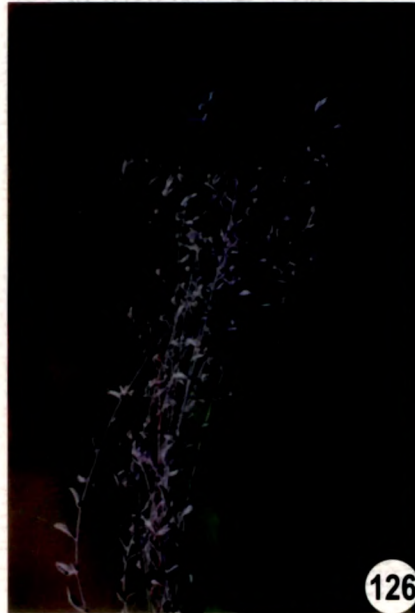
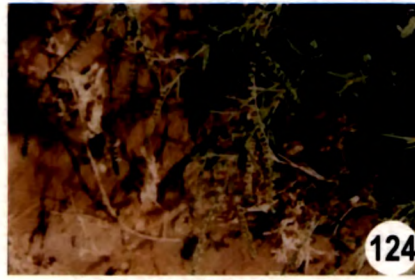
Habit : Erect, rigid, tall, scabrid herbs. Leaves sessile or subsessile, narrowly linear or lanceolate, densely clothed with stiff hairs. Flowers white, in long, unilateral spikes. Nutlets glabrous or softly hairy.

FLS and FRTS : August.

Herbarium No and date of Collection: 758, 17/08/01.

Distribution and Status in the Study Area: It is found in zone no 8, 9,14,15, 24, 25, 35 and 36.

Ecological Data: Frequency-1.62, Abundance-0.20, Density-0.07.



124) *Heliotropium ovalifolium* Forssk., 125) *Trichodesma inaequale* Edgew., 126) *Evolvulus alsinoides* (L.) L., 127) *Ipomoea carnea* Jacq. ssp. *fistulosa* (Mart. ex. Choisy) Austin., 128) *Ipomoea nil* Linn., 129) *Ipomoea pes-tigridis* Linn.

Distribution in Gujarat: Saurashtra and Kutch (Shah, 1978).

Heliotropium ovalifolium Forssk. Fl. Aegypt.-Arab. 38. 1775; C. B. Cl. In Hook. f. Fl. Brit. India 4: 150. 1883; Cooke, Fl. Pres. Bombay 2: 278, 1958 (Repr.). Shah, Fl. Guj. 1:453; 1978, Kazmi in J. Arnold Arbor. 51:178.1970. Singh, et al Fl. Maha. Dicot. 2: 427. 2000.

Habit: Herbs annual, stems and branches clothed with grayish hairs. Leaves elliptic, ovate or oblanceolate appressed hairy on both sides, apex rounded or obtuse, base acute or obtuse Flowers white, in slender, ebracteate, scorpioid cymes.

FLS and FRTS : June - March.

Herbarium No and date of Collection: 759, 19/02/00. **Photograph:** 124

Local Name: Velalun – Hathisundha.

Distribution and Status in the Study Area: It is found in zone no 8, 9,14,15, 24, 25, 35 and 36.

Ecological Data : Frequency-6.91, Abundance-0.45, Density-0.42.

Distribution in Gujarat: Throughout in drying ponds, ditches, cultivated fields etc; common and gregarious (Shah, 1978).

Heliotropium paniculatum (R. Br.) Kazmi in J. Arnold Arbor. 51: 156. 1970. H. Paniculatum R. Br. Prodr. 494. 1810; C. B. Cl. In Hook. f. Fl. Brit. India 4; 150. 1883; Cooke, Fl. Pres. Bombay 2: 279. 1958 (Repr.). Shah, Fl. Guj. 1:453; 1978, Singh, et al Fl. Maha. Dicot. 2: 432. 2000.

Habit : Herbs; stems and branches appressed hairy. Leaves linear, hairy on both sides or glabrous above. Flowers white, in spikes; Fruits globose.

FLS and FRTS : September - October.

Herbarium No and date of Collection: 760, 30/09/01.

Distribution and Status in the Study Area: It is found in the zone no 8, 9, 14, 15, 24, 25, 35 and 36.

Ecological Data : Frequency-4.15, Abundance-0.79, Density-0.29.

Distribution in Gujarat: Saurashtra and Kutch, not common (Shah, 1978).

Heliotropium subulatum (Hochst. Ex DC.) Vatke, Oesterr. Bot. Zeitschr. 25: 166. 1875; Kazmi in Arnold Arbor. 51: 157. 1970. *Tournefortia subulate* Hochst. Ex DC. Prodr. 9: 528. 1845. Shah, Fl. Guj. 1:454; 1978, Singh, et al Fl. Maha. Dicot. 2: 429. 2000.

Habit: Erect perennial herbs; stems and branches hispid hairy. Leaves lanceolate, tubercle-based hairy on both sides, usually narrowed at both ends, lower leaves

petiolate, upper ones sessile. Flowers white or yellowish.

FLS and FRTS : April - May.

Herbarium No and date of Collection: 761, 29/05/01.

Local Name: Pilo Hathsundho.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 7, 8, 9, 12, 15, 16, 18, 24, 25, 27, 28, 29, 31 to 37.

Ecological Data : Frequency-11.26, Abundance-1.25, Density-0.63.

Distribution in Gujarat: In arid and semiarid regions, a weed in waste places : common : seldom found in dry deciduous forests (Shah, 1978).

Heliotropium supinum Linn. Sp. Pl. 130. 1753; C. B. Cl in Hook. f. Fl. Brit. India 4: 149. 1883; Cooke, Fl. Pres. Bombay 2: 275, 1958 (Repr.). Shah, Fl. Guj. 1:454; 1978, Kazmi in J. Arnold Arbor. 51: 179.1970. Singh, et al Fl. Maha. Dicot. 2: 431. 2000.

Habit: Prostrate, much branched, annual herbs; branches thickly clothed with soft hairs. Leaves ovate, obovate or elliptic, soft hairy on both sides, apex subobtuse. Flowers white, subsessile.

FLS and FRTS : August - April.

Herbarium No and date of Collection: 762, 21/04/01.

Local Name: Ghedio Okharad.

Distribution and Status in the Study Area : It is found in zone no 3, 4, 5, 7, 8, 9, 12, 15, 16, 18, 24, 25, 27, 28, 29, 31 to 37.

Ecological Data : Frequency-13.90, Abundance-0.60, Density-0.56.

Distribution in Gujarat: Throughout, in drying moist grounds along margins of ponds, ditches, cultivated fields; common and gregarious (Shah, 1978).

TRICHODESMA R. Br. nom. cons.

About 35 species; tropical and subtropical regions of Old World, 2 in GNPS.

Trichodesma inaequale Edgew. In Asiat. Soc. Bengal 21: 175. 1853. Verdc. in Kew Bull. 44: 700. 1989. *T. amplexicaule* sensu A. DC. In DC. Prodr. 10: 172. 1846 p. p.; C.B.Cl. in Hook. f. Fl. Brit. India 4: 153. 1883. p.p. *T. indicum* var. *amplexicaule* T. Cooke, Fl. Pres. Bombay 2: 215. 1904 [2.282. 1958 (Repr.) Shah, Fl. Guj. 1:456; 1978, p.p. *T. sedgwickianum* Banerjee in Bull. Bot. Soc. Bengal 16: 10 (1962) 1964; Banerjee & Pramanik in Bull. Bot. Surv. India 17: 116, f. A-D. (1975) 1978. Singh, et al Fl. Maha. Dicot. 2: 435. 2000.

Habit: Herbs, high; stem and branches grey hairy. Leaves sessile or subsessile, scabrid on both sides (sparsely above), apex obtuse, base cordate, subamplexicaul.

Flowers pale pink to pale lilac, solitary or few flowered in leaf opposed cymes; calyx upto long, broad and obtuse-auriculate at base; corolla irregular. Fruits of nutlets, smooth.

FLS and FRTS : February - March.

Herbarium No and date of Collection: 763, 20/30/00. **Photograph:** 125

Local Name: Undhafuli.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13 to 19, 21, 22 to 27, 29 to 32, 34 to 37.

Ecological Data : Frequency-20.38, Abundance-0.94, Density-0.60.

Distribution in Gujarat: Throughout (Shah, 1978).

Trichodesma indicum (L.) . Lehm. Pl. Fam. Asperif. 193. 1818; C.B.Cl. in Hook. f. Fl. Brit. India. 4: 153. 1883; Cooke, Fl. Pres. Bombay 2: 281. 1958 (Repr.); Kazmi in J. Arnold Arbor. 52: 516. 1971; Banerjee & Pramanik in Bull Bot. Surv. India 17: 110. (1975) 1978; Verdc. in Kew Bull. 44: 701. 1989. *Borago indica* L. Sp. Pl. 137. 1753. *Trichodesma amplexicaule* Roth, Nov. Sp. Pl. 104. 1821; C.B. Cl in Hook. f. op. cit. p. p. *T. indicum* var. *amplexicaule* (Roth) T. Cooke, Fl. Pres. Bombay 2: 215. 1904 [2: 282.1958 (Repr.)]. Shah, Fl. Guj. 1:456; 1978, Kazmi, op. cit. 518; Banerjee & Pramanik, op. cit. 113. Singh, et al Fl. Maha. Dicot. 2: 435. 2000.

Habit : Annual herbs, high, erect; branches stems sparsely or densely hairy. Leaves ovate-oblong to oblong or ovate, ovate-lanceolate to lanceolate, hairy on both sides, apex acute or obtuse, base auriculate. Flowers pale blue, up to long solitary or in few flower terminal cymes.

FLS and FRTS : October - February.

Herbarium No and date of Collection: 764, 12/12/00.

Local Name: Undhafuli.

Distribution and Status in the Study Area: It is found in zone no 1 to 12, 18, 19 to 22, 24, 25, 30 to 34.

Ecological Data : Frequency-11.00, Abundance-0.52, Density-0.55.

Distribution in Gujarat: Chhotaudepur and Saurashtra, not common (Shah, 1978).

EHRETIACEAE

About 15 genera and 308 species.

CORDIA L.

About 250 species; tropical regions, 3 in GNPS.

Cordia dichotoma Forster. f. Prodr 18. 1786; Sant. In Rec. Bot. Surv. Ind. 16: 163.

1967 (3rd. Rev. ed.); Kazmi in J. Arnold Arbor. 51:141.1970. *C. oblique* Willd. Phytogr. 4. t. 4. 1794; C. B. Cl. In Hook. f. Fl. Brit. India 4: 137. 1883, excl. var. *C. myxa* auct. Plur. Non. L. 1753; C. B. Cl. In Hook. f. op. cit. 136; Cooke, Fl. Pres. Bombay 2: 265. 1958 (Repr.). Shah, Fl. Guj. 1:444; 1978. Singh, et al Fl. Maha. Dicot. 2: 417. 2000.

Habit: Medium sized trees, high; bark rough. Leaves variable, broadly ovate, scabrous above, apex obtuse, base rounded or cordate. Flowers white, polygamous; male flowers larger than bisexual ones in cymose-panicles; calyx irregularly splitting; corolla-lobes oblong. Berries long, ovoid, yellow or pink, glossy, supported by accrescent calyx, pulp mucilaginous, edible.

FLS and FRTS : February - June.

Herbarium No and date of Collection: 765, 29/05/01.

Local Name: Vad Gundo.

Distribution and Status in the Study Area: It is found in zone no 4, 6, 7 to 14, 17 to 20, 25, 26, 27, 30, 31, 32, 34 and 36.

Ecological Data: Frequency-8.43, Abundance-0.73, Density-0.16.

Distribution in Gujarat: Throughout except Kachchh (Shah, 1978).

Cordia gharaf (Forssk.) Ehrenb & Asch. In Bitszung. Bericht Ges. Naturf. Fl. Berl. 46. 1879; ant. & Wagh in Bull. Bot. Surv., India 5: 106. (1963) 1964; Kazmi in J. Arnold Arbor. 51: 140. 1970. *Cornus gharaf* Forssk. Fl. Aeg-Arab. 94. 1775. *Cordia rothii* R. & S. Syst. Veg. 4: 798. 1819; C. B. Cl. In Hook. f. Fl. Brit. India 4: 138. 1888; Cooke, Fl. Pres. Bombay 2: 268. 1958 (Repr.). Shah, Fl. Guj. 1:445; 1978. Singh, et al Fl. Maha. Dicot. 2: 419. 2000.

Habit : Small trees, high. Leaves oblanceolate to oblong, glabrescent on both sides, apex subacute, base rounded to acute. Flowers white, in terminal or axillary cymes.

FLS and FRTS : April - October.

Herbarium No and date of Collection: 766, 10/07/00.

Local Name: Nana Gunda.

Distribution and Status in the Study Area: It is found in zone no 4 to 13, 18, 20, 21, 22, 24 to 27, 29 to 32 and 34.

Ecological Data: Frequency-8.37, Abundance-0.66, Density-0.20.

Distribution in Gujarat: Throughout in plains; not common (Shah, 1978).

Cordia monoica Roxb. Pl. Cor. 1:43. t. 58. t. 58. 1795; FBI 4:137; C 2:267; S & J 33. Shah, Fl. Guj. 1:446; 1978.

Habit : Trees. Leaves ovate or ovate-elliptic. Flowers white, in terminal, tomentose,

paniculate cymes.

FLS and FRTS : **August - September.**

Herbarium No and date of Collection: 767, 27/09/01.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 11, 13, 17, 18, 25, 26, 27 and 30.

Ecological Data: Frequency-2.70, Abundance-0.21, Density-0.10.

Distribution in Gujarat: Saurashtra and Kutch, in hedges, often planted in gardens (Shah, 1978).

EHRETIA P. Browne.

About 50 species; tropical and subtropical regions, 1 in GNPS.

Ehretia laevis Roxb. Pl. Cor. 1: 42. t. 55. 1795; & Fl. Ind. 2:341. 1824; C. B. Cl. in Hook. f. Fl. Brit. India 4:141. 1883; Cooke, Fl. Pres. Bombay 2:269. 1958 (Repr.). Shah, Fl. Guj. 1:447; 1978, Kazmi in J. Arnold Arbor. 51:147. 1970. Singh, et al Fl. Maha. Dicot. 2: 424. 2000.

Habit: Small trees, high; young parts glabrous or glabrescent. Leaves ovate-elliptic or obovate or even suborbicular, glabrous above, glandular pubescent beneath, apex acute, acuminate or obtuse to emarginated, base truncate to attenuate. Flowers white, sessile or subsessile in unilateral, compound spikes; calyx long, hairy; corolla long, subrotate, drupes across, orange when mature.

FLS and FRTS : March - July.

Herbarium No and date of Collection: 768, 26/04/01.

Local Name: Vadvadiyo.

Distribution and Status in the Study Area: It is found in zone no 2 to 14, 17, 18, 19, 25, 26, 27, 29 to 32, 34 to 36.

Ecological Data: Frequency-9.43, Abundance-1.10, Density-0.32.

Distribution in Gujarat: At many places except North Gujarat and Dharampur; not common (Shah, 1978).

CONVOLVULACEAE

About 58 genera and 1650 species; cosmopolitan especially subtropical regions; 6 genera and 17 species in GNPS.

ARGYREIA Lour.

About 90 species; Indo-Malesia to Australia, 1 in GNPS.

Argyrea sericea Dalz & Gibs. Bombay Fl. 169. 1861; C. B. Cl. In Hook, f. Fl. Brit. India 4: 188. 1883; Cooke, Fl. Pres. Bombay 2: 326. 1958 (Repr.). Shah, Fl. Guj.

1:460; 1978. Singh, et al Fl. Maha. Dicot. 2: 446. 2000.

Habit: Herbs, large, silky all over. Leaves broadly ovate, strigose above, densely silky beneath, apex acute, base cordate, Flowers subcapitate cymes.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 769, 12/12/00.

Local Name: Shankhavali.

Distribution and Status in the Study Area: It is found in zone no 4 to 10, 14 to 19, 22 to 31, 35 and 37.

Ecological Data : Frequency-15.92, Abundance-5.14, Density-4.05.

Distribution in Gujarat: In deciduous forests: common (Shah, 1978).

CONVOLVULUS L.

About 250 species; cosmopolitan especially temperate regions, 2 in GNPS.

Convolvulus prostrates Forssk. Fl. Aegypt-Arab, 203. 1775; Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 23. f. 3, D-G. 1979. *C. microphyllus* Sieb. Ex Spreng. Syst. Veg. 1:611. 1845; C. B. Cl. in Hook. f. Fl. Brit. India 4: 215. 1883; Cooke, Fl. Pres. Bombay 2: 301. 1958 (Repr.). Shah, Fl. Guj. 1:462; 1978, 450

Habit: Herbs, high, perennial with a woody base; branches fulvous-villous. Leaves linear to oblong, obtuse to mucronate at apex, villous, mid-vein prominent beneath. Flowers in flowered axillary heads; peduncles long; bracts linear to oblanceolate, bracteoles filiform; long, villous, ovate-lanceolate; corolla pinkish or white, long; stigma times longer than style, filiform. Capsules scarious, subglobose, across. Seeds brownish-black long.

FLS and FRTS : November - March.

Herbarium No and date of Collection: 770, 20/01/00.

Local Name: Shankhavali.

Distribution and Status in the Study Area: It is found in zone no 1 to 12, 14, 17 to 20, 24 to 30, 34 to 36.

Ecological Data : Frequency-16.57, Abundance-0.97, Density-2.24.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Convolvulus rotlerianus Choisy. Conv. Or. In Mem. Soc. Phys. Geneve 95. 1834; C.B.Cl. in Hook. f. Fl. Brit. India 4: 219. 1883; Cooke, Fl. Pres. Bombay 2: 301. 1958 (Repr.). Shah, Fl. Guj. 1:463; 1978, Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126:26, f. 4, D-F. 1979. Singh, et al Fl. Maha. Dicot. 2: 450. 2000.

Habit: Herbs, high, diffusely branched; branches appressed-pilose. Leaves linear or oblong-lanceolate, base attenuate, apex acute. Flowers axillary, seeds brownish-

black.

FLS and FRTS : September - October.

Herbarium No and date of Collection: 771, 27/09/01.

Local Name: Ubhi – Shankhankhawali.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-1.62, Abundance-0.20, Density-0.07.

Distribution in Gujarat: Pavagadh; rare (Shah, 1978).

EVOLVULUS L.

About 100 species; subtropical and tropical America extending to Old World, 2 in GNPS.

Evolvulus alsinoides L. Sp. Pl. (ed. 2) 392. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 4: 220. 1883; Cooke, Fl. Pres. Bombay 2: 297, 1958 (Repr.). Shah, Fl. Guj. 1:464; 1978, Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 32, f. 5, A-B. 1979; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1:309. 1980. *Convolvulus alsinoides* L. Sp. Pl., 157. 1753. Singh, et al Fl. Maha. Dicot. 2: 453. 2000.

Habit: Herbs, suffrutescent, prostrate or suberect, pubescent. Leaves elliptic-oblong, subsessile, appressed silky, acute to obtuse at base and also at apex. Flowers axillary, pedunculate in to several flowered dichasia or solitary; calyx lanceolate, acute or acuminate, long, pubescent; corolla rarely white, across. Fruits capsular, long ovoid, seeds black.

FLS and FRTS : July - November.

Herbarium No and date of Collection: 772, 23/09/01. **Photograph:** 126

Local Name: Kali Shankhawali.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6 to 16, 18 to 22, 25 to 31, 33 to 35.

Ecological Data : Frequency-18.86, Abundance-1.01, Density-0.74.

Distribution in Gujarat: Throughout, among grasses; common (Shah, 1978).

Evolvulus nummularius (L.) L. Sp. Pl. (ed. 2) 391. 1762; WI 3:234. *Convolvulus nummularius* L. Sp. Pl. 157. 1753. Shah, Fl. Guj. 1:464; 1978.

Habit : Herbs. Radially spreading herbs, rooting at nodes. Leaves broad nearly orbicular, glabrous Flowers across, axillary, solitary. Capsule nearly globose, glabrous.

FLS and FRTS : July - December.

Herbarium No and date of Collection: 773, 14/12/00.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 6 to 16, 18 to

22, 25, 26, 27, 29, 30, 31, 33, 35 and 37.

Ecological Data : Frequency-57.24, Abundance-8.68, Density-5.18.

Distribution in Gujarat: Bulsar and Chhotaudepur; not common (Shah, 1978).

IPOMOEA L. nom. cons.

About 500 speices; cosmopolitan; 9 in GNPS.

Ipomoea aquatica Forsk. Fl. Aegypt.-Arab. 44. 1775; C. B. Cl. in Hook. f. Fl. Brit. India 4: 210. 1883; Cooke, Fl. Pres. Bombay 2: 315, 1958 (Repr.). Shah, Fl. Guj. 1:468; 1978, Ooststr. In Steenis, Fl. Males. Austin Ghazanfar in Nasir Ali Fl.; W. Pak. 126: 38, f 5,f, 5, C-D. 1979. Singh, et al Fl. Maha. Dicot. 2: 456. 2000.

Habit: Herbs stems thick, hollow. Leaves ovate, triangular or oblong-lanceolate. Inflorescence axillary, solitary seeds densely soft-pilose or glabrous.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 774, 15/04/00.

Local Name: Nar – ni – vel.

Distribution and Status in the Study Area: It is found in zone no 8, 9, 14, 15, 24, 25, 26, 35 and 36.

Ecological Data : Frequency-2.65, Abundance-0.72, Density-0.30.

Distribution in Gujarat: Throughout, in moist ground along margins of ponds and ditches or floating; common (Shah, 1978).

Ipomoea coptica (L.) Roth. ex R. & S. Syst. 4: 208. 1819; Ostrtr. in Blumea 3: 544. 1940 et in Steenis, Fl. Males. 1, 4(4): 479. 1953; Naik, Fl. Marathwada 1: 587. 1998. *Convolvulus copticus* L. Mant. 2, App. 559. 1771. *Ipomoea dissecta* Willd. Phytogr. 5, t. 2. 1794; C. B. Cl. in Hook. f. Fl. Brit. India 4: 200. 1883; Cooke, Fl. Pres. Bombay 2: 315. 198 (Repr.). Shah, Fl. Guj. 1:469; 1978, Singh, et al Fl. Maha. Dicot. 2: 460. 2000.

Habit: Annual climbers. stems slender, trailing or twining, glabrous. Leaves orbicular in outline, digitate, with 5 coarsely dentate or deeply and irregularly. Inflorescence axillary. Seeds densely grey tomentose.

FLS and FRTS : November - December.

Herbarium No and date of Collection: 775, 20/11/00.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 16, 21, 22, 24, 28, 31, 32, 34 to 36.

Ecological Data: Frequency-12.08, Abundance-1.75, Density-0.38.

Distribution in Gujarat: Throughout on hedges and low shrubs or trees; common (Shah, 1978).

Ipomoea dichroa (R. & S.) Choisy. in DC. Prodr. 9:364. 1845; WI 5:253; S & J 34. *Convolvulus dichora* R. & S. Syst. Veg. 4:263. 1819. *Convolvulus pilosus* auct non houtt. 1777; FBI 4:213; C 2:313. Shah, Fl. Guj. 1:469; 1978.

Habit : Extensive, patently hairy twiners. Leaves broadly ovate, entire or shallowly 3-lobed, petiolate. Flowers in axillary, lax, braceale cymes. Capsule globose, glabrous. Seed; oblong or subglobose, Seeds oblong or subglobose, light-greyish-brown to almost black, covered with long, white hairs.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 776, 19/11/00.

Distribution and Status in the Study Area: It is found in zone no 2 to 10, 13, 18 to 21, 25 to 32, 35 and 36.

Ecological Data: Frequency-9.80, Abundance-1.35, Density-0.26.

Distribution in Gujart: Throughout, on hedges and low shrubs or trees; common (Shah, 1978).

Ipomoea carnea Jacq. Subsp. ***fistulosa*** (Mart. Ex Choisy) Austin in Taxon 26: 237, f. 2. 1977 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 322. 1980. *I. fistulosa* Mart ex Choisy in DC. Prodr. 9: 349. 1845; Ooststr. in Steenis, Fl. Males. 1, 4: 485. 1953. *I. carnea* Jacq. Enum. Pl. Carib. 13. 1760; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr.). Shah, Fl. Guj. 1:470; 1978, Singh, et al Fl. Maha. Dicot. 2: 459. 2000.

Habit: Shrubs, high, erect or ascending; young branches densely pubescent, glabrescent. Leaves ovate or ovate-oblong, base cordate to truncate, apex acuminate, puberulent mainly on nerves beneath midrib below with 2 small glands at base of the leaf blade, lateral nerves pairs, secondary nerves parallel. Inflorescence in axillary and terminal, many flowered cymes; peduncles stout; calyx subequal, orbicular, long, puberulent; corolla pink or pale lilac, tubular to funnel shaped, long. Capsules ovoid, mucronate, long, pale brown, valved. Seeds black, micro-villose.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 777, 16/04/00. **Photograph**: 127

Local Name: Nasado.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 10, 11, 15, 16, 17, 21, 22, 24, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-8.40, Abundance-0.34, Density-0.09.

Distribution in Gujart: Throughout on hedges and low shrubs or trees in forests; native of America (Shah, 1978).

Notes: Austin (1977) discussed on the nomenclature of *I. fistulosa* indicating that *I. carnea* subsp. *fistulosa* is the taxon growing in the tropics of the old world and *I. carnea* subsp. *Carnea* Jacq. (op.cit.) growing in Central and South America with distinct, cordate to round leaves. Further as the taxon growing in India was also once introduced into the tropics of old world from the Central and South America region (types of both the species from South America & Brazil), it is very likely that both the leaf forms nearly acuminate or triangular and cordate to rounded may be growing in a mixed condition in India and other parts of the tropics of the old world.

***Ipomoea muricata* (L.) Jacq.** Cooke, Fl. Pres. Bombay 2: 322. 1958. Repr., Shah, Fl. Guj. 1:471; 1978. Singh, et al Fl. Maha. Dicot. 2: 472. 2000.

Habit : Twiners, annuals with, milky juice; stems herbaceous, terete or angular, muricated. Leaves orbicular or broadly ovate. Base cordate with broadly rounded lobes, apex acuminate with a mucronulate column; petioles muricated or glabrous. Inflorescence one-few-flowered cymes; peduncles muricated, smooth thickened towards calyx; calyx outer ones ovate-oblong, more or less plicate at the top, inner ones obtuse or slightly emarginated, distinctly awned; corolla funnel to salver shaped with narrow, cylindric tube. Capsules ovoid. Seeds glabrous, black.

FLS and FRTS : January - March.

Herbarium No and date of Collection: 778, 22/02/00.

Local Name: Bhamardi.

Distribution and Status in the Study Area: It is found in the zone no 6 to 8, 11 to 14, 18, 21, 23, 24, 27, 29, 32, 33 and 37.

Ecological Data: Frequency-8.43, Abundance-0.28, Density-0.25.

Distribution in Gujarat: Throughout on hedges; common (Shah, 1978).

***Ipomoea nil* (L.) Roth.** Catal. Bot. 1: 36. 1797; Ooststr. In Steenis, Fl. Males. 1, 4: 465. 1953; Austin in Dassan., Fosb. Rev. Handb. Fl. Ceylon 1: 332. 1980. *Convolvulus nil* Linn. Sp. Pl. ed. 2. 219. 1762; *Ipomoea hederacea* Jacq. 1786; C.B.Cl. in Hook f Fl. Brit India 4: 199. 1883; Cooke, Fl. Pres. Bombay 2: 321. 1958, Repr., Shah, Fl. Guj. 1:471; 1978, Singh, et al Fl. Maha. Dicot. 2: 465. 2000.

Habit: Twiners, annuals; stems bristly-pilose. Leaves ovate, base cordate, 3-lobed, apex acuminate, mostly adpressed pilose on both sides; petioles bristly. Flowers solitary or in lax, few flowered cymes; peduncles long; pedicels long; calyx linear-lanceolate, alternate at apex, densely pilose at base; corolla magenta coloured, long, funnel-shaped. Capsules ovoid to globular. Seeds long, black with grey pubescence.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 779, 28/10/00. **Photograph:** 128

Local Name: Kaladana.

Distribution and Status in the Study Area: It is found in zone no 1 to 13, 16 to 22, 24 to 29, 33 to 37.

Ecological Data: Frequency-10.06, Abundance-0.56, Density-0.27.

Distribution in Gujarat: Throughout, on hedges and among grasses; common (Shah, 1978).

Ipomoea pes-tigridis Linn. Sp. Pl., 162. 1753; *Ipomoea pes-tigridis* var. *hepaticifolia* (L.) C. B. Clarke in Hook. f. Fl. Brit. India 4: 204. 1883; Cooke, Fl. Pres. Bombay 2: 320, 1958 (Repr.). Shah, Fl. Guj. 1:472; 1978, Ooststr. in J. Econ. Tax. Bot. 3: 811. (1982) 1983. Singh, et al Fl. Maha. Dicot. 2: 468. 2000.

Habit: Large shrubby climbers. Leaves ovate-elliptic, shallowly cordate with rounded or retuse base. Flowers yellow, flowered cymes.

FLS and FRTS : February.

Herbarium No and date of Collection: 780, 21/02/00. **Photograph:** 129

Local Name: Vaghpadi.

Distribution and Status in the Study Area: It is found in zone no1 to 12, 14 to 18, 24 to 37.

Ecological Data: Frequency-6.10, Abundance-0.51, Density-1.28.

Distribution in Gujarat: Throughout on hedges and among grasses in waste lands; common (Shah, 1978).

Ipomoea quamoclit Linn. Sp. Pl. 159. 1753; C.B.CL. in Hook. f. Fl. Brit. India 4: 199. 1883; Naik, Fl. Marathwada 1: 593. 1998. *Qyamoclit vulgaris* Choisy in Mem. Soc. Phys. Hist. Nat. Geneva 6: 434. 1883; Cooke, Fl. Pres. Bombay 2: 331. 1958 (Repr.). Shah, Fl. Guj. 1:473; 1978. Singh, et al Fl. Maha. Dicot. 2: 486. 2000.

Habit: Twining climbers; stems glabrous. Leaves pinnatipartite to midrib, with pairs of linear segments. Flowers in axillary, few flowered cymes; sepals oblong-spathulate, long; corolla scarlet tubular- funnel-shaped, tube glabrous, lobes ovate, mucronulate. Capsules ovoid. Seeds ovoid-oblong, dark brown, minutely hairy.

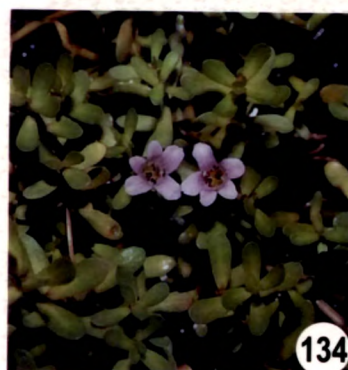
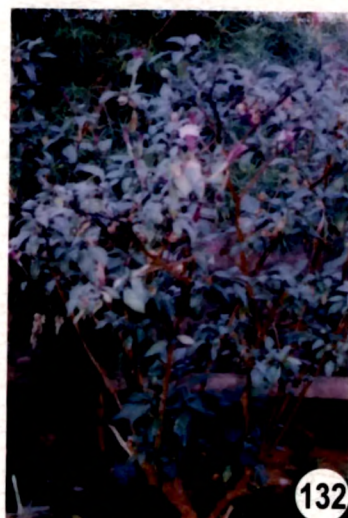
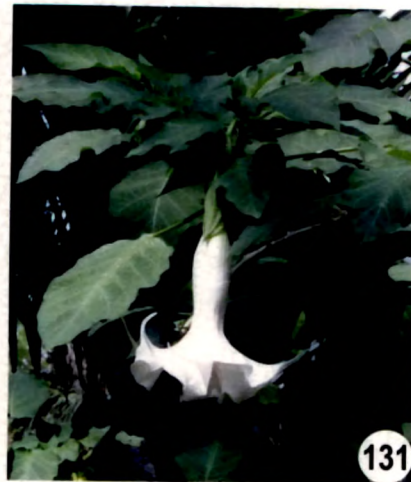
FLS and FRTS : September - December.

Herbarium No and date of Collection: 781, 25/11/00.

Local Name: Ganeshvel.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 8, 9, 10, 13, 14, 15, 20, 21, 22, 24, 26, 27, 31 to 34.

Ecological Data: Frequency-9.41, Abundance-0.66, Density-0.70.



130) *Ipomoea sinensis* (Des. V.) Choisy., 131) *Datura innoxia* Mill., 132) *Datura metel* L., 133) *Solanum virginianum* L., 134) *Bacopa monnieri* (L.) Wettst., 135) *Striga gesnerioides* (Willd.) Vatke.

Distribution in Gujarat: Throughout, an ornamental or escape, on hedges (Shah, 1978).

Ipomea sinensis (Desv.) Choisy in Mem. Phys. Soc. Geneve 6: 459. 1834. *Convolvulus chinensis* Desv. in Lam. Encycl. 3: 557. 1791. *Ipomoea calycina* C.B. Cl. in Hook. f. Fl. Brit. India 4: 201. 1883; Cooke, Fl. Pres. Bombay 2: 311. 1958 (Repr.). Shah, Fl. Guj. 1:474; 1978, Singh, et al Fl. Maha. Dicot. 2: 471. 2000.

Habits: Herbs, perennial, twining; stems sparingly clothed with long, spreading hairs. Leaves ovate, base cordate, apex acute, entire along margins. Hairy or nearly glabrous. Inflorescence of few flowered cymes. Seeds villous, margins with long, silky hair.

FLS and FRTS : October - November.

Herbarium No and date of Collection: 782, 20/11/00. **Photograph:** 130

Local Name: Dholi – fudardi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-4.34, Abundance-0.96, Density-0.45.

Distribution in Gujarat: Throughout on hedges (except Kutch) ; Common (Shah, 1978).

MERREMIA Dennst. ex. Endl. nom. cons.

About 70 species; tropical regions; 2 in GNPS.

Merremia aegyptia (L.) Urb. Symb. Antill. 4: 505. 1910; Ooststr. in Steenis, Fl. Males. 1, 4: 448. 1953; Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 54 f. 7, B-C. *Ipomoea aegyptia* L. Sp. Pl. 162. 1753. *I. pentaphylla* (L) Jacq. Coll. Bot. 2: 297. 1788; C. B. Cl. in Hook f. Fl. Brit. India 4: 202. 1883. Cooke, Fl. Pres. Bombay 2: 308. 1958 (Repr.). Shah, Fl. Guj. 1:477; 1978, Singh, et al Fl. Maha. Dicot. 2: 474. 2000.

Habit : Herbs, climbing, hirsute with long, erect or suberect, yellowish trichomes. Leaves palmately compound; leaflets elliptic, entire or dentate at margins, apex acute to acuminate, sparsely pubescent to glabrous; petioles slightly slender, long. Inflorescence of axillary cymes; calyx oblong, long corolla white, funnel shaped, long. Capsules subglobose, across, subtended and partially surrounded by the calyx. Seeds brown.

FLS and FRTS : July - October.

Herbarium No and date of Collection: 783, 12/12/00.

Local Name: Panch Panni Fundardi.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 7, 9, 10, 11, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32 to 36.

Ecological Data : Frequency-16.43, Abundance-2.11, Density-1.41.

Distribution in Gujarat: Throughout in plans, but not common (Shah, 1978).

Merremia gangetica (L.) Cufod. in Bull. Jard. Bot. Jahrb. Brux. Suppl. 31: 743. 1961. *Convolvulus gangeticus* L. in Torner, Cent Pl. 2: 9. 1756. *Ipomoea reniformis* Choisy in Mem. Soc. Phys. Geneve 6: 446. 1833; C.B. Cl. in Hook. f. Fl. Brit. India 4: 206. 1883; *Merremia emarginata* (Burm. f.) Hall. f. in Bot Jahrb. 16:552. 1893; Cooke, Fl. Pres. Bombay 2: 307, 1958 (Repr.). Shah, Fl. Guj. 1:478; 1978, Naik, Fl. Marathwada 1: 598. 1998. Singh, et al Fl. Maha. Dicot. 2: 475. 2000.

Habit: Herbs, perennial, Prostrate, rooting at nodes, sparsely hairy or glabrescent. Leaves reniform, base cordate with broadly rounded lobes, apex emarginated, coarsely crenate or entire, glabrous or sparsely appressed pilose;. Flowers axillary solitary flowered cymose clusters. Seeds grayish – brown, dotted.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 784, 23/01/00.

Sanskrit Name: Trivrat, Tripura, Nishoth.

Local Name: Undardi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 7, 9 to 12, 14, 15, 17, 19, 21, 24 to 29, 35 to 37.

Ecological Data : Frequency-12.38, Abundance-0.87, Density-0.42.

Distribution in Gujarat: Throughout, in drying moist ground (Shah, 1978).

RIVEA Choisy.

Four species; Indo-Malesia, 1 in GNPS.

Rivea hypocrateriformis (Desr.) Choisy in Mem. Soc. Phys. Geneve 6 : 408. 1834; C. B. Cl. In Hook. f. Fl. Brit. India 4 : 184. 1883; Cooke, Fl. Pres. Bombay 2 : 323. 1958 (Repr.). Shah, Fl. Guj. 1:481; 1978, Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126. 60, t. 8, D – E1979. *Convolvulus hypocrateriformis* Desr. In Lam. Encycl. 3 : 561. 1792. Singh, et al Fl. Maha. Dicot. 2: 480. 2000.

Habit : Climbers, woody; stems pubescent. Leaves rounded, cordate at base, apex obtuse, mostly glabrous above, densely appressed pubescent below. Flowers usually solitary, occasionally subspicate; calyx unequal, ovate – elliptic, obtuse at apex, densely villose; corolla white, salverform. Capsules globose, dark brown. Seeds minutely pitted.

FLS and FRTS : June – September.

Herbarium No and date of Collection: 785, 23/06/01.

Local Name: Fang.

Distribution and Status in the Study Area: It is found in zone no 2, 5, 6, 8, 11, 13, 17, 18, 19, 25, 28, 29, 30, 36 and 37.

Ecological Data: Frequency-5.86, Abundance-0.84, Density-0.69.

Distribution in Gujarat: Throughout, on hedges; common (Shah, 1978).

CUSCUTACEAE

1 genus and 2 species.

CUSCUTA L.

About 145 species; cosmopolitan, 2 in GNPS.

Cuscuta chinensis Lam. Encycl. 2: 229. 1786; C. B. Clarke in Hook. f. Fl. Brit. India 4: 226. 1883; Cooke, Fl. Pres. Bombay 2: 293, 1958 (Repr.). Shah, Fl. Guj. 1:481; 1978, Sant. & Patel in J. Bombay Nat. Hist. Soc. 54: 710, f. C. 1-7 157. *C. hyalina* Wight, Ic. t. 137. 1848 & Illus. t. 1686, f. 12. 1850 non Roth, 1821; Yuncker in Mem. Torr. Bot. Club 18: 209, f. 80, A-G. 1932. Singh, et al Fl. Maha. Dicot. 2: 491. 2000.

Habit: Climbers. Stems slender, filiform. Flowers white or pale yellow long or slightly longer, shortly pedicellate or sessile, braeteate in compact few – flowered clusters; calyx loosely fitting round corolla, as long as corolla tube, fleshy, lobes equal or slightly unequal; corolla urceolate or globular, acute, as long as or slightly longer than corolla tube, spreading; stamens shorter than corolla lobes, filaments as long as or longer than ovate anthers, infrastaminal scales reaching up to staminal filaments. Capsules across, depressed globose. Seeds brown, minutely foveolate.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 786, 29/10/00.

Sanskrit Name: Amarvela, Antravallii.

Local Name: Amarvel.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 16, 21, 22, 24, 28, 31, 35 to 37.

Ecological Data: Frequency-6.43, Abundance-0.78, Density-0.32.

Distribution in Gujarat: Throughout in plains; but not common (Shah, 1978).

Cuscuta reflexa Roxb. Pl. Cor. 2: 3. t. 104. 1799; Hook. f. Fl. Brit. India 4: 225. 1883; Cooke, Fl. Pres. Bombay 2: 292, 1958 (Repr.). Shah, Fl. Guj. 1:482; 1978, Yuncker in Mem. Torr. Bot. Club 18: 259, f. 130 & 130, A-F. 1932; Sant. & Patel in J. Bombay Nat. Hist. Soc. 54: 712, f. A, 1-7 1957; P.K. Bhattacharya & S. K. Mukerjee in Ind. J. For. 1: 162. 1978. Singh, et al Fl. Maha. Dicot. 2: 492. 2000.

Habit: Twiners; stems greenish – yellow, coarsely terete, verrucose with red marks.

Flowers long, shortly pedicellate, bracteate in cymose or paniculate cluster, pedicels, fleshy, verrucose; bracts 1 mm long. Broadly triangular; calyx cupulate, fleshy, lobes subequal. Fleshy verrucose outside; corolla white, tubular, fleshy, margins wavy, stamens somewhat shorter than corolla lobes, filaments short, anthers oblong. Intrastaminal scales incurved with multicellular fimbriae. Capsules globose – conical, apiculate circumscissile. Seeds prostrate, minutely foveolate, hilum a transverse scar.

FLS and FRTS : FLS. November – February FRTS. April - May.

Herbarium No and date of Collection: 787, 20/01/00.

Sanskrit Name: Amarvela, Akashvallii.

Local Name: Amarvel.

Distribution and Status in the Study Area: It is found in zone no 3, 6, 16, 24, 28, 30 and 36.

Ecological Data: Frequency-4.48, Abundance-0.37, Density-0.13.

Distribution in Gujarat: Throughout, very common (Shah, 1978).

SOLANACEAE

About 145 species; cosmopolitan, 2 in GNPS.

CAPSICUM L.

About 1 species, 1 in GNPS.

Capsicum annuum L. Sp. Pl. 188. 1753; Cooke. Fl. Pres. Bombay 2 : 347. 1958 (Repr.). Shah, Fl. Guj. 1:483; 1978, Deb in J. Econ Tax. Bot. 1 : 35. 1980. Singh, et al Fl. Maha. Dicot. 2: 510. 2000.

Habit : Herbs, erect. Leaves ovate – lanceolate. Flowers solitary, white. Berries red when ripe. Seeds orbicular, flat.

FLS and FRTS : July – August.

Herbarium No and date of Collection: 788, 30/05/01.

Sanskrit Name: Katuvira, Pitkarini.

Local Name: Marchi.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 10, 11, 15, 16, 21, 24, 28, 31 to 37.

Ecological Data : Frequency-2.14, Abundance-0.44, Density-0.12.

Distribution in Gujarat: Cultivated throughout, very seldom an escape (Shah, 1978).

CESTRUM L.

About 2 species, 2 in GNPS.

Cestrum diuum L. Sp. Pl. 191. 1753; Bailey, Man. Cult. Pl. Ed. 2, 874. 1949 ; Deb in J. Econ. Tax. Bot. 1: 37. 1980. Shah, Fl. Guj. 1:484; 1978, Singh, et al Fl. Maha. Dicot. 2: 512. 2000.

Habit : shrubs. Leaves elliptic – oblong or elliptic – lanceolate, membranous, thinly hairy beneath. Flowers ivory – white, terminal panicles. Berries deep – purple or nearly black.

FLS and FRTS : Throughtout the year.

Herbarium No and date of Collection: 789, 22/01/00.

Local Name : Din ka raja.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 16, 21, 22, 24, 28, 32, 35 and 36.

Ecological Data: Frequency-0.66, Abundance-0.20, Density-0.15.

Distribution in Gujarat : Planted in gardens (Shah, 1978).

Cestrum nocturnum L. Sp. Pl. 191. 1753; Bailey, Man. Cult. Pl. Ed. 2, 874. 1949. Shah, Fl. Guj. 1:484; 1978, Singh, et al Fl. Maha. Dicot. 2: 512. 2000.

Habit : Shrubs, erect, much branched, branchlet angled. Leaves oblong – ovate to elliptic, acuminate at apex. Flowers in axillary or terminal, cymose panicles, sweet – scanted. Berries ovoid. Seeds numerous, compressed.

FLS and FRTS : November – February.

Herbarium No and date of Collection: 790, 11/02/01.

Local Name: Ratrani.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 13, 16, 17, 21, 22, 24, 25, 26, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-9.55, Abundance-0.66, Density-0.27.

Distribution in Gujarat: Planted ; occasionally an escape (Shah, 1978).

DATURA L.

About 8 species; S. & N. America but widely naturalized elsewhere, 2 in GNPS.

Datura innoxia Mill. Gard. Dict. ed. 8. n. 5. 1768; Sant. in J. Bombay nat. Hist. Soc. 47: 659. 1948; Avery et al. in Blakeslee, Genus Datura 28, f. 10. 1959; Deb in J. Econ Tax. Bot. 1: 37. 1980 *D. metel* sensu Sims in Curtis, Bot. Mag 35: t. 1440. 1812 non L. 1753; C.B. Cl. in Hook. f. Fl. Brit India 4: 243. 1883; Cooke, Fl. Pres. Bombay 2: 344. 1958 (Repr.). Shah, Fl. Guj. 1:485; 1978. Singh, et al Fl. Maha. Dicot. 2: 495. 2000.

Habit: Undershrubs, tall. Leaves ovate, very unequal sided at base, margins dentate. Flowers white, solitary in front of branches. Capsules globose, clothed with weak

long spines. Seeds many, reniform.

FLS and FRTS : September – March.

Herbarium No and date of Collection: 791, 23/01/00. **Photograph:** 131

Sanskrit Name: Dhustura, Unmat, Bahanvallabh.

Local Name: Dhaturu.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 15, 21, 28, 31, 35 and 37.

Ecological Data : Frequency-1.62, Abundance-0.20, Density-0.07.

Distribution in Gujarat: Throughout, scattered or subgregarious; occasional (Shah, 1978).

Datura metel L. Sp. Pl. 179. 1753; Sant in J. Bombay Nat. Hist. Soc, 47: 657. 1948; Avery et al. in Blankslee, Genus *Datura* 32, f. 1959; Deb in J. Econ. Tax Bot. 1: 37 1980. *D. fastuosa* L. Syst. Nat. ed. 10, 2: 932. 1759; C.B.Cl. in Hook. f. Fl. Brit. India 4: 243. 1883; Cooke, Fl. Pres. Bombay 2:343. 1958 (Repr.). Shah, Fl. Guj. 1:485; 1978, *D. fastuosa* var. *alba* C.B.Cl. in Hook. f. op. cit. ; Cooke, op. cit. 344. Singh, et al Fl. Maha. Dicot. 2: 495. 2000.

Habit: Herbs, erect, glabrous or subglabrous; stems often muricate and tinged with purple. Leaves broadly ovate – triangular, shallowly lobed. Flowers purple, axillary, solitary, seeds numerous, yellowish – brown.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 792, 17/12/00. **Photograph:** 132

Sanskrit Name: Matul, Dhutra.

Local Name: Kalo Dhaturu.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 15, 16, 19 to 22, 24 to 27, 30, 32, 33 and 36.

Ecological Data : Frequency-10.38, Abundance-2.80, Density-1.19.

Distribution in Gujarat: Throughout; common (Shah, 1978).

LYCOPERSICON Mill.

About 7 species; W. S. America and Galapagos, 1 in GNPS.

Lycopersicon lycopersicum (L.) Karsten. Deutsch. Fl. 966. 1855; Deb in J. Econ. Tax. Bot. 1: 4, 1980, *Solanum lycopersicum* L. Sp. Pl. 185, 1753. *Lycopersicon esculentum* Mill. Gard. Dist. Ed. 8, no. 2, 1768; C.B.Cl. in Hook f. Fl. Brit. India 4:237. 1883; Cooke, Fl. Pres. Bombay 2:345. 1958 (Repr.). Shah, Fl. Guj. 1:486; 1978. Singh, et al Fl. Maha. Dicot. 2: 514. 2000.

Habit: Herbs, sticky, pubescent. Leaves pinnatisect. Flowers yellow, solitary, axillary.

Berries irregularly depressed – globose. Seeds discoid.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 793, 22/01/00.

Local Name: Tamata.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 16, 21, 24, 28, 31 to 37.

Ecological Data : Frequency-7.41, Abundance-1.84, Density-0.72.

Distribution in Gujarat: Cultivated; also frequent as an escape (Shah, 1978).

NICOTIANA L.

About 67 species; Australia. S.W. Africa, N. & S. America, 1 in GNPS..

Nicotiana plumbaginifolia Viv. Elench. Pl. Hort. Bot. 26, t. 5. 1802; C. B. Cl. In Hook. F. Fl. Brit. India 4 : 246. 1883; Deb in J. Econ. Tax. Bot. 1 : 42. 1980; Matthew, Mat. Fl. Tamilnadu Carnatic 278. 1981. Shah, Fl. Guj. 1:487; 1978, Singh, et al Fl. Maha. Dicot. 2: 514. 2000.

Habit: Herbs, erect. Leaves linear to linear – lanceolate, sessile. Flowers capsules ovoid, smooth. Seeds minute, reddish – brown.

FLS and FRTS : September – April.

Herbarium No and date of Collection: 794, 23/01/00.

Local Name: Pardeshi Tamaku.

Distribution and Status in the Study Area: It is found in zone no 4, 6, 10, 11, 21, 24, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-6.91, Abundance-0.45, Density-0.42.

Distribution in Gujarat: Dangs, Baroda, Brouch, Rajpipla, Panchmahals and Kutch, in river beds; not common; native of Mexico and West Indies (Shah, 1978).

PHYSALIS L.

About 80 species; cosmopolitan especially America, 1 in GNPS.

Physalis minima L. Sp. Pl. 183. 1753; C.B.Cl. in Hook f. Fl. Brit India. 4: 238. 1883; Cooke, Fl. Pres. Bombay 2: 340. 1958 (Repr.). Shah, Fl. Guj. 1:488; 1978, Sant. in J. Bombay nat Hist. Soc. 47: 657. 1948; Deb in J. Econ. Tax. Bot. I: 43. 1980. Singh, et al Fl. Maha. Dicot. 2: 499. 2000.

Habit: Herbs annual, erect. Leaves ovate, elliptic or elliptic – oblong. Flowers axillary, solitary. Berries ovoid or subglobose. Seeds numerous, orange – yellow.

FLS and FRTS : July – April.

Herbarium No and date of Collection: 795, 19/03/00.

Sanskrit Name: Tankari.

Local Name: Popti.

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 24, 26, 27, 28, 31 to 37.

Ecological Data : Frequency-13.96, Abundance-1.09, Density-0.80.

Distribution in Gujarat: Throughout, common (Shah, 1978).

SOLANUM L.

About 1400 species; subcosmopolitan, 4 in GNPS.

Solanum anguivi Lam. Encycl. 2: 23. 1794; Hepper in Bot. J. Linn. Soc. 76: 290. 1978. *S. indicum* auct. Non L. 1753 p. p.; C.B. Cl. in Hook f. Fl. Brit. India 4: 234. 1883; Cooke. Fl. Pres. Bombay 2: 336. 1958 (Repr.). Shah, Fl. Guj. 1:490; 1978, Sant in J. Bombay nat. Hist. Soc. 47: 653. 1948; Deb in J. Econ. Tax Bot. 1: 47, 1980. Singh, et al Fl. Maha. Dicot. 2: 503. 2000.

Habit: Undershrubs or shrubs. Leaves broadly elliptic or elliptic – oblong or ovate, prickly on nerves. Inflorescence or extra – axillary, racemose cymes. Flowers blue. Berries globose, yellowish – red when ripe. Seeds orange, spherical, minutely pitted.

FLS and FRTS : July – February.

Herbarium No and date of Collection: 796, 23/09/00.

Sanskrit Name: Vanavrintaki, Vrihat kantkari.

Local Name: Ubhi Ringni.

Distribution and Status in the Study Area: It is found in zone no 2 to 8, 13 to 17, 22, 24, 25, 26, 29, 31, 33 and 36.

Ecological Data : Frequency-11.30, Abundance-0.99, Density-0.61.

Distribution in Gujarat: In all zones, but restricted in distribution; not common (Shah, 1978).

Notes: The name *S. indicum* L. (1753) belongs to the species known as *S. ferox* L. and hence the plant hitherto called as *S. indicum* has been provided with the name *S. anguivi* Lam. (Hepper, op.cit.).

Solanum melongena Linn. Sp. Pl. 186. 1753; Hook. f. Fl. Brit. India 4: 235. 1883; Cooke, Fl. Pres. Bombay 2: 339, 1958 (Repr.). Shah, Fl. Guj. 1:490; 1978, Deb in J. Econ. Tax. Bot. 1:48 1980. Var. *melongena*. Singh, et al Fl. Maha. Dicot. 2: 517. 2000.

Habit: Herbs, grey stellate-tomentose. Leaves ovate or ovate-oblong, pinnatifid, stellate-pubescent. Flowers long, violet, in short, extra axillary racemes.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 797, 19/01/00.

Sanskrit Name: Vrantank, Bhantaki.

Local Name: Rigna.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 16, 21, 24, 28, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-5.61, Abundance-1.43, Density-0.32.

Distribution in Gujarat: Cultivated throughout, at times an escape in waste places (Shah, 1978).

Solanum nigrum Linn. Sp. Pl. 186. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 229. 1883; Cooke, Fl. Pres. Bombay 2: 332, 1958 (Repr.). Shah, Fl. Guj. 1:491; 1978, Sant in J. Bomay nat. Hist. Soc. 47: 652. 1948; Deb in J. Econ. Tax Bot. 1: 49. 1980. Singh, et al Fl. Maha. Dicot. 2: 505. 2000.

Habit: Herbs high. Leaves broadly ovate or ovate – lanceolate, membranous, apex acute. Inflorescence of umbellate cymes. Flowers white, pendulous. Berries globose, purplish – black when ripe. Seeds discoid, minutely pitted, yellow.

FLS and FRTS : May - June.

Herbarium No and date of Collection: 798, 13/06/00.

Sanskrit Name: Kakaha, Kakamachi, Vayasi.

Local Name: Piludi.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 8, 9, 12 to 15, 19 to 22, 24, 27, 28 to 32.

Ecological Data : Frequency-8.10, Abundance-1.51, Density-0.64.

Distribution in Gujarat: Throughout, a weed everywhere; common (Shah, 1978).

Solanum virginianum L. Sp. Pl. 187. 1753; Hepper & Jacq. in Kew. Bull. 41. 433. 1986. *S. surattense* Burm. f. Fl. Ind. 57. 1768; Sant in Bull. Bot. Surv. India 3:20. 1961; Deb. In J. Econ. Tax. Bot. 1: 51. 1980. *S. xanthocarpum* Schrad. & Wendl. Sert. Hanov. 1: 8, t. 2. 1795; C. B. Cl. in Hook. f. Fl. Brit. India 4: 236. 1883; Cooke, l. Pres. Bombay 2: 335. 1958 (Repr.). Shah, Fl. Guj. 1:491; 1978, Sant in J. Bombay nat. Hist. Soc. 47: 653. 1948. Singh, et al Fl. Maha. Dicot. 2: 506. 2000.

Habit: Herbs prostrate or decumbent-ascending, widely branched. Leaves ovate-elliptic, stellately hairy on both sides, prickly on nerves. Inflorescence of extra axillary, few-flowered cymes. Flowers purple. Berries yellow. Seeds numerous.

FLS and FRTS : December - May.

Herbarium No and date of Collection: 799, 13/06/00. **Photograph:** 133

Sanskrit Name: Sudra, Bhantaki, Kantkari, Laghu kantkari.

Local Name: Bhonringni.

Distribution and Status in the Study Area: It is found in zone no 6, 8, 15, 16, 22, 24, 30 and 35.

Ecological Data : Frequency-4.15, Abundance-0.79, Density-0.29.

Distribution in Gujarat: Throughout, a weed everywhere; common (Shah, 1978).

WITHANIA Pauquy. nom. cons.

About 10 species; Old World, 1 in GNPS.

Withania somnifera (L.) Dunal in DC., Prodr. 13(1): 453. 1852; C.B.Cl. in Hook. f. Fl. Brit. India 4: 239. 1883; Cooke, Fl. Pres. Bombay 2: 341, 1958 (Repr.). Shah, Fl. Guj. 1:492; 1978, Deb in J. Econ. Tax. Bot. 1: 52. 1980. *Physalis somnifera* L. Sp. Pl. 182. 1753. Singh, et al Fl. Maha. Dicot. 2: 508. 2000.

Habit: Undershrubs high much branched. Leaves ovate, more or less minutely stellately pubescent, apex subacute. Flowers yellow. Berries globose, smooth, red when ripe. Seeds oblong or nearly spherical.

FLS and FRTS : March - July.

Herbarium No and date of Collection: 800, 29/05/01.

Sanskrit Name: Vajigandha, Ashvakandika, Varahkarni.

Local Name: Ghodakum.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 21, 24 and 28.

Ecological Data : Frequency-1.37, Abundance-0.22, Density-0.06.

Distribution in Gujarat: Throughout in plains, common (Shah, 1978).

SCROPHULARIACEAE

About 222, genera and 4500 speices; cosmopolitan especially temperate regions and tropical mountains; 6 genera and 10 species in GNPS.

BACOPA Aabl. nom. cons.

About 56 speices; subtropical regions especially America, 1 in GNPS.

Bacopa monnieri (L.) Penn. in Proc. Acad. Nat. Sci. Philadelphia 98: 94. 1946; Sant. in J. Bombay nat. Hist. Soc. 49: 30. 1950; Philcox in Kew Bull. 33: 679. 1979. *Lysimachia monnieri* L. in Torner, Cent. Pl. 2: 9. 1756. *Herpestis monniera* H. B. K. Nov. Gen. Sp. Pl. 2: 366. 1888; Hook. f. Fl. Brit. India 4: 272. 1884. *Moniera cuneifolia* Michx. Fl. Bor. Am. 2: 22. 1803; Cooke, Fl. Pres. Bombay 2: 356. 1958 (Repr.). Shah, Fl. Guj. 1:495; 1978. Singh, et al Fl. Maha. Dicot. 2: 524. 2000.

Habit: Herbs, creeping-ascending, succulent. Leaves sessile, apex obtus. Flowers pale violet or blue, axillary, solitary. Seeds oblong, striate.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 801, 29/05/01. **Photograph:** 134

Sanskrit Name: Toyvallii, Nirabrahmi, Kandkatuka, Jalasaya, Tiktalonika.

Local Name: Bam.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-20.57, Abundance-5.99, Density-2.95.

Distribution in Gujarat: Throughout in moist places, in small or large patches (Shah, 1978).

KICKXIA Dumort.

About 25 species; Mediterranean region to W. India, 1 in GNPS.

Kickxia ramosissima (Wall) Janchen in Oest. Bot. Zeit. 82: 152. 1933; Sant. in J. Bombay nat. Hist. Soc. 49: 27. 1950. *Linaria ramosissima* Wall. Pl. As. Rar. 2: 43, t. 153. 1831; Hook. f. Fl. Brit. India 4: 251. 1883; Cooke, Fl. Pres. Bombay 2: 353. 1958 (Repr.). Shah, Fl. Guj. 1:498; 1978.

Habit: Herbs, perennial, much branched from base, suberect. Leaves lanceolate-sagittate. Flowers yellow; calyx and corolla hairy. Capsules ovoid or subglobose. Seeds echinulate.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 802, 27/10/00.

Local Name: Bhini ghilodi.

Distribution and Status in the Study Area: It is found in zone no 2 to 16, 20, 21, 22, 24, 26 to 31, 33 to 37.

Ecological Data : Frequency-15.27, Abundance-1.00, Density-0.97.

Distribution in Gujarat: Pavagadh and Chhotaudepur (Shah, 1978). Also from Saurashtra and Kachchh (Patel, 1984).

LIMNOPHILA R. Br. nom. cons.

About 36 species; tropical regions of Old World, 2 in GNPS.

Limnophila heterophylla (Roxb) Bth. in Scroph. Ind. 25. 1835; Hook. f. Fl. Brit. India 4: 270. 1884; Philcox in Kew Bull. 24:124.1970. *Columnea heterophylla* Roxb. Fl. Ind. 3: 97. 1832. Singh, et al Fl. Maha. Dicot. 2: 532. 2000.

Habit: Herbs, long. Upper leaves lanceolate, acute, lower pinnatifid, segments narrow, linear. Flowers subsessile, axillary, solitary. Capsules subglobose, across. Seeds small, angular.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 803, 20/11/00.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 8, 10, 12, 14, 17, 19, 20, 21, 24 to 28, 30 to 33.

Ecological Data : Frequency-10.48, Abundance-1.21, Density-0.49.

Distribution in Gujarat: Throughout in water logged soil or moist ground; common, gregarious (Chavan, 1993).

Limnophila indica (L.) Druce in Rep. Bot. Exch. Club Brit. Isles 3: 420. 1914; Philcox in Kew Bull. 24:115. 1970. *Hottonia indica* L. Syst. Nat. ed. 10. 991. 1759. *Limnophila gratioides* R. Br. Prodr. 442. 1810; Hook. f. Fl. Brit. India 4:271. 1884; Cooke, Fl. Pres. Bombay 2:362. 1958 Repr., Shah, Fl. Guj. 1:498; 1978, Singh, et al Fl. Maha. Dicot. 2: 532. 2000.

Habit: Herbs, aquatic or marshy, high, rooting at nodes. Leaves on aerial stems, linear-elliptic or linear-oblong. Flowers pink or pale white, with violet-blue spots on lobes, solitary, axillary. Capsules subglobose. Seeds black, truncate or rounded at both ends.

FLS and FRTS : August - April.

Herbarium No and date of Collection: 804, 23/03/00.

Sanskrit Name: Ambiya.

Local Name: Turati.

Distribution and Status in the Study Area: It is found in zone no 8, 9, 11, 14, 15, 24, 25, 26, 35 and 36.

Ecological Data : Frequency-2.65, Abundance-0.72, Density-0.30.

Distribution in Gujarat: Throughout in water logged soil or moist ground; common, gregarious (Shah, 1978).

LINDENBERGIA Lehm.

About 15 species; tropical regions of Old World, 2 in GNPS.

Lindenbergia muraria (Roxb.) Bruhl in J. Dept. Sci. Calcutta Univ. 2 (Bot): 27. 1920; Prijanto in Reinwardtia 7: 548. 1969. *Stemodia muraria* Roxb. In D. Don, Prodr. Fl. Nepal. 89. 1825. *Lindenbergia urticifolia* Lehm. in Link & Otto, Ic. Pl. Rar. 95 t. 48. 1831 ('urticaefolia'); Hook. f. Fl. Brit. India 4: 261. 1884; Cooke, Fl. Pres. Bombay 2:379. 1958 (Repr.). Shah, Fl. Guj. 1:499; 1978, Singh, et al Fl. Maha. Dicot. 2: 535. 2000.

Habit: Herbs, high, glandular hairy. Leaves ovate-lanceolate or elliptic, margins crenate-serrate. Flowers long, yellow. Capsules ovoid, hairy, slightly beaked. Seeds ellipsoid, pale brown, muriculate, ribbed.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 805, 29/10/01.

Local Name: Patthar-chatti.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-6.88, Abundance-1.63, Density-0.94.

Distribution in Gujarat: Throughout; common on old walls, river slopes and in cultivated fields (Shah, 1978).

Lindenbergia urticaefolia (Roxb. ex D. Don.) p. Bruehl in Journ. Dept. Sci. Calc. Univ. 2(Bot.) : 27.1920; S 330. *L. munria* Roxb. ex D. Don, Prodr. Fl. Nep. 89. 1825. *Dodarita indica* L. Sp. Pl. 633. 1753. *Lindenbergia urticaefolia* Lehm. in Link & Otto, Icon. Pl. Rar. Hort. Berol. 95. t 31. 1828; FBI 4:262; C 2:379. *Lindenbergia indica* (L) O. Ktze. Rev. Gen. Pl. 462. 1891; WI 6:116. f 44; Ch & O 165.

Habit : Glandular-villous prostrate or diffuse, seldom erect herbs. Leaves opposite or subopposite, ovate, ovate-elliptic or ovate-oblong, glandular-villous. Flowers long axillary, solitary and in terminal, leafy racemes. Capsule long oblong, glabrous. Seeds numerous, oblong, dark-brown, minutely rugose.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 806, 29/05/01.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 7 to 11, 14 to 18, 24, 25, 26, 29, 32, 35 to 37.

Ecological Data : Frequency-12.69, Abundance-0.73, Density-0.49.

Distribution in Gujarat: Throughout; common on old walls, river slopes and in cultivated fields (Shah, 1978).

LINDERNIA AIL.

About 50 species; subtropical regions especially of Old World, 2 in GNPS.

Lindernia crustacean (L.) F. v. Muell. Syst. Census Austr. Pl. 1: 97. 1882; Philcox in Kew Bull. 22: 47, f.1/ 9-12 1968; Siver. & Mathew in J. Bombay nat. Hist. Soc. 80; 136. 1983. *Capraria crustacean* L. Mant. 87. 1767. *Vandellia crustacean* (L.) Bth. Scroph. Ind. 35. 1835; Hook. f. Fl. Brit. India 4: 279. 1884; Cooke, Fl. Pres. Bombay 2: 366. 1958 (Repr.). Shah, Fl. Guj. 1:501; 1978, Singh, et al Fl. Maha. Dicot. 2: 538. 2000.

Habit: Herbs, suberect or diffuse. Leaves broadly ovate to elliptic, apex subacute, margins crenate-serrate or subentire. Flowers pink, axillary, solitary and interterminal racemes. Capsules long, ellipsoid-oblong, obtuse. Seeds ellipsoid.

FLS and FRTS : July - November.

Herbarium No and date of Collection: 807, 24/06/01.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 6, 7 to 11, 15, 19 to 22, 24, 27, 28, 32, 33, 34 and 36.

Ecological Data : Frequency-11.60, Abundance-3.03, Density-1.57.

Distribution in Gujarat: Throughout (except Kutch), among grasses, in cultivated fields and undergrowth of forests; common (Shah, 1978).

Lindernia multiflora (Roxb.) Mukherjee in J. Indian Bot. Soc. 24: 131. 1945; Sant. et al. in J. Bombay nat. Hist. Soc. 55: 482, t. 2. 1958; Philcox in Kew Bull. 22: 36, f. 8/8-12. 1968. Siver. & Mathew in J. Bombay nat. Hist. Soc. 80 : 137. 1983. *Torenia multiflora* Roxb. Fl. Ind. 3: 96. 1832. *Vandellia multiflora* (Roxb.) G. Don, Gen. Syst. 4: 549. 1838; Hook. f. Fl. Brit. India 4: 280. 1884. Shah, Fl. Guj. 1:501; 1978, Singh, et al Fl. Maha. Dicot. 2: 539. 2000.

Habit: Herbs, annual high simple or branched from base. Leaves petiole to subsessile, ovate, margins subentire serrate, gland ciliate. Inflorescences of axillary or terminal racemes. Capsules ovoid or ellipsoid. Seeds rugose.

FLS and FRTS : April - November.

Herbarium No and date of Collection: 808, 30/05/01.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 9, 11, 13, 15, 19 to 22, 24, 27, 28, 31, 32, 34 and 36.

Ecological Data : Frequency-2.65, Abundance-0.72, Density-0.30.

Distribution in Gujarat: Broach, Rajpipla and Saurashtra; rare (Shah, 1978).

STRIGA Lour.

About 40 species; tropical regions of Old World to S. Africa, 2 in GNPS.

Striga angustifolia (D. Don). Sald. in Bull. Bot. Surv. India 5: 70. 1963; Sant. in Rec. Bot. Surv. India 16(1): 184. 1967 (3rd Rev. ed.). *Buchnera angustifolia* D. Don. Prodr. Fl. Nepal. 91. 1825. *Striga euphrasioides* Bth. in Hook. Comp. Bot. Mag. 1: 364. 1836; Hook. f. Fl. Brit. India 4: 299. 1884; Cooke, Fl. Pres. Bombay 2: 376. 1958 Repr., Shah, Fl. Guj. 1:507; 1978, Singh, et al Fl. Maha. Dicot. 2: 549. 2000.

Habit: Herbs, annual high, branched, scabrid. Leaves sessile, linear, scabrous. Inflorescence of long, lax, erect spikes. Flowers sessile or shortly pedicelled. Capsules oblong-ellipsoid. Seeds obovoid, black, striate.

FLS and FRTS : August - January.

Herbarium No and date of Collection: 809, 28/12/99.

Local Name: Dholo – agiyo.

Distribution and Status in the Study Area: It is found in zone no 11, 12, 15, 16, 20, 24, 25, 30, 31 and 35.

Ecological Data : Frequency-2.65, Abundance-0.72, Density-0.30.

Distribution in Gujarat: Throughout, in grasses; common (Shah, 1978).

***Striga gesnerioides* (Willd.) Vatke** in Oest. Bot. Zeit. 2. 11. 1875; Sant. In Rec. Bot. Surv. India 16 (1) : 182. 1967 (3rd Rev. ed.). *Buchnera gesnerioides* Willd. Sp. Pl. 3 : 338. 1800. *Striga orobanchioides* (R. Br. Ex Endl.) Bth. Comp. Bot. Mag. 1 : 361, t. 19. 1836; Hook. f. Fl. Brit. India 4 : 299. 1884; Cooke. Fl. Pres. Bombay 2 : 374. 1958 (Repr.). Shah, Fl. Guj. 1:508; 1978, Singh, et al Fl. Maha. Dicot. 2: 550. 2000.

Habit: Herbs, erect, simple or branched. Leaves ovate-oblong, inflorescences of dense terminal spikes. Flowers purple or lilac, numerous, sessile; ellipsoid, tipped with style base. Seeds oblong, striate.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 810, 14/11/99. **Photograph:** 135

Local Name: Rato Agio, agiyo.

Distribution and Status in the Study Area: It is found in zone no 6, 14 to 17, 24, 25, 28, 29, 32, 33, 35 to 37.

Ecological Data : Frequency-3.95, Abundance-0.37, Density-0.25.

Distribution in Gujarat: Throughout; common hosts are *Euphorbia nerifolia* (Shah, 1978).

BIGNONIACEAE

About 112 genera and 725 species; tropical regions especially S. America; 7 genera and 7 species in GNPS.

HAPLOPHRAGMA L. & E. *nivulea* Roxb.

About 1 species, 1 in GNPS.

***Haplophragma adenophyllum* (Wall.) P. Dop.** in Bull. Soc. Bot. France 72: 890. 1925. *Bignonia adenophylla* Wall. Cat. 6502, 1832 nom. nud.; P. Dop, l.c. 72:889. 1925. *Heterophragma adenophyllum* (DC.) Seem. Ex Benth. in Benth. & Hook. f. Gen. Pl. 2: 1047. 1876; C. B. Cl. in Hook f. Fl. Brit. India 4: 381. 1884; Cooke, Fl. Pres. Bombay 2: 410. 1958 (Repr.). Shah, Fl. Guj. 1:518; 1978, Singh, et al Fl. Maha. Dicot. 2: 581. 2000.

Habit: Trees tall; young shoots brownish-tomentose. Leaflets elliptic. Flowers in terminal panicles, yellow-brown, tomentose; calyx campanulate, irregularly lobed; corolla densely woolly tomentose outside. Capsules long, cylindric, ribbed. Seeds winged.

FLS and FRTS : September - April.



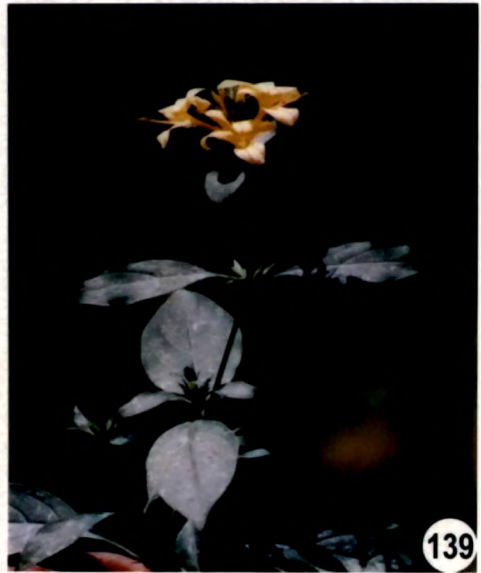
136



137



138



139



140



141

136) *Oroxylum indicum* (L.) Vent., 137) *Andrographis paniculata* (Burm. f.) Wall. ex. Nees., 138) *Barleria gibsoni* Dalz., 139) *Barleria prionitis* Linn., 140) *Justicia bitonica* L., 141) *Neuracanthus sphaerostachys* (Ness.) Dalz.

Herbarium No and date of Collection: 811, 01/10/01.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.19, Abundance -0.03, Density-0.01.

Distribution in Gujarat: Planted in gardens (Shah, 1978).

MILLINGTONIA L. f.

A monotypic genus; S.E. Asia and Malesia. 1 in GNPS.

Millingtonia hortensis L. f. Suppl. Pl. 291. 1781; C.B.Cl. in Hook. f. Fl. Brit. Ind. 4: 377. 1884; Cooke, Fl. Pres. Bombay 2: 409. 1958 Repr., Shah, Fl. Guj. 1:520; 1978. Singh, et al Fl. Maha. Dicot. 2: 582. 2000.

Habit: Trees, tall. Leaves pinnate; leaflets elliptic-ovate, often oblique. Flowers in axillary and terminal corymbose panicles, white, fragrant.

FLS and FRTS : September - December.

Herbarium No and date of Collection: 812, 13/12/00.

Local Name: Buch.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.71, Abundance-0.15, Density-0.13.

Distribution in Gujarat: Planted in gardens and along roadsides (Shah, 1978).

OROXYLUM Venten.

A monotypic genus; Indo-Malesia. 1 in GNPS.

Oroxylum indicum (L.) Vent. Dec. Gen. Nov. 8. 1808; C.B.Cl. in Hook. f. Fl. Brit. India 4: 378. 1884; Cooke, Fl. Pres. Bombay 2: 401, 1958 (Repr.). Shah, Fl. Guj. 1:520; 1978, *Bignonia indica* L. Sp. Pl. 625. 1753. Singh, et al Fl. Maha. Dicot. 2: 575. 2000.

Habit: Trees, tall. Leaflets ovate or ovate-elliptic, apex acuminate, base rounded or cordate. Inflorescences of numerous flowered racemes long, pubescent. Flowers long yellowish-purple. Capsules flat, tapering at both ends. Seeds including wings.

FLS and FRTS : June - December.

Herbarium No and date of Collection: 813, 27/06/01. **Photograph:** 136

Sanskrit Name: Shyonak, Shyonaka, Shuknas, Dirghavrunt, Tintuk, Kadvadag.

Local Name: Tetu.

Distribution and Status in the Study Area: It is found in zone no 6, 7 and 32.

Ecological Data: Frequency-0.68, Abundance-0.32, Density-0.03.

Distribution in Gujarat: In deciduous forests of Dangs, Vyara, Rajpipla and Panchmahals (Shah, 1978).

SPATHODEA P. Beauv.

A monotypic genus; tropical Africa, 1 in GNPS.

Spathodea campanulata P. Beauv. Fl. Oware Benin 1: 47, t. 27. 1806; Bailey, Mam. Cult. Pl. 907. 1949; Cooke. Fl. Pres. Bombay 2: 410. 1958 (Repr.). Shah, Fl. Guj. 1:521; 1978, Singh, et al Fl. Maha. Dicot. 2: 584. 2000.

Habit : Trees leaflets elliptic – obovate. Flowers in many flowered compact racemes; capsules lanceolate, brownish – black. Seeds winged.

FLS and FRTS : July – March.

Herbarium No and date of Collection: 814, 17/08/01.

Distribution and Status in the Study Area: It is found in zone no 6, 26 to 37.

Ecological Data: Frequency-2.72, Abundance-2.11, Density-0.14.

Distribution in Gujarat: Planted in gardens and along roads; native of Tropical Africa (Shah, 1978).

STEROSPERMUM Cham.

About 15 species; tropical regions of Old World, 1 in GNPS.

Stereospermum colais (Dillwyn) Mabberley in Taxon 27:553. 1978. *Bignonia colais* Dillwyn Rev. Hortus malab. 28. 1839. *Dipterosperma personatum* Hassk. In Florn 25 (2) beibl. 1:28. 1842. *Stereospermum chelonoides* DC. Bibl. Prodr. Univ. Geneve II. 17: 124. 1838, p.p. quoad ref Rheede, t. 26 & DC. Prodr. 9:210. 1845; C.B. Clarke in Hook. F., Fl. Brit. India 4: 382. 1884. *S. personatum* Chatterjee in bull. Bot. Soc. Bengal 2: 70. 1948. *S. tetragonum* DC. Prodr. 9:210. 1845.

Habit : Trees deciduous, 10-20 m high; bark grayish black. Leaves leaflets 3-6 pairs. Oblong, elliptic-oblong or lanceolate-oblong, caudate-acuminate at apex, cuneate at base, entire, glabrous. Flowers drooping panicles; peduncles long. Calyx purple, glabrous or pubescent. Corolla pale yellow with red streaks; lobes crisped. Capsules 4 angled, curved or spirally twisted.

FLS and FRTS : February – September.

Herbarium No and date of Collection: 815, 25/06/01.

Local Name: Padad.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.10, Abundance-0.17, Density-0.01.

Distribution in Gujarat: Rajpipla and Sauraashtra; rare (Chavan, 1993).

Notes: Chandrasekaran in Fl. Tamilnadu Analysis (2: 137. 1987) and Naik in Fl. Marathwad (2: 649. 1998) proposed combinations for *S. colais* var. *angustifolium* unaware of the combination already done by Bennet & Raizada in 1981 (op.cit.). Hence, the later combinations proposed are isonymous.

TECOMA juss.

About 12 species; tropical America, 1 in GNPS.

Tecoma stans (Linn.) H. B. & K. Nov. Gen. Sp. 3 : 144. 1819. *Bignonia stans* L. Sp. Pl. Ed. 2 : 871. 1763. *Stenolobium stans* Seem. In Ann. Mac. Nat. Hist. 10: 30. 1862; Cooke. Fl. Pres. Bombay 2 : 410. 1950 (Repr.). Shah, Fl. Guj. 1:522; 1978, Singh, et al Fl. Maha. Dicot. 2: 585. 2000.

Habit : Shrubs or small trees, leaves opposite, odd pinnate; leaflets ovate-lanceolate. Flowers yellow, in corymbos racemes; capsules linear. Seeds winged.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 816, 26/06/01.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 21 and 24.

Ecological Data: Frequency-0.63, Abundance-0.12, Density-0.13.

Distribution in Gujarat: Planted in gardens.

TECOMELLA Seem.

A monotypic genus; Arabia to India, 1 in GNPS.

Tecomella undulate (Sm.) Seem. In Ann. Mag. Nat. Hist. 3, 10: 30. 1862; Cooke. Fl. Pres. Bombay 2 : 408. 1958 (Repr.). Shah, Fl. Guj. 1:523; 1978, *Bignonia undulate* Sm. Exot. Bot. 1:35. 1805. *Tecoma undulate* G. don. Gen. Syst. 4: 223. 1837; C. B. Cl. In Hook. f. Fl. Brit. India 4: 378. 1884. Singh, et al Fl. Maha. Dicot. 2: 586. 2000.

Habit: Trees with drooping branches. Leaves oblong – lanceolate. Flowers ornage – yellow in few flowered corymbose racemes. Capsules linear – oblong, laterally compressed, beaked at apex.

FLS and FRTS : February – May.

Herbarium No and date of Collection: 817, 27/06/01.

Local Name: Ragatrohido.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.10, Abundance-0.13, Density-0.03.

Distribution in Gujarat: Rajpipla, north Gujarat, Saurashtra and Kutch; rare (Shah, 1978).

PEDALIACEAE

About 18 genera and 95 species; tropical and subtropical regions especially costal and arid zones; 1 genera and 1 speices in GNPS.

SESAMUM L.

About 15 species; tropical regions of Old World and S. Africa, 1 in GNPS.

Sesamum orientale L. Sp. Pl. 634. 1753; Babu, Herb. Fl. Dehra Dun 372. 1977. *S. indicum* L. SP. Pl. 634. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 387. 1884; Cooke, Fl. Pres. Bombay 2: 413. 1958 (Repr.). Shah, Fl. Guj. 1:524; 1978, *S. mulayanum* Nair in Bull. Bot. Surv. India 5:251. 1963. Singh, et al Fl. Maha. Dicot. 2: 587. 2000.

Habit: Herbs, annual, tall, glandular-pubescent. Lower leaves opposite, long-petioled, trifoliate or palmatisect, upper shortly petioled, ovate-lanceolate or oblong. Inflorescence of terminal, leafy racemes. Flowers long, pink. Capsules 4-angled, beaked, glandular-pubescent. Seeds reticulately rugose.

FLS and FRTS : September - October.

Herbarium No and date of Collection: 818, 29/10/01.

Sanskrit Name: Svetatil, Krishnatil.

Local Name: Tal.

Distribution and Status in the Study Area: It is found in zone no 1 to 17, 21, 22, 24 to 27, 32 to 37.

Ecological Data : Frequency-7.37, Abundance-3.47, Density-2.20.

Distribution in Gujarat: Throughout, cultivated or an escape in waste places (Shah, 1978).

Notes: According to Babu (op.cit. p. 373) *S. mulayanum* appears to be a seed variant of their polymorphic taxon, in which the surface of the seed varies from smooth to rugose. Experimental studies are needed to throw light on the relationships among *S. mulayanum*, *S. orientale* and *S. radiatum* Schum. & C. Thonn. an African species. Graham (Cat Pl. Bombay 126. 1839) appears to be the first to unite both *S. indicum* and *S. orientale* and adopted the latter name for the combined taxa.

MARTYNICEAE

A monotypic genus; native of Mexico but naturalized in tropical and subtropical regions.

MARTYNIA L.

A monotypic genus; native of Mexico but naturalized in tropical and subtropical regions, 1 in GNPS.

Martynia annua Linn. Sp. Pl. 618. 1753; Backer in Steenis, Fl. Males. 1, 4:221. 1957. *M. diandra* Glox. Obs. 14, t. 1. 1785; C. B. Cl in Hook. f. Fl. Brit. India 4: 386. 1884; Cooke, Fl. Pres. Bombay 2: 414, 1958 (Repr.). Shah, Fl. Guj. 1:524; 1978.

Singh, et al Fl. Maha. Dicot. 2: 589. 2000.

Habit: Herbs, high, viscidly pubescent. Leaves broadly ovate or suborbicular, viscid pubescent. Recemes axillary, long. Flowers rose coloured, ill-smelling. Drupes long with stout, hooked, upturned beak which splits into two.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 819, 23/08/01.

Local Name: Vinchhudo.

Distribution and Status in the Study Area: It is found in zone no 1, 5, 6, 7, 10, 12, 14, 17, 20, 22, 26, 28, 30, 34 and 36.

Ecological Data : Frequency-7.42, Abundance-3.26, Density-1.10.

Distribution in Gujarat: Throughout, a weed in waste places; native of Mexico (Shah, 1978).

ACANTHACEAE

About 357 genera and 4350 speices; tropical regions but also in Mediterranean region, United States and Australia; 17 genera and 26 species in GNPS.

ADHATODA P. Miller.

About 20 species; tropical Africa and Asia, 1 in GNPS.

Adhatoda vasica Nees in Wallich. Pl. Asiat. Rar. 3: 103. 1832; Hook. f. Fl. Brit. India 4: 540. 1884; Cooke, Fl. Pres. Bombay 2: 493, 1958 (Repr.). Shah, Fl. Guj. 1: 527, 1978; Singh, et al., Fl. Maha. Dicot. 2:639. 2000; *Adhatoda zeylanica* Medik in Hist. Comment. Acad. Theod.-Palat. 6: 393. 1790; *Justicia adhatoda* Linn. Sp. Pl. 15. 1753.

Habit: 1 mt tall evergreen undershrubs with spreading, angular, olivaceous-green, glabrous branches.

FLS and FRTS : January - December.

Herbarium No and date of Collection: 820, 23/08/01.

Sanskrit Name: Vasa, Atrushak, Shinhasya.

Local Name: Ardushi.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 21 and 24.

Ecological Data: Frequency-0.90, Abundance-0.30, Density-0.17.

Distribution in Gujarat: Cultivated in gardens at some places (Shah, 1978).

ANDROGRAPHIS Wallich. ex. Nees.

About 20 species; tropical Asia, 1 in GNPS.

Andrographis paniculata (Brum. f.) Wall. Ex. Nees. In Wall. Pl. Asiat. Rar. 3 : 116.

1832; C. B. Cl. In Hook. f. Fl. Brit. India 4 : 501. 1884; Cooke. Fl. Pres. Bombay 2 : 451. 1958 (Repr.). Shah, Fl. Guj. 1:528; 1978, sant. In Univ. Bombay Bot. Mem. 2 : 50. 1952. *Justicia paniculata* Burm. F. Fl. Ind. 9. 1768. Singh, et al Fl. Maha. Dicot. 2: 593. 2000.

Habit : Herbs, erect, branched; leaves lanceolate, slightly undulate, apex acute, base tapering. Flowers white with pinkish tinge, small, solitary, capsules acute at both ends. Seeds subquadrate, yellowish – brown.

FLS and FRTS : December – April.

Herbarium No and date of Collection: 821, 25/04/01. **Photograph:** 137

Local Name: Lilu – Karyatun.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-11.61, Abundance-2.11, Density-1.41.

Distribution in Gujarat: Saurashtra (barda hills) and kutch, in gardens or as an escape (Shah, 1978).

BARLERIA L.

About 250 species; tropical regions, 3 in GNPS.

Barleria cuspidate Heyne ex Nees in Wall. Pl. Asiat. Rar. 3 : 93. 1832; C. B. Cl. In Hook. f. Fl. Pres. Bombay 2:380. 1958 (Repr.). Shah, Fl. Guj. 1:531; 1978, Sant in Univ. Bombay Bot. Mem. 2: 58. 1952. Singh, et al Fl. Maha. Dicot. 2: 599. 2000.

Habit: Shrubs, low; stems and branches terete or obscurely 4 – gonous. Leaves oblong - lanceolate, entire, bristle – tipped. Flowers yellow, solitary in opposite axils. Capsules ovoid, with a solid beak. Seeds across, compressed, silky with appressed hairs.

FLS and FRTS : December – March.

Herbarium No and date of Collection: 822, 19/02/00.

Local Name: Kurunt.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-26.66, Abundance-1.58, Density-0.94.

Distribution in Gujarat: Kutch, Saurashtra and north Gujarat in forest undergrowth or rock cuttings; rare to occasional (Shah, 1978).

Barleria gibsoni Dalz. In Hook. Kew J. Bot. 2: 339. 1850; C. B. Cl. In Hook. f. Fl. Brit. India 4: 487. 1884; Cooke. Fl. Pres. Bombay 2: 464. 1958 (Repr.). Shah, Fl. Guj. 1:531; 1978, Sant. in Univ. Bombay Bot. Mem. 2: 62. 1952. *B. Montana* non Nees 1832; Witt, List. 65. 1908. Singh, et al Fl. Maha. Dicot. 2: 600. 2000.

Habit : Herbs, suffrutescent. Leaves elliptical, apex acuminate, base rounded or

subacute. Flowers pink. Capsules acuminate. Seeds ellipsoid, black.

FLS and FRTS : September – March.

Herbarium No and date of Collection: 823, 19/03/00. **Photograph**: 138

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-2.00, Abundance-0.19, Density-0.10.

Distribution in Gujarat: Dangs (Saputara) ; rare (Shah, 1978).

Barleria prionitis Linn. Sp. Pl. 636. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 482. 1884; Cooke, Fl. Pres. Bombay 2: 457, 1958 (Repr.). Shah, Fl. Guj. 1:532; 1978, Sant. in Univ. Bombay Bot. Mem. 2:57. 1952. Singh, et al Fl. Maha. Dicot. 2: 602. 2000.

Habit: Herbs, much branched; stems and branches terete or obsoletely quadrangular. Leaves elliptic, glabrous or more or less pubescent, apex acuminate, bristle – tipped, base tapering into petiole, entire. Flowers yellow, sessile, often solitary in lower axils, becoming spicate above. Capsules ovoid, with a long, tapering, solid beak. Seeds compressed, clothed with silky appressed hairs.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 824, 20/02/00. **Photograph**: 139

Sanskrit Name: Sahachar, Karanta, Kirkirat.

Local Name: Kurunt.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data : Frequency-23.93, Abundance-5.37, Density-2.36.

Distribution in Gujarat: Throughout, along roadsides and railway lines or in forests undergrowth; common and subgregarious (Shah, 1978).

BELPHARIS L. Juss.

About 80 speices; tropical regions of Old World, 2 in GNPS.

Blepharis maderaspatensis (L.) Roth, Nov. Pl. Sp. 320. 1821; Sant. In Univ. Bombay Bot. Mem. 2: 15. 1952. *Acanthus maderaspatensis* L. Sp. Pl. 639. 1753. *Blepharis boerhavifolia* Pers. Syn. Pl. 2: 180. 1806; C. B. Cl. In Hook. f. Fl. Brit. India 4 ; 478. 1884; Cooke, Fl. Pres. Bombay 2: 424. 1958 (Repr.). Shah, Fl. Guj. 1:533; 1978. Singh, et al Fl. Maha. Dicot. 2: 607. 2000.

Habit : Herbs, prostrate rooting at nodes; leaves unequal, thinly membranous, elliptic or slightly obovate, appressedly pubescent above, pale and glabrous beneath, apex acute. Flowers pale blue with yellow spot on lower lip, axillary, solitary. Capsules ovoid. Seeds echinate with obtuse spines.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 825, 20/02/00.

Local Name: Achchario.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 7 to 14, 16, 17, 19 to 22, 24 to 27, 29, 30 to 36.

Ecological Data : Frequency-17.33, Abundance-5.29, Density-4.26.

Distribution in Gujarat: Throughout, not common (Shah, 1978).

Blepharis repens (Vahl.) Roth, Nov. Pl. Sp. 321. 1821. *Acanthus repens* Vahl, Symb. 2: 76. 1791. *Blepharis molluginifolia* Pres. Syn. Pl. 2: 180. 1806; C. B. Cl. In Hook. f. Fl. Brit. Indai 4 : 479. 1884; Cooke. Fl. Pres. Bombay 2: 425. 1958 (Repr.). Shah, Fl. Guj. 1:533; 1978, Sant in Univ. Bombay Bot. Mem. 2 : 16. 1952. Singh, et al Fl. Maha. Dicot. 2: 607. 2000.

Habit : Herbs, prostrate, slender, wiry, more or less hispid. Leaves oblong – obovate, minutely scabrous, usually obtuse, mucronate, entire. Flowers blue, sessile, solitary, axillary. Capsules ellipsoid, compressed, enclosed in persistent sepals. Seeds broadly ellipsoid, compressed, hygroscopically long hairy than nucleus.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 826, 13/01/01.

Sanskrit Name: Chatuspatri, Uchhata.

Local Name: Zinku Untigan.

Distribution and Status in the Study Area: It is found in zone no 1 to 14, 18, 19, 20, 21 to 29, 31 to 35.

Ecological Data : Frequency-16.24, Abundance-5.36, Density-3.57.

Distribution in Gujarat: Throughout, not common (Shah, 1978).

DIPTERACANTHUS Nees.

About 10 species; tropical E. Africa, Asia and Australia, 1 in GNPS.

Dipteracanthus prostrata (Poir.) Nees in Wall. Pl. Asiat. Rar. 3: 81. 1832; Sant, in Univ. Bombay Bot. Mem. 2:24. 1952 & in Indian Forester 79: 321. 1953. *Ruellia prostrata* Poir. in Lam. Encycl. 6: 349. 1804; C.B.Cl. in Hook. f. Fl. Brit India 4:411. 1884. *R. prostrata* var. *dejecta* C.B.Cl. in Hook. f. op. cit. 412; Cookes, Fl. Pres. Bombay 2: 431. 1958 (Repr.). Shah, Fl. Guj. 1:536; 1978. Singh, et al Fl. Maha. Dicot. 2: 617. 2000.

Habit: Leaves ovate or elliptic, sparsely hairy. Flowers blue to violet, axillary, solitary or few together. Capsules almost glabrous on faces with dense, fringes of hygroscopic hair along margin.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 827, 28/10/00.

Local Name: Kali Ghavani.

Distribution and Status in the Study Area: It is found in zone no 5 to 10, 13 to 17, 20, 21, 22, 25, 27, 29, 32, 33 to 37.

Ecological Data : Frequency-11.90, Abundance-2.66, Density-0.48.

Distribution in Gujarat: Throughout, in hedges and undergrowth; common (Shah, 1978).

ECLIPTA L.

About 4 species in warmer parts of America, Africa, Asia and Australia, 1 in GNPS.

Eclipta prostrata (L.). L. Mant. 2:286. 1771; Sant. In J. Bombay Nat. Hist. Soc. 54:476. 1957; Rao et al. Fl. Ind. Enum. Aster. 34. 1988. *Verbesina prostrata* L. Sp. Pl. 902. 1753. *Eclipta alba* (L.) Hassak. Fl. Jav. Rar. 528. 1848; Hook. f. Fl. Brit. India 3:304. 1881. *E. erecta* L. mant. 2: 286. 1771; Cooke, Fl. Pres. Bombay 2: 112. 1958 (Repr.). Shah, Fl. Guj. 1:379; 1978. Singh, et al Fl. Maha. Dicot. 2: 207. 2000.

Habit : Annual herbs, erect or prostrate. Leaves sessile, oblong – lanceolate or oblong – elliptic, sparsely strigose on both surfaces. Heads across, solitary or 2 – together, on unequal, axillary peduncles, yellow. Achenes oblong – obovate, tubercled all over, trigonous, brown to black.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 828, 24/08/01.

Sanskrit Name: Bhrigaraja, Keshraja, Markeva.

Local Name: Bhangro.

Distribution and Status in the Study Area: It is found in zone no 1 to 16, 19 to 22, 24 to 27, 30, 31 to 36.

Ecological Data: Frequency-11.14, Abundance-3.03, Density-1.57.

Distribution in Gujarat: Throughout in damp places; common (Shah, 1978).

Notes: Linnaeus (1753) described *Verbesina prostrata* L. (p. 902), *V. alba* L. (p.902) and *V. pseudo-acmella* L. (p.901). It has been found that all the 3 names denote only a single species of which there are many forms, although the forms do not merit even a varietal status. Again in 1771, Linnaeus reduced the above three species to two and described *Eclipta prostrata* and *E. erecta* L. The former name based on *Verbesina prostrata* L. (1753) wherea the later dated only from 1771. Thus *Eclipta prostrata* is accepted here.

ERANTHEMUM L.

About 30 species; tropical Asia, 1 in GNPS.

Eranthemum roseum (Vahl.) R. Br. Prodr. 477. 1810; Sant, in Univ. Bombay Bot. Mem. 2:34.1952. *Justicia rosea* Vahl, Enum. Pl. 1: 165. 1804. *Daedalacanthus roseus* T. And. In J. Linn. Soc. 9: 487. 1867; C.B.Cl. in Hook. f. Fl. Brit. India 4:419. 1884; Cooke, Fl. Pres. Bombay 2:439. 1958 (Repr.). Shah, Fl. Guj. 1:539; 1978. Singh, et al Fl. Maha. Dicot. 2: 623. 2000.

Habit: Herbs. Leaves oblong – lanceolate, lineolate on both surfaces, apex acuminate, base tapering, often decurrent into the petiole, margins entire or obscurely crenulate. Flowers blue in often long, subinterrupted, lax, axillary and terminal spikes, solitary or occasionally 2 or 3 together forming a terminal panicle. Capsules clavate, pointed. Seeds across, hygroscopically hairy, very densely so on the margin.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 829, 23/01/00.

Local Name: Dashamuli.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 8, 11, 12, 13, 15 to 19, 22, 24 to 30, 35 and 37.

Ecological Data : Frequency-12.17, Abundance-3.17, Density-0.78.

Distribution in Gujarat: Throughout, in forest undergrowth and shaded places; common, at some places abundant (Shah, 1978).

HAPLANTHUS Kuntze.

Three species; Indo-Malesia, 1 in GNPS.

Haplanthus verticillata (Roxb.) R. B. Majumdar in Bull. Bot. Soc. Bengal 25 : 76. 1971. *Justicia verticillata* Roxb. Fl. Ind. 1 : 135. 1832; *Haplanthus verticillatus* (Roxb.) Nees in DC. Prodr. 11 : 513. 1847; C. B. Cl. In Hook. f. Fl. Brit. India 4 : 506. 1884; Cooke. Fl. Pres. Bombay 2 : 452. 1958 (Repr.). Shah, Fl. Guj. 1:540; 1978, ('verticillaris'); Sant in Univ. Bombay Bot. Mem. 2 : 51. 1952. *Bremekampia verticillata* (Roxb.) Sreem. In Bull. Bot. Surv. India 6 : 323. 1964. Singh, et al Fl. Maha. Dicot. 2: 628. 2000.

Habit : Herbs, robust, glandular. Leaves ovate – lanceolate, apex acute, base cuneate or tapering into a long petiole. Flowers light to deep violet. Capsules narrowly oblong, acute, grooved, brownish – yellow. Seeds compressed, yellowish brown, hygroscopically densely hairy.

FLS and FRTS : December – June.

Herbarium No and date of Collection: 830, 16/01/01.

Local Name: Kalun Kariyatun.

Distribution and Status in the Study Area: It is found in zone no 2, 4 to 10, 15 to 18, 20, 21, 27 to 32, 34 and 36.

Ecological Data : Frequency-13.67, Abundance-3.07, Density-1.68.

Distribution in Gujarat: Throughout, in deciduous forests; common (Shah, 1978).

HEMIADELPHUS Roxb.

About 1 species, 1 in GNPS.

Hemidelphus polyspermus (Roxb.) Nees in Wall. Pl. As. Rar. 3:80. 1832; S & J 39; S 195. *Justicia polysperma* Roxb. Hort. Beng. 3. 1814 (nomen) 7 Fl. Ind. 1:119. 1832. *Hygrophlia polysperma* (Roxb.) T. Anders. In Journ. Linn. Soc. 9:456. 1867: FBI 4:406; C 2:429; ch & o 175. Shah, Fl. Guj. 1:541; 1978,

Habit : Procumbent or suberect herbs. Leaves linear-lanceolate, elliptic-lanceolate or oblong, nearly glabrous. Flowers pale-blue or nearly white, in 1.5-6 cm long, cylindric spikes. Capsules linear-cylindric, grooved, pubescent towards apex. Seeds minute, orbicular, compressed, hairy on margins.

FLS and FRTS : October - January.

Herbarium No and date of Collection: 831, 14/12/00.

Distribution and Status in the Study Area: It is found in zone no 8, 10, 11, 12, 16, 19, 22, 26, 28, 31, 32, 34 and 36.

Ecological Data : Frequency-9.22, Abundance-3.03, Density-1.57.

Distribution in Gujarat: Vyara, Bharuch, Rajpipla, Chhotaudepur, Panchmahals Baroda, north Gujarat and Saurashtra; not common (Shah, 1978).

HEMIGRAPHIS Nees.

About 90 species; tropical Asia, 1 in GNPS.

Hemigraphis latebrosa (Heyne. ex. Roth) Nees in DC. Prodr. 11 : 723. 1847; C. B. Cl. In Hook. F. Fl. Brit. India 4: 423. 1884; Cooke, Fl. Pres. Bombay 2 : 434. 1958 (Repr.). Shah, Fl. Guj. 1:542; 1978, *Ruellia latebrosa* Heyne ex Roth, Nov. Pl. Sp. 307. 1821. *Hemigraphis latbrosa* var. *heyneana* Bremek. Mat. Mon. Strob. 139. 1944; Sant in Univ. Bombay Mem. 2 : 26. 1952. Singh, et al Fl. Maha. Dicot. 2: 631. 2000.

Habit : Herbs, weak, diffuse; stems slender, obtusely subquadrangular. Leaves ovate, sparsely hairy on both surfaces often with short, bulbous based hairs, acuminate, coarsely crenate serrate. Flowers bluish in axillary and terminal heads. Capsules minutely pubescent. Seeds broadly ellipsoid or suborbicular, yellowish – brown, clothed with white hairs.

FLS and FRTS : December – March.

Herbarium No and date of Collection: 832, 20/02/00.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 11, 16, 17, 22, 25, 28, 31 to 37.

Ecological Data : Frequency-11.82, Abundance-2.78, Density-1.09.

Distribution in Gujarat: Throughout (except Kutch) in hedges, in shaded spots and in forest undergrowth (Shah, 1978).

Notes: Although, Cooke, op.cit. has made the combination as variety, based on Dalzell's species (1850) Dalz. himself merged it with *H. latebrosa* in 1961 (Dalz. & Gibson Bombay Fl. 1861). Besides, Ellis (Fl. Nallamalai's 2:316. 1990) after studying the specimens at MH & Cal is of the opinion that the varieties may not stand as they imperceptively merge with one another. Sant., op.cit (25-28) too as rather skeptical about the varieties for he state 'I find it very difficult to distinguish between the three plants viz. *H. latebrosa* vars. *Heyneana*, *ebracteata* and *H. rupestris*' (p.27) Hence a monographers pronouncement is required on these.

HYGROPHILA R. Br.

About 100 speices; tropical regions, 2 in GNPS.

Hygrophila schulli (Buch-Ham.) M. R. & S. M. Almeida in J. Bombay Nat. Hist. Soc. 83 (Sppl.) 221. 1986; Nicols. et. al. Interpr. Hort. Malab. 40. 1988. *Barleria longifolia* L. in Torner, Cent. II, Pl. 22. 1756. *Behel schulli* Buch-Ham. In Trans. Linn. Soc. Lond. 14:289. 1825. *Bareria Ruellia longifolia* (L.) Roxb. Fl. Ind. 3:50 1832. *Asteracantha longifolia* (L.) Nees in Wall. Pl. As. Rar. 3:90. 1832; Cooke, Fl. Pres. Bombay 2:428. 1958 (Repr.); Sant. in Univ. Bombay Bot. Mem. 2:17. 1952. *Hygrophila spinosa* T. Anders in Thw. Enum. Pl. Zeyl. 225. 1860; C.B.Cl. in Hook. f. Fl. Brit. India 4:408. 1884. *H. auriculata* (K. Schum.) Heine in Kew Bull. 16:172. 1962. Shah, Fl. Guj. 1:543; 1978, Singh, et al Fl. Maha. Dicot. 2: 636. 2000.

Habit: Herbs, high, erect, stout; branches subquadrangular. Leaves sessile, appear whorl with 6 sharp, yellow spines, bolong-lanceolate or oblanceolate, sparsely hispid on both surfaces. Flowers purple-blue in a whorl at each node. Capsules long, linear-oblong, pointed. Seeds across orbicular.

FLS and FRTS : November - June.

Herbarium No and date of Collection: 833, 24/04/01.

Local Name: Kantashelio.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 8 to 11, 13 to 16, 18, 19, 20, 22, 25, 27, 29, 32, 35 and 37.

Ecological Data : Frequency-10.76, Abundance-2.84, Density-1.61.

Distribution in Gujarat: Throughout, in damp places; common, gregarious (Shah, 1978).

Notes: *Barleria longifolia* L. Amoen. Acad. 4:320. 1759 & Sp. Pl. ed. 2.2: 887. 1763, is the earliest name available for this plant. However that specific epithet is not available as it is transferred to *Hygrophila* and is preoccupied by *Hygrophila longifolia* Nees in Mart. Fl. Bras. 9: 21.1847.

Hygrophila serphyllum (Nees) T. And. in J. Linn. Soc. 9: 456. 1867; C.B.Cl. in hook f. Fl. Brit. India 4: 406. 1884; Cook, Fl. Pres. Bombay 2:429 1958 (Repr.). Shah, Fl. Guj. 1:543; 1978, Sant. In Univ. Bombay Bot. Men. 2:19. 1952. *Physichilus serpyllum* Nees in Hook . Comp. Bot. Mag. 2: 311. 1837. Rantewan. Singh, et al Fl. Maha. Dicot. 2: 637. 2000.

Habit : Herbs, Procumbent; root-stocks woody; stems glabrous or sparsely hairy. Leaves more or less hairy on both surface, entire. Flowers white or with a slight pinkish tinge in terminal dense or lax spikes. Capsules liner-oblong, pointed, glabrous or hairy atleast on upper half. Ovoid-orbicular.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 834, 19/02/00.

Local Name: Sarapat.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 9, 11, 15, 17, 20, 22, 26, 29, 32, 35 to 37.

Ecological Data : Frequency-9.23, Abundance-2.59, Density-1.57.

Distribution in Gujarat: Throughout, in drying moist ground and cultivated fields (Shah, 1978).

INDONEESIELLA Sreemadh.

Two species; endemic to India, 1 in GNPS.

Indoneesiella echioides L). Sreem in Phytologia 15: 271. 1967. *Justicia echioides* L. Sp. Pl. 16. 1753. *Andrographis echioides* (L.) Nees in Wall. Pl. As. Rar. 3: 117. 1832. C.B.Cl. in Hook. f. Fl. Brit. India 4: 505. 1884; Cooke, Fl. Pres. Bombay 2:451. 1958, Repr). Shah, Fl. Guj. 1:528 ; 1978, Sant, in Univ. Bombay. Bot. Me. 2:51. 1952. Singh, et al Fl. Maha. Dicot. 2: 638. 2000.

Habit: Herbaceous, long; stems quadrangular, grooved; branches spreading with spreading hairs. Leaves sessile, oblong to oblanceolate, more or less sparsely hairy, ciliate on margins, base cuneate, apex obtuse. Flowers white or pink, numerous, places along upper side of a slender, glandular-hairy, ciliate on margins, base

cuneate, apex obtuse. Flowers white or pink, numerous, placed along upper side of a slender, glandular-hairy, rachis in axillary racemes shorter than leaves. Capsule long, half broad as long, ellipsoid, lanceolate, compressed, acute at both ends, hairy. Seeds oblong, rugosely pitted.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 835, 23/11/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 8, 11 to 14, 17 to 20, 24 to 28, 31 to 36.

Ecological Data : Frequency-18.43, Abundance-5.29, Density-3.41.

Distribution in Gujarat: Throughout in plains (Shah, 1978).

JUSTICIA L.

About 420 species; tropical and subtropical regions as well as temperate N. America, 3 in GNPS.

Justicia bitonica L. Sp. Pl. 15. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4; 526, 1885; Sant. In Univ. Bombay Bot. Mem. 2:85.1952. *J. betonica* L. var. *ramocissima* C.B.Cl. op. cit.; Cooke, Fl. Pres. Bombay 2: 486. 1958 (Repr.). Shah, Fl. Guj. 1:545; 1978, Singh, et al Fl. Maha. Dicot. 2: 640. 2000.

Habit : Undershrubs, diffuse ly branched, more or less decubent; stems cylindric striate; Leaves ovate, apex acute or acuminate, base rounded, entire, subsrenate or slightly toothed. Flowers white or pale pink in terminal or rarely axillary spikes, simple or paniculately branched, often at the ends or short, lateral branches..

FLS and FRTS : October - March.

Herbarium No and date of Collection: 836, 28/10/00. **Photograph**: 140

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-7.24, Abundance-3.26, Density-1.10.

Distribution in Gujarat: Dangs, common (Shah, 1978).

Justicia latispica (C.B.Cl.) Gamble, Fl. Pres. Madra 1080. 1924 [2:76. 1957 (Repr.)]. Shah, Fl. Guj. 1:546; 1978, Naik, Fl. Marathwada 2: 678. 1998. *J. Procumbens* L. var. *latispica* C.B.Cl. in Hook. f. Fl. Brit. India 4:529. 1885. Singh, et al Fl. Maha. Dicot. 2: 641. 2000.

Habit: Herbs tall annuals, erect or ascending, pubescent. Leaves narrowed at both ends, entire, pubescent on both surfaces. Flowers pink in terminal. Capsules oblong, acute at apex, glabrous. Seeds ovoid, tubercled, pale brown.

FLS and FRTS : September - February.

Herbarium No and date of Collection: 837, 23/11/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 13, 15 to 20, 21, 22, 24 to 37.

Ecological Data : Frequency-14.48, Abundance-2.28, Density-0.95.

Distribution in Gujarat: Throughout among grasses and in forest undergrowth; frequent (Shah, 1978).

Notes: Similar to *J. japonica* Thunb. and *J. procumbens* L. but distinguishes itself from both with broad spikes and strongly pectinately ciliate bracts.

Justica nagpurensis A. V. W. Grah. in Kew Bull. 43: 597. 1988. *Rostellularia procumbens* var. *serpyllifolia* Bth. In Hohen. Pl. Ind. Or 571. 1847. *J. simplex* D. Don var. *serpyllifolia* (Bth.) C.B.Cl. in Hook. f. Fl. Brit. India 4: 539. 1885. *J. serpyllifolia* ((C.B.Cl.) Gamble, Fl. Pres. Madras 1080. 1924 [2: 756. 1957 (Repr)]. Shah, Fl. Guj. 1:548; 1978, Sant. In Univ. Bombay Bot. Mem. 2: 90. 1952; Naik Fl. Marathwada 2: 681. 1998. *Rostellularia serpyllum* (bth.) Bremek. In Verh. Kon. Ned. Acad. Wet. Aft. Naturk. Tweede Sect. 2: 45(2): 62. 1948. Singh, et al Fl. Maha. Dicot. 2: 641. 2000.

Habit : Herbs, pubescent, diffuse, prostrate or straggling,. Leaves very small, elliptic or orbicular, obtuse or subcute, hairy;. Flowers pink. Capsules pointed, pubescent at apex. Seeds scarcely orbicular.

FLS and FRTS : October – January.

Herbarium No and date of Collection: 838, 20/11/00.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 7 , 8, 10 to 18, 20, 21, 22, 24 to 37.

Ecological Data : Frequency-13.52, Abundance-8.53, Density-4.17.

Distribution in Gujarat: Throughout, everywhere (Shah, 1978).

Notes: Naik, op.cit.opines that this is probably stunted form of *J. japonica* Thunb. with variable leaf shape, size and length of spikes.

LEPIDAGATHIS Wild.

About 100 species; tropical and subtropical regions, 2 in GNPS.

Lepidagathis cristata Wild Sp. Pl. 2:400. 1800; C.B.Cl. In Hook, f. Fl. Brit. India 4: 516. 1885; Cooke, Fl. Pres. Bombay 2: 470. 1958 (Repr.). Shah, Fl. Guj. 1:548; 1978, Sant. In Univ. Bombay Bot Mem 2: 71. 1952. Naik, Fl. Marathwada 2: 682. 1998. Singh, et al Fl. Maha. Dicot. 2: 645. 2000.

Habit : Herbs root – stock perennial; stem scarcely any; branches numerous, spreading on all sides, close to the ground sometimes numerous. Spreading on all

sides, close to the ground, sometimes rooting, slender, quadrangular. Leaves opposite, sessile, linear – oblong or lanceolate – oblong, lineolate above, hairy on nervos beneath. Flowers white or pale pink, dotted with purple spots in globose heads. Capsules obovoid, subacute. Seeds ovoid – oblong, rounded, densely clothed with long, hygroscopic mucilaginous hairs.

FLS and FRTS : October – May.

Herbarium No and date of Collection: 839, 01/11/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-7.42, Abundance-3.26, Density-1.10.

Distribution in Gujarat: In dense forests as forests undergrowth, not common (Shah, 1978).

Lepidagathis cuspidata Nees. in Wallich. Pl. As. Rar. 3:97. 1832; C,B,Cl. in Hook. f. Fl. Brit. India 4: 519. 1884; Cooke, Fl. Pres. Bombay 2: 474, 1958 (Repr.); Sant. in Unvi. Bombay Bot. Mem. 2:73.1952. Shah, Fl. Guj. 1:548; 1978, Singh, et al Fl. Maha. Dicot. 2: 646. 2000.

Habit: Undershrubs erect; stems and branches quadrangular, glandular – pubescent upwards. Leaves oblong – lanceolate, apex acute or acuminate, usually mucronate, base acute,. Flowers white with darker lines in terminal spikes often terminating in short, axillary branches. Capsules ovoid – lanceolate, acute.

FLS and FRTS : March – May.

Herbarium No and date of Collection: 840, 29/05/01.

Distribution and Status in the Study Area: It is found in zone no 4 to 7, 10, 11, 13, 15, 17, 19, 20, 22, 25, 29, 31 to 35.

Ecological Data : Frequency-4.23, Abundance-1.84, Density-2.29.

Distribution in Gujarat: North Gujarath (Idar); a few plants seen on old walls of the fort and hilly slopes (Shah, 1978).

NEURACANTHUS Nees.

About 1 species, 2 in GNPS.

Neuracanthus nervius Wight. Ic. T. 1532. 1850; C. B. Cl. In Hook. f. Fl. Brit. India 4: 491. 1885; Cooke. Fl. Pres. Bombay 2: 465. 1958 (Repr.). Shah, Fl. Guj. 1:550; 1978, Sant. In Univ. Bombay Bot. Mem. 2: 66. 1952. Singh, et al Fl. Maha. Dicot. 2: 652. 2000.

Habit: Herbs, erect; stems slender, glabrous. Leaves sessile, elliptic – lanceolate, apex acute, base rounded or acute. Flowrs bluish in axillary. Capsules oblong, acuminate. Seeds broadly ovoid, compressed, silky.

FLS and FRTS : December – June.

Herbarium No and date of Collection: 841, 26/04/01. **Photograph:** 141

Distribution and Status in the Study Area: It is found in zone no 3, 6, 7 to 15, 18 to 21, 26 to 31, 33, 35 and 36.

Ecological Data : Frequency-17.83, Abundance-4.43, Density-2.52.

Distribution in Gujarat: Dangs (Malegaon) in dense forest undergrowth; fairly common (Shah, 1978).

Neuracanthus sphaerostachyus (Nees.) Dalz.in Hook. Kew. J. Bot. 2: 140. 1850; C. B. Cl. in Hook. f. Fl. Brit. India 4 : 491. 1885; Cooke. Fl. Pres. Bombay 2: 465. 1958 (Repr.). Shah, Fl. Guj. 1:550; 1978, Sant in Univ. Bombay Bot. Mem. 2: 66. 1952. *Lepidagathis sphaerostachyus* Nees in DC. Prodr. 11: 254. 1847. Singh, et al Fl. Maha. Dicot. 2: 652. 2000.

Habit: Herbs. Stems erect, numerous from a perennial root, simple, obtusely quadrangular, more or less scabrous – pubescent. Leaves subsessile, elliptic – oblong, lineolate on both sides, apex obtuse, shortly acuminate. Flowers white with bluish tings. Capsules ovoid, subacute, shortly attenuated at base. Seeds across, orbicular, densely silky.

FLS and FRTS : September – June.

Herbarium No and date of Collection: 842, 21/04/01.

Local Name: Ganthera.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-16.83, Abundance-9.50, Density-5.87.

Distribution in Gujarat: Throughout, common (Shah, 1978).

PERISTROPHE Nees.

About 15 species; tropical regions of Old World, 1 in GNPS.

Peristrophe paniculata (Forssk.) Brummitt in Kew Bull. 38:451. 1983. *Dianthera paniculata* Forssk. Fl. Aeg.-Arab. 7. 1775. *Peristrophe bicalyculata* (Retz.) Nees in Wall. Pl. As. Rar. 3:113. 1832. C.B.Cl. in Hook. f. Fl. Brit. India 4: 554. 1885; Cooke, Fl. Pres. Bombay 2: 495. 1958 (Repr.). Shah, Fl. Guj. 1:551; 1978, Sant. in Univ. Bombay Bot. Mem. 2:93. 1952. Singh, et al Fl. Maha. Dicot. 2: 657. 2000.

Habit: Herbs, tall; stems and branches usually 6-angled, more or less hairy. Leaves ovate, densely lineolate, more or less hairy above, somewhat densely so on nerves and veins beneath apex acuminate, base usually rounded. Flowers rosy in trichotomous cymes in large, lax, divaricate, pubescent panicles. Capsules narrowed into a cylindric stalk, pointed, pubescent. Seeds across, orbicular, papillose and

slightly rugose.

FLS and FRTS : October - February.

Herbarium No and date of Collection: 843, 21/01/00.

Sanskrit Name: Kakajangha, Sulomsha, Nadikanta, Prachibola.

Local Name: Kalinaghedi.

Distribution and Status in the Study Area: It is found in zone no 1 to 5, 8, 9, 11, 15 to 19, 22, 25 to 29, 31, 33, 35 and 37.

Ecological Data : Frequency-7.20, Abundance-2.40, Density-0.85.

Distribution in Gujarat: Throughout, in hedges and in forest undergrowth (Shah, 1978).

RUNGIA Nees.

About 50 species; tropical regions of Old World, 2 in GNPS.

Rungia parviflora (Retz.) Nees in Wall. Pl. As. Rar. 3: 110. 1832 & in DC. Prodr. 11: 469. 1847. (excl. Syn); C. B. Cl. In Hook. f. Fl. Brit. India 4: 550. 1885; Sant. In Univ. Bombay Bot. Mem. 2 : 76. 1952. *Justicia parviflora* Retz. Obs. Bot. 4 : 9. 1788, Shah, Fl. Guj. 1:554; 1978, Singh, et al Fl. Maha. Dicot. 2: 671. 2000.

Habit : Herbs. Leaves elliptic – lanceolate or oblong, apex rounded or acute, base acute. Flowers blue or violet in terminal and axillary spikes. Capsules. Seeds flattened, orbicular, concentrically ridged.

FLS and FRTS : November – March.

Herbarium No and date of Collection: 844, 16/02/01.

Local Name: Khadselio.

Distribution and Status in the Study Area: It is found in zone no 1 to 5, 7, 9, 12, 14, 15, 16, 18, 19, 20, 21, 25 to 28, 30, 31 to 36.

Ecological Data : Frequency-6.95, Abundance-2.10, Density-0.67.

Distribution in Gujarat: Throughout, common in shaded spots (Shah, 1978).

Rungia pectinata (Linn.) Nees. in DC., Prodr. 11: 469. 1847; Sant in Univ Bombay Bot Men. 2:77. 1952; *Justicia* L. in Torner, Cent. II Pl. 3. 1756. *Rungia parviflora* var. *pectinata* (L.) C.B.Cl. in Hook. f. Fl. Brit. India 4: 550. 1885; Cooke, Fl. Pres. Bombay 2: 478, 1958 (Repr.). Shah, Fl. Guj. 1:554; 1978, *R. parviflora* var. *muralis* C.B.Cl. in Hook. f. op. cit; Cooke, op. cit. Singh, et al Fl. Maha. Dicot. 2: 672. 2000.

Habit: Herbs. Leaves elliptic-lanceolate or oblong-lanceolate, base acute, Flowers blue in terminal and axillary, Capsules ovoid, acute compressed pubescent at tip. Seeds orbicular, minutely echinulate, yellow.

FLS and FRTS : October - March.



142



143



144



145



146



147

142) *Clerodendron inerme* (L.) Gaertn., 143) *Gmelina arborea* Roxb., 144) *Lantana camara* L., 145) *Phyla nodiflora* (L.) Greene., 146) *Vitex negundo* L., 147) *Anisomeles indica* (L.) O. Kuntze.

Herbarium No and date of Collection: 845, 13/01/01.

Local Name: Khadselio.

Distribution and Status in the Study Area: It is found in the zone no 1 to 5, 7, 9, 12, 14 to 16, 18 to 21, 24 to 27, 31 to 37.

Ecological Data : Frequency-7.90, Abundance-1.40, Density-0.53.

Distribution in Gujarat: Throughout; common in shaded spots (Shah, 1978).

VERBENACEAE

About 91 genera and 1900 speices; tropical to temperate regions; 7 genera and 9 species in GNPS.

CLERODENDRUM L.

About 400 species; tropical and subtropical regions, 2 in GNPS.

Clerodendrum inerme (L.) Gaertn. Fruct. Sem. Pl. 1: 271. t. 57. 1788; Hook. f. Fl. Brit. India 4: 589. 1885; Cooke, Fl. Pres. Bombay 2: 511, 1958 (Repr.). Shah, Fl. Guj. 1:558; 1978, *Volkameria inermis* Linn. Sp. Pl. 637. 1753. Singh, et al Fl. Maha. Dicot. 2: 690. 2000.

Habit: Shrubs, tall, much branched, straggling. Leaves elliptic-obovate, apex obtuse, base attenuate. Flowers long, white, with pink tinge; filaments hairy at base. Drupes long, pyriform, black when mature, encircled by persistent calyx.

FLS and FRTS : May - December.

Herbarium No and date of Collection: 846, 23/06/01. **Photograph:** 142

Sanskrit Name: Bharangi, Agnimanth, Ganikarika, Vajayantika.

Local Name: Kadvi Mahendi.

Distribution and Status in the Study Area: It is found in the zone no 1 to 4, 6, 8 to 11, 13, 15, 17, 18, 20, 21, 22, 24, 25, 26, 28, 29, 31 to 37.

Ecological Data: Frequency-6.31, Abundance-0.78, Density-0.57.

Distribution in Gujarat: Throughout; common as hedge (Shah, 1978).

Clerodendrum multiflorum (Burm. f.) Kuntze. Revis. Gen. Pl. 3: 526. 1891; *Volkameria multiflorum* Burm. f. Fl. Ind. 137, t. 45, f. 1. 1786. *Clerodendrum phlomidis* L. f. Suppl. 292. 1781; C.B.Cl. in Hook. f. Fl. Brit. India 4: 590. 1885; Cooke, Fl. Pres. Bombay 2: 511. 1958 (Repr.). Shah, Fl. Guj. 1:559; 1978. Singh, et al Fl. Maha. Dicot. 2: 690. 2000.

Habit: Scandent shrubs, tall; branches pubescent. Leaves ovate to subrhomboid, apex obtuse or acute, margins crenate-dentate. Inflorescences of terminal panicles, pubescent. Flowers long, pinkish-white, corolla minutely pubescent. Drupes long,

calyx lobes persistent.

FLS and FRTS : November - March.

Herbarium No and date of Collection: 847, 24/11/01.

Sanskrit Name: Agnimanth, Vataghni, Brahmayastika, Padma, Brahmani.

Local Name: Arni.

Distribution and Status in the Study Area: It is found in the zone no 1 to 4, 6, 8 to 11, 13, 15, 17, 18, 20, 21, 22, 24, 25, 26, 28, 29, 31 to 37.

Ecological Data: Frequency-13.71, Abundance-0.78, Density-0.24.

Distribution in Gujarat: Throughout, in hedges on plains (Shah, 1978).

DURANTA L.

About 30 species; Carribean to S. Africa, 1 in GNPS.

Duranta repens L. Sp. Pl. 637. 1753. *D. ripens* eruct. Non. L. 1753. *D. plumieri* Jacq. Select. Strip. Arn. 186. 1763; C. B. Cl. in Hook. f. Fl. Brit. India 4: 560. 1885; Cooke, Fl. Pres. Bombay 2: 518. 1958 (Repr.). Shah, Fl. Guj. 1:559; 1978, Singh, et al Fl. Maha. Dicot. 2: 704. 2000.

Habit: Bushy shrubs; branches spiny. Leaves ovate or elliptic-oblong, acute at apex, cuneate at base, minutely gland dotted below. Flowers in terminal panicles; calyx pubescent; corolla white or bluish-violet, corolla tube pubescent inside. Fruits drupaceous, orange coloured.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 840, 29/05/01.

Local Name: Damayanti.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6 to 10, 13, 14, 15, 17 to 20, 22, 25, 26, 27, 29, 30, 32, 34 and 35.

Ecological Data: Frequency-15.66, Abundance-0.40, Density-0.34.

Distribution in Gujarat: Ornamentals (Shah, 1978).

GMELINA L.

About 35 species; E. Asia, Indo-Malesia, Australia, tropical Africa and Mascarenes, 1 in GNPS.

Gmelina arborea Roxb. Pl. Corom. 3: 41-42. t. 246. 1818; C.B.Cl. in Hook. f. Fl. Brit. India 4: 581. 1855; Cooke, Fl. Pres Bombay 2: 504. 1958 (Repr.). Shah, Fl. Guj. 1:560; 1978. Singh, et al Fl. Maha. Dicot. 2: 692. 2000.

Habit: Trees, tall. Leaves broadly ovate, apex acuminate, base cordate. Inflorescences in terminal panicles, branches densely pubescent hairy. Flowers light yellowish-brown. Drupes obovoid or pyriform, green to yellow when ripe.

FLS and FRTS : February - July.

Herbarium No and date of Collection: 849, 02/06/01. **Photograph:** 143

Sanskrit Name: Sriparni, Bhadvaparni.

Local Name: Savan.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 17 to 20, 22, 24 to 27, 29 to 32, 34 to 37.

Ecological Data: Frequency-13.83, Abundance-1.33, Density-0.95.

Distribution in Gujarat: Throughout; not frequent; seldom planted (Shah, 1978).

LANTANA L.

About 150 species; tropical America and tropical and S. Africa, 2 in GNPS.

***Lantana camara* L.** In Torrey 34: 9. 1934. *L. aculeate* L. Sp. Pl. 627. 1753. *L. camara* auct. Non L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 562. 1885; Cooke, Fl. Pres. Bombay 2: 498. 1958 (Repr.). Shah, Fl. Guj. 1:561; 1978. Singh, et al Fl. Maha. Dicot. 2: 693. 2000.

Habit: Shrubs, tall, much branched. Leaves ovate-elliptic, apex acute, base rounded, margins crenate-serrate. Inflorescence of terminal and axillary spikes. Flowers long, orange-red, turning into scarlet. Drupes across, globose, fleshy, black coloured when ripe.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 850, 30/05/01. **Photograph:** 144

Local Name: Bapshi.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13 to 17, 18, 21, 22, 24, 25, 28, 29, 31 to 37.

Ecological Data: Frequency-20.43, Abundance-1.54, Density-0.81.

Distribution in Gujarat: Throughout, everywhere; common; native of tropical America (Shah, 1978).

***Lantana salvifolia* Jacq.** Hort. Schoenbr. 3: 18., t. 285. 1798. *L. indica* Roxb. Fl. Ind. 3: 89. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4: 562. 1885; Cooke, Fl. Pres. Bombay 2: 498. 1958 (Repr.). Shah, Fl. Guj. 1:562; 1978, Singh, et al Fl. Maha. Dicot. 2: 693. 2000.

Habit: Shrubs, tall. Leaves ovate-elliptic, apex acute, base rounded, margins crenate. Inflorescences in capitate spikes. Flowers long, white or purple tinged with yellow throat. Drupes across, obovoid, subglobose.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 851, 29/05/01.

Local Name: Dholi Bapshi.

Distribution and Status in the Study Area: It is found in zone no 1 to 8, 10, 11, 16, 17, 21, 22, 24, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-12.71, Abundance-0.78, Density-0.87.

Distribution in Gujarat: Throughout, in small or large patches, everywhere; common (Shah, 1978).

PHYLA Lour.

About 15 speices; tropical and subtropical regions, 1 in GNPS.

Phyla nodiflora (L.) E. Greene. Pittonia 4: 46. 1899; Sant. in Rec. Bot. Surv. India 16(1): 211. 1967 (3rd Rev. ed.). *Verbena nodiflora* L. Sp. Pl. 20. 1753. *Lippia nodiflora* (L.) A. Rich. In Michaux, Fl. Bor. Amer. 2: 15. 1803; C.B.Cl. in Hook. f. Fl. Brit. India 4: 563. 1885; Cooke, Fl. Pres. Bombay 2: 499. 1958 (Repr.). Shah, Fl. Guj. 1:562; 1978. Singh, et al Fl. Maha. Dicot. 2: 693. 2000.

Habit: Herbs, prostrate; stems appressed hairy. Leaves elliptic-obovate, upper half serrate, appressed hairy, base attenuate. Inflorescences of axillary spikes. Flowers long, whitish-pink. Drupes ellipsoid.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 852, 28/10/00. **Photograph:** 145

Sanskrit Name: Vashira.

Local Name: Ratvelip.

Distribution and Status in the Study Area: It is found in zone no 3 to 16, 19, 20, 21, 24 to 27, 30 to 34, 36 and 37.

Ecological Data : Frequency-8.95, Abundance-1.66, Density-0.67.

Distribution in Gujarat: Throughout, in small or large patches, common (Shah, 1978).

TECTONA L. f. nom. cons.

Four species; S.E. Aisa to Malesia, 1 in GNPS.

Tectona grandis L. f. Suppl. Pl. 151. 1781; C.B.Cl. in Hook f. Fl. Brit. India 4: 570. 1885; Cooke, Fl. Pres. Bombay 2: 503, 1958 (Repr.). Shah, Fl. Guj. 1:564; 1978. Singh, et al Fl. Maha. Dicot. 2: 696. 2000.

Habit: Trees tall. Leaves elliptic or obovate, apex acute or acuminate, base cuneate, upper surface glabrous and rough, lower surface stellate grey or tawny tomentose. Inflorescences of erect, terminal panicles. Flowers white. Drupes subglobose.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 853, 15/11/99.

Sanskrit Name: Saka, Mahapatra, Dwardaru, Kharchand.

Local Name: Sag.

Distribution and Status in the Study Area: It is found in zone no 1 to 10, 12 to 32 and 34.

Ecological Data: Frequency-24.22, Abundance-2.42, Density-1.88.

Distribution in Gujarat: Throughout in deciduous forests except some parts of Banaskantha and Rajkot districts; common (Shah, 1978).

VITEX L.

About 250 species; tropical to temperate regions, 1 in GNPS.

Vitex negundo L. Sp. Pl. 638. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 583. 1885; Cooke, Fl. Pres. Bombay 2: 508, 1958 (Repr.). Shah, Fl. Guj. 1:564; 1978, *V. trifolia* Grah. Cat. Bombay Pl. 155. 1839 non L. Singh, et al Fl. Maha. Dicot. 2: 699. 2000.

Habit: Trees. Branches grayish-white with fine tomentum. Leaflets ovate-lanceolate, base acute, margins entire-sinuate with few scattered teeth in middle above. Inflorescences of terminal, compound, pyramidal, paniculate cymes, branches tomentose. Flowers long, bluish-purple; calyx white tomentose. Drupes ovoid, enclosed by campanulate fruiting calyx.

FLS and FRTS : January - June.

Herbarium No and date of Collection: 854, 26/04/01. **Photograph:** 146

Sanskrit Name: Nirgundi, Indranika, Shephalika.

Local Name: Nagod.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 21, 25, 28, 29, 32 and 35.

Ecological Data: Frequency-4.70, Abundance-0.28, Density-0.44.

Distribution in Gujarat: Throughout, in river beds and waste places; common; occasionally cultivated (Shah, 1978).

LAMIACEAE

About 224 genera and 5600 species; cosmopolitan especially from Mediterranean region to C. Asia; 4 genera and 10 species in GNPS.

ANISOMELES R. Br.

About 6 species; tropical regions of Old World, 2 in GNPS.

Anisomeles indica (L.) O. Ktze. Rev. Gen. Pl. 512. 1891; Mukerjee in Rec. Bot. Surv. India 14(1): 152. 1940. *Nepeta indica* L. Sp. Pl. 571. 1753. *Anisomeles ovata* R. Br. In Ait. Hort. Kew (ed. 2), 2: 364. 1811; Hook. f. Fl. Brit. India 4: 672, 1885;

Cooke, Fl. Pres. Bombay 2: 543. 1958 (Repr.). Shah, Fl. Guj. 1:568; 1978. Singh, et al Fl. Maha. Dicot. 2: 715. 2000.

Habit: Undershrubs, annual or perennial, high, suffruticose; stems densely pubescent. Leaves ovate, softly pubescent on both sides, apex acuminate, base truncate-cordate or rounded, rarely cuneate, margins serrate. Flowers bluish-white to pink, crowded in whorls in axillary cymes, appearing terminal due to reduction of leaves; calyx long, hirsute; corolla long. Nutlets long, broadly ovoid, shining black.

FLS and FRTS : October - February.

Herbarium No and date of Collection: 855, 29/10/00. **Photograph:** 147

Local Name: Chodharo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6 to 10, 13 to 22, 26 to 30, 33 to 36.

Ecological Data : Frequency-8.00, Abundance-1.41, Density-0.83.

Distribution in Gujarat: Throughout, a road side weed (Shah, 1978).

Anisomeles malabarica R.Br. ex Sims, Bot Mag. t. 2071. 1819; Hook f. Fl. Brit. India 4: 673. 1885; Cook, Fl. Pres. Bombay 2: 544. 1958 (Repr.). Shah, Fl. Guj. 1:569; 1978, Mukerjee in Rec. Bot. Surv. India 14 (1): 153. 1940. Singh, et al Fl. Maha. Dicot. 2: 716. 2000.

Habit : Undershrubs, Leaves lanceolate or oblong-lanceolate, tomentose on both sides; apex acute, fragrant, in dense whorls of terminal spikes;

FLS and FRTS : October - January.

Herbarium No and date of Collection: 856, 29/10/00.

Local Name: Dholo chodhard.

Distribution and Status in the Study Area: It is found in zone no 8, 10, 11, 12, 16, 19, 22, 28, 31 and 33.

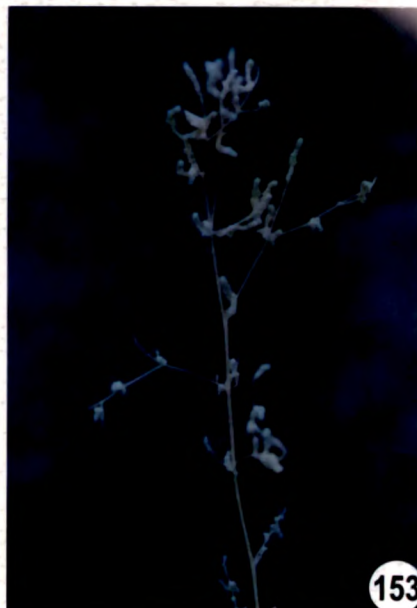
Ecological Data : Frequency-3.69, Abundance-1.03, Density-0.75.

Distribution in Gujarat: Saurashtra (Shah, 1978).

LEUCAS R. Br.

About 150 species; Africa and Arabia to Indo-Malesia, 4 in GNPS.

Leucas aspera (Willd.) Link. Enum. Hort. Berol. Alt. 2: 113. 1822; Hook. f. Fl. Brit. India 4: 690. 1885; Cooke, Fl. Pres. Bombay 2: 548, 1958 (Repr.). Shah, Fl. Guj. 1:572; 1978, Mukherjee in Rec. Bot. Surv. India 14(1): 166. 1940; Keng in Gard. Bull. Singapore 24: 101. 1969. *Phlomis aspera* Willd. Enum. Hort. Berol. 2: 621. 1809. *Leucas pulkenetii* (Roth) Spr. Syst. Veg. 2: 473. 1825; Naik Fl. Marathwada 2: 719. 1998. *Phlomis pulkenetii* Roth, Nov. Pl. Sp. 261. 1821. Singh, et al Fl. Maha.



148) *Leucas aspera* (Willd.) Link., 149) *Ocimum basilicum* Linn., 150) *Boerhaavia diffusa* L., 151) *Bougainvillea spectabilis* Willd., 152) *Achyranthes aspera* Linn., 153) *Aerva lanata* (L.) Juss.

Dicot. 2: 726. 2000.

Habit: Erect, diffuse, annual herbs, high; stems and branches hispid with spreading hairs. Leaves narrowly lanceolate or oblong-lanceolate, subsessile, membranous, pubescent on both sides, apex obtuse or rarely acute, base narrowed margins crenate. Narrowly lanceolate; calyx long nerved toothed, tube pilose; corolla long, strongly curved, upper lip densely velutinous, lower pubescent. Nutlets ovoid, smooth.

FLS and FRTS : September - March.

Herbarium No and date of Collection: 857, 19/11/00. **Photograph:** 148

Local Name: Kubi.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data : Frequency-21.24, Abundance-2.75, Density-3.08.

Distribution in Gujarat: Throughout; common and abundant (Shah, 1978).

Leucas biflora (Vahl.) R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4: 683. 1885; Cooke, Fl. Pres. Bombay 2: 553, 1958 (Repr.). Shah, Fl. Guj. 1:572; 1978, Mukerjee in Rec. Bot. Surv. India 14(1): 180. 1940. *Phlomis biflora* Vahl, Symb. Bot. 3: 77. 1794. Singh, et al Fl. Maha. Dicot. 2: 726. 2000.

Habit: Herbs with a perennial root stock; stems procumbent, much branched, with long internodes. Leaves ovate to elliptic, hairy on both sides, apex obtuse to subacute, base truncate or rounded, margins coarsely serrate or crenate. Flowers white in axillary whorls; bracts setaceous long; calyx long campanulate, ribbed, hispid teeth subulate; corolla long tube annulate inside, upper lip long lower ovate-oblong. Nutlets irregularly tuberculate, brown.

FLS and FRTS : August - April.

Herbarium No and date of Collection: 858, 14/04/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 9, 11, 14 to 22, 24 to 27, 29 to 37.

Ecological Data : Frequency-21.31, Abundance-3.03, Density-2.22.

Distribution in Gujarat: North to South Gujarat (Shah, 1978).

Leucas cephalotes (Roth) Spr. Syst. Veg. 2: 743. 1825; Hook. f. Fl. Brit. India 4: 689. 1885; Cooke, Fl. Pres. Bombay 2: 549, 1958 (Repr.). Shah, Fl. Guj. 1:572; 1978, Mukherjee in Rec. Bot. Surv. India 14(1): 168. 1940. Singh, et al Fl. Maha. Dicot. 2: 727. 2000.

Habit: Herbs, erect high; stems short, pubescent; branches obtusely angled, hairy. Leaves ovate or ovate-lanceolate or broadly elliptic, softly hairy above, pubescent

beneath, apex subacute base tapering, margins crenate-serrate. Flowers white sessile, in across globose heads; bracts foliaceous, long; calyx long; corolla long lower lip slightly longer than upper. Nutlets long, obovoid smooth, brown.

FLS and FRTS : September - November.

Herbarium No and date of Collection: 859, 30/10/00.

Sanskrit Name: Dronapushpi, Kutumbak.

Local Name: Dosi no Kubo.

Distribution and Status in the Study Area: It is found in zone no 4 to 22, 24 to 31, 35 to 37.

Ecological Data : Frequency-56.38, Abundance-1.11, Density-0.74.

Distribution in Gujarat: Throughout, scattered; occasional (Shah, 1978).

***Leucas zeylanica* (L.) R.Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India. 4: 689. 1885; Cooke, Fl. Pres. Bombay 2: 549. 1958 (Repr.). Shah, Fl. Guj. 1:575; 1978, Mukerjee in Rec. Bot. Surv. India 14: 171. 1940; Cramer in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3:183. 1981. *Phlomis zeylanica* L.Sp. Pl. 586. 1753. Singh, et al Fl. Maha. Dicot. 2: 738. 2000.**

Habit : Herbs, Leaves linear-lanceolate to lanceolate, scabrid, glandular-punctate beneath apex acute, white, sessile or subsessile,

FLS and FRTS : October - February.

Herbarium No and date of Collection: 860, 01/11/01.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 6, 9 to 12, 18 to 22, 27 to 31, 33 to 35.

Ecological Data : Frequency-5.32, Abundance-2.77, Density-0.90.

Distribution in Gujarat: North Gujarat (Mahudi), on sandy river bed; rare (Shah, 1978).

OCIMUM L.

About 150 species; tropical and warm temperate regions especially Africa, 3 in GNPS.

***Ocimum americanum* L. Cent. Pl. 1: 15. 1755; Keng in Gard. Bull. Singapore 24: 125. 1969. *O. canum* Sims in Bot. Mag. 51: t. 2452. 1823; Hook. f. Fl. Brit. India 4: 607. 1885; Cooke, Fl. Pres. Bombay 2: 521. 1958 (Repr.). Shah, Fl. Guj. 1:577; 1978, Mukerjee in Rec. Bot Surv. India 14(1): 17, 1940. Singh, et al Fl. Maha. Dicot. 2: 741. 2000.**

Habit: herbs erect annuals; stems and branches striate and pubescent, subquadrangular. Leaves ovate or ovate – oblong, glabrous or scaberulous above,

sparsely pilose along nerves and gland – dotted beneath, margins serrulate. Flowers white, in whorls, in spiciform, long racemes; bracts ovate, clawed; calyx campanulate, dotted with oil globules; corolla tube glabrous, upper lip ovate – oblong, lower one ovate – oblong. Nutlets ovoid, sub – trigonous, smooth.

FLS and FRTS : September – February.

Herbarium No and date of Collection: 861, 23/11/00.

Local Name: Jangli Tulsi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 5, 6, 8, 9, 11 to 15, 17, 20, 24, 27, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-6.18, Abundance-0.58, Density-1.61.

Distribution in Gujarat: Cultivated; also as an escape (Shah, 1978).

Ocimum basilicum Linn. Sp. Pl. 597. 1753; Hook. f. Fl. Brit. India 4: 608. 1885; Cooke, Fl. Pres. Bombay 2: 523, 1958 (Repr. ed). Shah, Fl. Guj. 1:577; 1978, Shah, Fl. Guj. 1: 577, 1978; Singh, et al., Fl. Maha. Dicot. 2:766. 2000; *Ocimum americanum* Linn. Cent. Pl. 1: 15. 1755; *Ocimum thrysiflorum* Linn. Mant. Pl. 84. 1767; *Ocimum basilicum* Linn. var. *thrysiflorum* (L.) Benth., in Wallich. Pl. Asiat. Rar. 2: 13. 1830.

Habit: Erect, aromatic herbs; stems much branched. More or less. Pubescent, dense hairy on nodes. Leaves ovate or ovate-lanceolate entire or crenate-serrate along margins, sparsely pubescent on both surfaces. Flowers whorled in thysoid racemes; bracts broadly tubular, accrescent, upper lip ovate or suborbicular, ciliate or glabrous on the back; corolla white-pubescent outside. Nutlets ellipsoid, faintly rugose or pitted, black.

FLS and FRTS : August - November.

Herbarium No and date of Collection: 862, 23/11/00. **Photograph**: 149

Sanskrit Name: Arjak, Gandhapatra, Uragandh, Kutherak.

Local Name: Damaro.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 9, 11, 16, 21, 22, 24, 25, 28, 31, 32, 33, 35 to 37.

Ecological Data : Frequency-7.29, Abundance-1.99, Density-1.48.

Distribution in Gujarat: Cultivated, also as an escape (Shah, 1978).

Ocimum tenuiflorum Linn. Sp. Pl. 597. 1753; Press & Sivarajan in Bull. Br. Mus. Nat. Hist. (Bot.) 19: 116. 1989. *O. sanctum* Syst. Nat. ed. 12, 2: 402. 1767; Hook. f. Fl. Brit. India 4: 609. 1885; Cooke, Fl. Pres. Bombay 2: 521, 1958 (Repr). Shah, Fl. Guj. 1:578; 1978, Mukerjee in Rec, Bot. Surv. India 14(1): 19. 1940. Singh, et al Fl.

Maha. Dicot. 2: 743. 2000.

Habit: Herbs Leaves ovate –oblong or elliptic-oblong, Flowers reddish-pink or purplish, in close whorls.

FLS and FRTS : September – February.

Herbarium No and date of Collection: 863, 24/11/00.

Sanskrit Name: Devdandhupi, Sursa, Vrunda.

Local Name: Tulsi.

Distribution and Status in the Study Area: It is found in the zone no 1 to 3, 6, 10, 13, 17, 21, 22, 24, 26, 28, 31, 33, 35 and 36.

Ecological Data : Frequency-2.56, Abundance-1.49, Density-0.40.

Distribution in Gujarat: Cultivated or an escape (Shah, 1978).

POGOSTEMON Burm. f.

About 8 species, 1 in GNPS.

Pogostemon benghalensis (Burm. F.) O. Ktze. Rev. Gen. Pl. 2 : 529. 1891; Bhatti & Ingrouille in Bull. Nat. Hist. Mus. Lond. (Bot) 27 : 89, figs. 4a, 14a 1977. *Origanum benghalense* Burm. F. Fl. Ind. 128, t. 38, f. 3. 1768. *Pogostemon parviflorus* Bth, in Wall. Pl. Asiat. Rar. 1 : 31. 1831; Hook. f. Fl. Brit. India 4 : 632. 1885; Cooke. Fl. Pres. Bombay 2 : 536. 1958 (Repr.). Shah, Fl. Guj. 1:580; 1978, Mukerjee in Rec. Bot. Surv. India 14(1) : 68. 1940. *P. plectranthoides* auct. Pro maj. Non Desf. 1815. Singh, et al Fl. Maha. Dicot. 2: 752. 2000.

Habit : Herbs, ovate or ovate-lanceolate, glabrous or slightly pubescent, apex acute or acuminate. Flowers white with purple tinge, in terminal, pubescent,

FLS and FRTS : November – February.

Herbarium No and date of Collection: 864, 25/11/00.

Distribution and Status in the Study Area: It is found in the zone no 8, 9, 14, 15, 24 to 26, 35 and 36.

Ecological Data : Frequency-8.54, Abundance-2.64, Density-1.68.

Distribution in Gujarat: Dharampur, Dangs, Rajpipla and Chhotaudepur; not very common (Shah, 1978).

Notes: *Pogostemon benghalensis* has previously been recorded as a synonym of *P. plectranthoides*. But, according to Bhatti & Ingrouille (op.cit.) they are distinct. However, it is possible that many records of this species from southern India and Sri Lanka are referable to *P. plectranthoides*. *Pogostemon benghalensis* has a corolla with a narrower cylindrical tube and a verticillaster which is generally less crowded than in *P. plectranthoides*.

NYCTAGINACEAE

About 34 genera and 350 species; tropical and subtropical regions especially America, few in temperate zones; 2 genera and 4 species in GNPS.

BOERHAAVIA L.

About 40 species; subtropical regions, 3 in GNPS.

Boerhaavia chinensis (L.) Druce. in Rep. Bot. Exch. Cl. Brit. Isles 3:415. 1914; S & J 42. *Valeriana chinensis* L. Sp. Pl. 33. 1753. *Boerhavia repanda* Willd. Sp. Pl. 1:22. 1797; FBI 4:709; C 2:564. Shah, Fl. Guj. 1:583; 1978,

Habit : Straggling or subscandent, perennial herbs. Leaves deltoid-ovate, glabrous or thinly pubescent. Flowers bright-pink, 3-8, umbellate. Fruits clavate, faintly ribbed.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 865, 25/11/00.

Distribution and Status in the Study Area: It is found in zone no 3 to 10, 16, 17, 18, 20, 21, 22, 25, 28, 31, 34 and 37.

Ecological Data : Frequency-7.55, Abundance-0.89, Density-0.77.

Distribution in Gujarat: Throughout, in hedges; common (Shah, 1978).

Boerhaavia diffusa (L.) Hook. f. Fl. Brit. India 4: 709. 1885. *B. diffusa* L. Sp. Pl. 3. 1753; Cooke, Fl. Pres. Bombay 2:563. 1958. (Repr.). Shah, Fl. Guj. 1:583; 1978. Singh, et al Fl. Maha. Dicot. 2: 773. 2000.

Habit : Herbs diffuse; roots fusiform; stems prostrate or ascending, divaricately branched, often purplish. Leaves the larger the smaller long, both nearly as broad as long, broadly ovate or sub-orbicular, base rounded or subcordate, margins wavy. Flowers pink, together in small umbels arranged in slender, long stalked corymbose, axillary and broadly and bluntly ribbed, very glandular.

FLS and FRTS : November - March.

Herbarium No and date of Collection: 866, 24/11/00. **Photograph**: 150

Sanskrit Name: Punarnava, Raktapunarnava.

Local Name: Punamava.

Distribution and Status in the Study Area: It is found in zone no 5 to 8, 10, 12 to 15, 19, 20, 22, 25, 27, 29, 31, 33, 35 and 37.

Ecological Data : Frequency-7.69, Abundance-1.79, Density-0.66.

Distribution in Gujarat: Throughout, common and abundant (Shah, 1978).

Boerhaavia verticillata Poir. Encycl. Meth. 5:56. 1804; Fl. Brit. India 4:710 ; C 2:564; S & J 42. Shah, Fl. Guj. 1:583; 1978.

Habit : Decumbent or climbing, glabrous herbs. Leaves broadly ovate or suborbicular. Flowers pale-pink or white, few, in distant whorls on long pedunculate racemes. Fruit clavate.

FLS and FRTS : August - December.

Herbarium No and date of Collection: 867, 21/11/00.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4, 6, 8, 10, 12, 15, 16, 17, 19, 21, 24, 26, 28, 30, 31, 32, 34 to 36.

Ecological Data : Frequency-11.40, Abundance-3.19, Density-1.19.

Distribution in Gujarat: Kutch, Saurashtra and north Gujarat; occasional in hedges (Shah, 1978).

BOUGAINVILLEA Commerson. ex. Juss. nom. cons.

About 14 species; C and tropical S. America, 1 in GNPS.

Bougainvillea spectabilis Willd. Sp. Pl. 2: 348. 1799; bailey, Stand. Encycl Hort. 1: 533. 1919; Bor & Raiz. Ind. Clib. & Shrubs 269, f. 4, C, D, 1954; Cooke, Fl. Pres. Bomaby 2: 567. 1958 (Repr.). Shah, Fl. Guj. 1:584; 1978, Naik, Fl. Marathwada 2: 735. 1988. *B. peruviana* Nees. & Mant. In Nov. Act. Nat. cur, 11: 39. 1823. *B. speciosa* Schnizi, Ic. Fram. T. 104. 1843-1870. Singh, et al Fl. Maha. Dicot. 2: 776. 2000.

Habit: Shrubs, straggling, large, thorny; thorns straight or recurved long; branchlets pubescent. Leaves ovate-elliptic to oblong, apex acuminate, base acute or subcordate, margins entire, more or less pubescent on both surface; petioles long. Flowers variable in triads together in peduncled cymes united into leafy terminal panicles. Perianth long tubular, pale yellow or white within, purplish black and pubescent outside.

FLS and FRTS : February - June.

Herbarium No and date of Collection: 868, 02/06/01. **Photograph:** 151

Local Name: Bouganvel.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 13, 16, 17, 18, 21, 24, 25, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-1.14, Abundance-0.29, Density-0.16.

Distribution in Gujarat: Grown as an ornamental throughout Gujarat (Shah, 1978).

AMARANTHACEAE

About 71 genera and 800 species; tropical and subtropical to temperate regions; 7 genera and 11 species in GNPS.

ACHYRANTHES L.

About 6 species; tropical and subtropical regions especially of Old World, 1 in GNPS.

Achyranthes aspera Linn. Sp. Pl. 204. 1753; Hook. f. Fl. Brit. India 4: 730. 1885; Cooke, Fl. Pres. Bombay 2: 580, 1958 (Repr.). Shah, Fl. Guj. 1:587; 1978, Backer in Steenis, Fl. Males. 1, 4: 88. 1949. Singh, et al Fl. Maha. Dicot. 2: 778. 2000.

Habit: Herbs woody, high, erect. Leaves elliptic-oblong, ovate or obovate, apex acuminate. Inflorescence of elongate terminal spikes. Flowers greenish-white. Utricles oblong-cylindric, truncate, enclosed in hardened perianth.

FLS and FRTS : September - October.

Herbarium No and date of Collection: 869, 23/08/01. **Photograph:** 152

Sanskrit Name: Apamarga, Shikeri, Pratiyakpushpi, Adhyasalpa, Kharmanjira, Mayurak, Markati.

Local Name: Anghedi.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13 to 18, 21, 22, 24, 26 to 37.

Ecological Data : Frequency-15.90, Abundance-4.52, Density-2.49.

Distribution in Gujarat: Throughout, common (Shah, 1978).

AVERA Forssk. nom. cons.

About 10 species; tropical and subtropical regions of Old World, 3 in GNPS.

Aerva javanica (Burm. f.) Juss. Ex Schult. Syst. Veg. ed 15.5:565.1819; Hook. f. Fl. Brit. India 4: 727.1885; Cooke, Fl. Pres. Bombay 2:577. 1958 (Repr.). Shah, Fl. Guj. 1:588; 1978, Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1:32. 1980. *Iresine javanica* Burm. f. Fl. Ind 217.165, f1.1768. Singh, et al Fl. Maha. Dicot. 2: 780. 2000.

Habit : Herbs Leaves sessile Flowers in tomentose spikes; bracteoles ovate, acute, hyaline; Perianth lobes elliptic oblong woody on back. Utricles orbicular-ovoid Seeds lenticular, black, shining.

FLS and FRTS : February.

Herbarium No and date of Collection: 870, 18/02/00.

Local Name: Boor.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-7.41, Abundance-2.64, Density-1.68.

Distribution in Gujarat: North Gujarat, Saurashtra and Kutch, common; rare at Bharuch and Chhotadepur (Sankheds-Bahadarpur) (Shah, 1978).

Aerva lanata (L.) Juss. ex Schult. Syst. Veg.15: 5. 564. 1819; Hook. f. Fl. Brit. India

4: 728. 1885; Cooke, Fl. Pres. Bombay 2: 578, 1958 (Repr.). Shah, Fl. Guj. 1:588; 1978, Townsend in dattan. & Fosb. Rev. Handb. Fl. Ceylon 1: 32. 1980. *Achyranthes lanata* L. Sp. Pl. 204. 1753. Singh, et al Fl. Maha. Dicot. 2: 780. 2000.

Habit: Herbs, erect or prostrate. Leaves pubescent above, white cottony beneath. Flowers greenish-white. Utricles broadly ovoid, acute.

FLS and FRTS : December - February.

Herbarium No and date of Collection: 871, 23/01/00. **Photograph:** 153

Sanskrit Name: Astmabayda.

Local Name: Gorakhganjo.

Distribution and Status in the Study Area: It is found in zone no 3 to 30, 34 to 37.

Ecological Data : Frequency-18.38, Abundance-3.79, Density-2.47.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Aerva sanguinolenta (L.) Bl. Bijdr. 547. 1825; Backer in Steenis, Fl. Males. 1, 4: 85. 1949. *Achyranthes sanguinolenta* L. Sp. Pl. ed. 2. 294. 1762. *Aerva scandens* Wall. (Cat. N. 6911. 1835, nom. nud.) ex Moq. In DC. Prodr. 13: 302. 1849; Hook, f. Fl. Brit. India 4: 727. 1885; Cooke. Fl. Pres. Bombay 2: 577. 1958. (Repr.). Shah, Fl. Guj. 1:589; 1978, Singh, et al Fl. Maha. Dicot. 2: 780. 2000.

Habit : Herbs erect or suffruticos. Leaves elliptic – lanceolate, appressed hairy. Flowers white. Seeds black.

FLS and FRTS : October – May.

Herbarium No and date of Collection: 872, 01/06/01.

Local Name: Gorakhganjo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4 to 14, 18, 19, 20, 22, 24, 25, 26, 29 to 33, 35 and 37.

Ecological Data : Frequency-6.31, Abundance-1.07, Density-0.40.

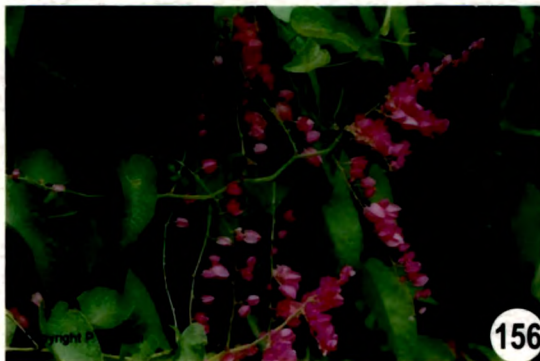
Distribution in Gujarat: Throughout in forest undergrowth, seldom in hedges; occasional (Shah, 1978).

AMARANTHUS L.

About 60 species; chiefly tropical and temperate regions, 3 in GNPS.

Amaranthus cruentus L. Subsp. *cruentus* (L.) Thell. Var. *paniculatus* (L.) Thell. In Asch. & Graebn. Syn. 5(1): 247. 1914; S 222. *Amaranthus cruentus* L. Syst. (ed. 10) 2:1269. 1759. *Amaranthus paniculatus* L. Sp. Pl (ed. 2) 1406. 1763; FBI 4:718; C 2:573; WI 1:67. Shah, Fl. Guj. 1:592; 1978, Singh, et al Fl. Maha. Dicot. 2: 785. 2000.

Habit : Stout, annual herbs. Leaves broadly ovate to ovate-rhomboid or lanceolate, glabrous, Spikes simple or branched, axillary and terminal. Fruit ovoid, circum



154) *Amaranthus spinosus* L., 155) *Celosia argentea* L., 156) *Antigonum leptopus* Hook. & Arn., 157) *Polygonum glabrum* Willd., 158) *Dendrophthoe falcata* (L.f.) Etting., 159) *Viscum articulatum* Burm. f.

mscissile. Seeds subglobose, dark-brown or black, smooth, glabrous.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 873, 01/06/01.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 5 to 8, 12 to 16, 19 to 22, 24, 29 to 32, 35 to 37.

Ecological Data : Frequency-9.56, Abundance-0.21, Density-0.49.

Distribution in Gujarat: Cultivated; also an escape (Shah, 1978).

Amaranthus spinosus L. Sp. Pl. 991. 1753; Hook. f. Fl. Brit. India 4 : 718. 1885; Cooke, Fl. Pres. Bombay 2 : 573. 1958 (Repr.). Shah, Fl. Guj. 1:593; 1978. Singh, et al Fl. Maha. Dicot. 2: 787. 2000.

Habit : Herbs, high, erect. Leaves ovate, rhomboid or oblong. Spikes pale green, long, simple or branched. Utricles long, conical, thickened at top, rugose. Seeds shining, discoid, across.

FLS and FRTS : July – February.

Herbarium No and date of Collection: 874, 23/08/00. **Photograph:** 154

Local Name: Kantalo – Dhimdo.

Distribution and Status in the Study Area: It is found in zone no 2, 4, 7 to 10, 14 to 17, 21, 22, 24, 27, 28, 31 to 37.

Ecological Data : Frequency-5.79, Abundance-0.47, Density-0.25.

Distribution in Gujarat: Thriughout, everywhere; common and abundant (Shah, 1978).

Amaranthus viridis L. Sp. Pl. ed. 2. 1405. 1763; Hook. f. Fl. Brit. India 4: 720. 1885; Cooke, Fl. Pres. Bombay 2: 575. 1958 (Repr.). Shah, Fl. Guj. 1:594; 1978, *A.gracilis* Desf. Tabl. Bot. 43. 1804; Backer in Steenis, Fl. Males. 1, 4: 76. 1949. Singh, et al Fl. Maha. Dicot. 2: 788. 2000.

Habit : Herbs, tall. Leaves ovate or deltoid, apex obtuse. Flowers pale green in axillary clusters and also in terminal and axillary paniced spikes. Fruits ovoid, shortly beaked. Seeds compressed, smooth, black, shining.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 875, 19/09/00.

Local Name: Ilhomdo.

Distribution and Status in the Study Area: It is found in zone no 2, 4, 7 to 10, 14 to 17, 21, 22, 24, 27, 28, 29, 31 to 37.

Ecological Data : Frequency-40.44, Abundance-0.17, Density-0.54.

Distribution in Gujarat: Throughout ; common (Shah, 1978).

CELOSIA L.

About 50 species; subtropical regions of America and Africa, 1 in GNPS.

***Celosia argentea* L.** Sp. Pl. 205. 1753; Hook. f. Fl. Brit. India 4: 714. 1885 Cooke, Fl. Pres. Bombay 2: 570. 1958 (Repr.). Shah, Fl. Guj. 1:594; 1978, Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 3. 1980. Singh, et al Fl. Maha. Dicot. 2: 789. 2000.

Habit: Herbs, erect or procumbent. Leaves broadly ovate, lanceolate, elliptic or linear. Inflorescence of dense, terminal spikes. Flowers white or pink. Utricles ellipsoid, tapering at apex into style.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 876, 09/07/00. **Photograph:** 155

Sanskrit Name: Sirivallika.

Local Name: Lampdi.

Distribution and Status in the Study Area: It is found in zone no 2 to 8, 10, 12, 13, 15, 17, 18, 19, 21, 25, 26, 29, 31, 33, 35 and 37.

Ecological Data : Frequency-9.60, Abundance-1.47, Density-1.05.

Distribution in Gujarat: Throughout, scattered or sub gregarious; common (Shah, 1978).

DIGERA Forssk.

Amonotypic genus; tropical regions of Old World, 1 in GNPS.

***Digera muricata* (L.) Mart.** Beitr. Amarantac. 77. n. 2. 1825 Backer in Steenis, Fl. Males. 1, 4: 80. 1949. *Achyranthes muricata* Linn. Sp. Pl. ed. 2. 295. 1762. *Digera arvensis* Forssk. Fl. Agypt.-Arab. 65. 1775; Hook. f. Fl. Brit. India 4: 717. 1885; Cooke, Fl. Pres. Bombay 2: 572. 1958 (Repr.). Shah, Fl. Guj. 1:595; 1978, Singh, et al Fl. Maha. Dicot. 2: 790. 2000.

Habit: Herbs, annual. Leaves ovate or elliptic, apex acute or rounded. Flowers greenish – pink. Utricles across, globose, mucronate. Seeds yellowish – brown.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 877, 14/07/00.

Sanskrit Name: Manjirika, Kunanjar, Aranyavastuk.

Local Name: Kanjro.

Distribution and Status in the Study Area: It is found in zone no 1, 4 to 9, 15, 16 to 20, 25 to 29, 31, 32 and 35.

Ecological Data : Frequency-6.02, Abundance-2.49, Density-1.25.

Distribution in Gujarat: Throughout, common (Shah, 1978).

NOTHOSAERVA Wight.

A monotypic genus; tropical to tropical Asia, 1 in GNPS.

Nothosaerva brachiata (L.) Wight, Ic. t. 1776 bis. f. B. 1853; Hook. f. Fl. Brit. India 4: 726. 1885; Cooke, Fl. Pres. Bombay 2: 580. 1958 (Repr.). Shah, Fl. Guj. 1:596; 1978, *Achyranthes brachita* L. Mant. 50. 1767. Singh, et al Fl. Maha. Dicot. 2: 791. 2000.

Habit: Herbs, erect, slender. Leaves elliptic – lanceolate, apex acute or subobtus. Flowers white. Fruits enclosed in hardened perianth. Seeds black, shining.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 878, 23/01/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 14, 15, 19, 21, 22, 24, 26, 29, 31, 33, 34, 36 and 37.

Ecological Data : Frequency-11.32, Abundance-2.64, Density-1.68.

Distribution in Gujarat: Throughout, in drying moist grounds and cultivated fields (Shah, 1978).

PUPALIA Juss. nom. cons.

Four species; tropical regions of Old World, 1 in GNPS.

Pupalia lappacea (L.) A. L. Juss. In Ann. Mus. Hist. Nat. Paris 2: 132. 1803; Hook. f. Fl. Brit. India 4:728. 1885; Cooke, Fl. Pres. Bombay 2: 583. 1958 (Repr.). Shah, Fl. Guj. 1:597; 1978, Townsend in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 29. 1980. *Achyranthes lappacea* L. Sp. Pl. 204. 1753. Singh, et al Fl. Maha. Dicot. 2: 791. 2000.

Habit: Herbs, large, scandent. Leaves ovate- elliptic, apex obtuse. Flowers green, in close or distant spinous clusters. Utricles oblong with a constriction near the apex, membranous.

FLS and FRTS : September – February.

Herbarium No and date of Collection: 879, 18/02/00.

Local Name: Zipto Safed.

Distribution and Status in the Study Area: It is found in zone no 2, 4, 5, 6, 7, 8, 10, 12, 15, 19, 24, 27, 30, 32, 34 and 37.

Ecological Data : Frequency-4.64, Abundance-1.15, Density-0.28.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

POLYGONACEAE

About 5 genera and 1050 species; more or less cosmopolitan but especially in N. temperate region; 2 genera and 4 species in GNPS.

ANTIGONUM Endl.

About 3 species; C. America, 1 in GNPS.

Antigonum leptopus Hook. & Arn. Bot. Beech. Vou. 308, t. 69. 1841; Cooke, Fl. Pres. Bombay 3 : 10. 1958 (Repr.). Shah, Fl. Guj. 1:602; 1978, Singh, et al Fl. Maha. Dicot. 2: 810. 2000.

Habit : Climbers, tendrillar. Leaves cordate or ovate – triangular. Flowes pink, in axillary fasciculate racemes or panicles; showy.

FLS and FRTS : August – May.

Herbarium No and date of Collection: 880, 24/06/01. **Photograph:** 156

Distribution and Status in the Study Area: It is found in zone no 6, 10, 24 and 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated; also an escape; at some place naturalize native of South America (Shah, 1978).

POLYGONUM L. nom. cons.

About 150 species, cosmopolitan especially N. temperate regions, 3 in GNPS.

Polygonum barbata (L.) Hara, Fl. East. Himal. 70. 1966. *Polygonum barbatum* L. Sp. Pl. 362. 1753; Hook, f. Fl. Brit. India 5: 37. 1886; Steward in Contr. Gray Herb. 88: 52. 1930. Shah, Fl. Guj. 2:603, 1978.

Habit : Herbs leaves lanceolate or linear – lanceolate, hairy on mod – rib beneath, acuminate at both ends; ocreas. Racemes slender. Perianth white, eglandular. Nuts long.

FLS and FRTS : October – April.

Herbarium No and date of Collection: 881, 01/06/01.

Distribution and Status in the Study Area: It is found in zone no 8, 9, 14,15, 24, 25, 26, 35 and 36.

Ecological Data : Frequency-3.08, Abundance-1.39, Density-1.01.

Distribution in Gujarat: Bulsar, Dangs Dharampur, Bharuch, Rajpipla, Chhotaudepur Panchmahals and north Gujarat; occasional along banks of rivers (Shah, 1978).

Polygonum glabrum Willd. Sp. Pl. 2: 447. 1799; Hook. f. Fl. Brit. India 5: 34. 1886; Cooke, Fl. Pres. Bombay 3: 5, 1958 (Repr.). Shah, Fl. Guj. 2: 604, 1978; Singh, et al., Fl. Maha. Dicot. 2: 805. 2000. *Persicaria glabra* Gomez in Ann. Inst. Segunda Enset. Habana. 2: 278. 1896.

Habit: Erect, rigid, glabrous upto 30 cm tall simple or branched herbs.

FLS and FRTS : October - January.

Herbarium No and date of Collection: 882, 01/11/01. **Photograph:** 157

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 6, 7, 8, 11, 13, 16, 18 to 22, 26, 30, 31, 32, 34 and 35.

Ecological Data : Frequency-4.97, Abundance-2.59, Density-0.59.

Distribution in Gujarat: Throughout (except Kutch, Saurashtra) along river banks and margins of ditches: not common (Shah, 1978).

Polygonum plebeium R. Br. Prodr. 420. 1810 (Plebejum); Hook. f. Fl. Brit. India 5: 27. 1886; Cooke, Fl. Pres. Bmbay 3: 4. 1958 (Repr.). Shah, Fl. Guj. 2: 604, 1978; Singh, et al Fl. Maha. Dicot. 2: 808. 2000.

Habit: Herbs. Leaves sessile or subsessile, acute or apiculate at apex. Flowers in axillary cluster, sessile, among stipules rarely exerted; perianth pink.

FLS and FRTS : Throughout they year.

Herbarium No and date of Collection: 883, 01/06/01.

Local Name: Zinko – okhard.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 5, 7, 9, 10, 12, 14, 16, 17, 19 to 22, 26, 30 to 35.

Ecological Data : Frequency-9.13, Abundance-2.31, Density-0.93.

Distribution in Gujarat: Throughout in drying moist ground, everywhere: common and abundant (Shah, 1978).

PROTEACEAE

About 75 genera and 1350 species; tropical and subtropical regions especially Southern hemisphere, 1 species in GNPS.

GREWILLEA R. Br. ex. J. Knight. nom. cons.

About 250 species; Sulawesi, New Guinea, New Caledoni, Vanuatu and Australia, 1 in GNPS.

Grewillea robusta A. Cunn. Ex. R. Br. Prot. Nov. 24. 1830; Parker, For Fl. 430. 1918. Shah, Fl. Guj. 2: 606, 1978;

Habit : Trees, robust with hoary or rusty tomentose young branches. Leaves fern like. Flowers greenish – yellow, in second, one – sided showy racemes. Fruits coriaceous.

FLS and FRTS : March – July.

Herbarium No and date of Collection: 884, 29/05/01.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.48, Abundance-0.15, Density-0.13.

Distribution in Gujarat: Ornamental in gardens and along roads (Shah, 1978).

LORANTHACEAE

About 70 genera and 940 species; tropical and temperate regions; 2 in genera and 2 species in GNPS.

DENDROPTHOE Mart.

About 30 species; tropical regions of Old World, 1 in GNPS.

Dendrophthoe falcata (L.f) Etting in Denkschr. Kaiserl. Akad. Wiss. Math. Naturw. Cl. 32: 52, 58, t. 13, f. 14. 1872; Danser in Bull.Jard. Buit. 3, 16:30. 1938. *Loranthus falcatus* L.f. Suppl. 211. 1781. *L. longiflorus* var. *falcatus* (L.f.) Kurz, For Fl. 2: 321. 1877; Hook. f. Fl. Brit. India 5: 215. 1886. *L. longiflorus* var. *amplexifolia* (DC). Thw. Enum. Pl. Zeyl. 134. 1859; Hook. f. op. cit. 215. *L. longiflorus* Desr. in Lam. Encyl. 3: 498. 1789; Cooke Fl. Pres Bombay 3: 42. 1958 (Repr.). Shah, Fl. Guj. 2: 607, 1978;
Habit : Bushy, stem parasites. Leaves broadly elliptic-oblong, almost amplexicaul, sessile. Flowers in axillary solitary or fascicled racemes. Berries red, covered by copular calyx.

FLS and FRTS : September - May.

Herbarium No and date of Collection: 885, 09/07/00. **Photograph:** 158

Sanskrit Name: Vanda, Vandak, Vruksharohini, Vruksharuha, Apadrohini.

Local Name: Vando.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 9, 11 to 15, 17 to 20, 25 to 30, 33 to 36.

Ecological Data: Frequency-1.94, Abundance-0.57, Density-0.43.

Distribution in Gujarat: Throughout, a common parasite on several hosts (Shah, 1978).

VISCUM L.

About 100 species; tropical regions of Old World to temperate regions, 1 in GNPS.

Viscum articulatum Burm. f. Fl. Ind. 311. 1768; Hook. f. Fl. Brit. India 5: 226. 1886; Cooke, Fl. Pres. Bombay 3: 47. 1958 (Repr.). Shah, Fl. Guj. 2: 607, 1978; Danser in Blumea 4: 280. 1941; R.S. Rao in J. Indian Bot. Soc. 36: 126. 1957. *V. nepalense* Spreng. Syst. Cur. Post. 4(2): 42. 1827; Danser, op. cit. 283.

Habit: Shrubs, dichotomously branched, pendulous; branches articulated, yellowish-green, longitudinally furrowed, narrow at both ends. Flowers minute in axillary clusters. Berries across, globose, smooth, greenish-yellow.

FLS and FRTS : July - December.



160) *Santalum album* L., 161) *Bridelia retusa* (L.) Spr., 162) *Emblica officinalis* Gaerth.,
163) *Euphorbia thymifolia* L., 164) *Jatropha gossypifolia* L., 165) *Artocarpus heterophyllus* Lam.

Herbarium No and date of Collection: 886, 24/07/01. **Photograph:** 159

Local Name: Bodovando.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 9, 11, 13, 14, 16, 17, 19, 20, 22, 24, 26, 27, 28, 30 to 33, 35 to 37.

Ecological Data: Frequency-11.11, Abundance-0.75, Density-0.90.

Distribution in Gujarat: Dangs, Rajpipla, Pavagadh, Saurashtra and Kachchh; not common (Shah, 1978).

SANTALACEAE

About 36 genera and 500 species; almost cosmopolitan especially tropical and subtropical regions; 1 genera and 1 species in GNPS.

SANTALUM L.

About 9 species; Indo-Malesia to Australia and Hawaii, 1 in GNPS.

Santalum album L. Sp. Pl. 349. 1753; Hook. f. Fl. Brit. India 5: 231. 1886; Cooke, Fl. Pres. Bombay 3: 49. 1958 (Repr.). Shah, Fl. Guj. 2: 608, 1978. Singh, et al Fl. Maha. Dicot. 2: 850. 2000.

Habit: Evergreen trees with slender drooping branches. Leaves elliptic to elliptic - lanceolate, apex subacute, entire. Flowers brownish – purple, in terminal and axillary paniculat – cyme shorter than leaves. Drupes globose, purplish – black.

FLS and FRTS : March – August.

Herbarium No and date of Collection: 887, 25/07/01. **Photograph:** 160

Sanskrit Name: Chandana-vriksha.

Local Name: Chandan.

Distribution and Status in the Study Area: It is found in zone no 1 to 7, 9 to 13, 18, 21, 25 and 32.

Ecological Data: Frequency-10.67, Abundance-0.35, Density-0.35.

Distribution in Gujarat: **Planted, seldom wild (Rajpipla-Gumandev); rather rare (Shah, 1978).**

EUPHORBIACEAE

About 326 genear and 7750 species, cosmopolitan excluding Arctic region, 12 genera and 22 species in GNPS.

ACALYPHA L.

About 430 species; tropical and subtropical regions, 2 in GNPS.

Acalypha ciliate Forssk. Fl. Aegypt. – Arab. 162. 1775; Hook. F. Fl. Brit. India 5: 417. 1887; Cooke, Fl. Pres. Bombay 3: 109. 1958 (Repr.). Shah, Fl. Guj. 2: 611,

1978; Singh, et al Fl. Maha. Dicot. 2: 855. 2000.

Habit: Herbs, erect; younger branches pubescent, older stems striate. Leaves ovate – lanceolate, apex caudate – acuminate, base rounded, margins serrate. Spikes axillary, androgynous. Flowers green; male flowers few, minute at top of spike; female flowers large, crowded at base, bracts campanulate, many nerved, nerves ending in filiform, hispid teeth. Capsules subglobose, trigonous. Seeds ovoid, reddish – brown.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 888, 29/09/01.

Local Name: Runchalo Dadaro.

Distribution and Status in the Study Area: It is found in zone no 2 to 9, 13 to 17, 20, 24, 26, 27, 29, 32, 34 to 36.

Ecological Data : Frequency-8.97, Abundance-2.25, Density-0.52.

Distribution in Gujarat: Throughout, a weed in moist ground (Shah, 1978).

***Acalypha indica* L.** Sp. Pl. 1003. 1753; Hook. f. Fl. Brit. India 5: 416. 1887; Cooke, Fl. Pres. Bombay 3: 108. 1958 (Repr.). Shah, Fl. Guj. 2: 611, 1978. Singh, et al Fl. Maha. Dicot. 2: 856. 2000.

Habit: Annual, erect, herbs, branches finely pubescent. Leaves, ovate – rhomboid, apex acute or subobtus, base cuneate, margins crenate serrate. Spikes axillary. Male flowers minute at apex of spikes, spikes across; ovary hispid. Capsules hispid, enclosed by bracts. Seeds ovoid, smooth.

FLS and FRTS : June – November.

Herbarium No and date of Collection: 889, 25/07/01.

Sanskrit Name: Aristamanjari, Arittanunjayrie, Harittamanjari.

Local Name: Vivhikato.

Distribution and Status in the Study Area: It is found in zone no 1 to 17, 19 to 22, 24 to 37.

Ecological Data : Frequency-20.39, Abundance-5.72, Density-2.75.

Distribution in Gujarat: Throughout, common everywhere (Shah, 1978).

BRIDELIA Willd.

About 60 species; tropical regions of Old World, 1 in GNPS.

***Bridelia retusa* (L.) Spreng.** Syst. Veg. 3: 48. 1826; Hook. f. Fl. Brit India 5: 268. 1887; Cooke, Fl. Pres. Bombay 3: 68. 1958 (Repr.). Shah, Fl. Guj. 2: 614, 1978; Sant. J. Bombay nat. Hist. Soc. 50: 308. 1952. *Clusia retusa* L. Sp. Pl. 1042. 1753. Singh, et al Fl. Maha. Dicot. 2: 865. 2000.

Habit: Shrubs or small trees. Leaves ovate – elliptic or broadly oblong, apex obtuse or subacute, base rounded. Flowers in axillary or subterminal spikes, greenish – yellow or whitish. Drupes subglobose, seamed on enlarged perianth, ripens greenish – purplish to black.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 890, 27/07/01. **Photograph:** 161

Sanskrit Name: Mahavira.

Local Name: Akalkanto.

Distribution and Status in the Study Area: It is found in zone no 2, 4, 6 to 20, 25, 26, 27, 31, 32, 35 and 37.

Ecological Data: Frequency-9.57, Abundance-0.71, Density-0.28.

Distribution in Gujarat: Throughout in dry deciduous forests; not frequent (Shah, 1978).

DALECHAMPIA Hochst. ex. A. Rich.

About 1 species, 1 in GNPS.

Dalechampia scandens* var. *cordofana (Hochst. Ex A. Rich.) Muell-Arg. In DC. Prodr. 15(2): 1245. 1866; S & J 44. *Dalechampia cordofana* Hochst. Ex A. Rich. Tent. Fl. Abyss. 2:224. 1839-1845. Shah, Fl. Guj. 2: 618, 1978.

Habit : Extensive twiners. Leaves palmately 3-foliolate, petiolate; leaflets oblong-lanceolate, serrate hairy. Flowers monoecious in axillary, long pedunculate heads. Involucral bracts foliaceous, membranous, greenish to pale-yellow. Capsule globose, lobed. Seeds globose or ellipsoid.

FLS and FRTS : August - October.

Herbarium No and date of Collection: 891, 20/08/01.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 16, 24, 28, 29, 32 to 35 and 37.

Ecological Data: Frequency-4.23, Abundance-0.75, Density-0.43.

Distribution in Gujarat: From Bharuch to Kutch, on hedges; not frequent (Shah, 1978).

DRYPETES Vahl.

About 200 species; tropical regions of S. Africa and E. Asia, 1 in GNPS.

Drypetes roxburghii (Wall.) H. S. Gentry. in J. Fac. Sci. Univ. Tokyo, Sect. III. Bot. 6: 337. 1954; Airy Shaw in Kew Bull. 26: 257. 1972; t. Chakrab. et al in J. Econ. Tax. Bot. 21. 271. 1997. *Putranjiva roxburghii* Wall. Tent. Fl. Nep. 61. 1828; Hook. f. Fl. Brit. India 5: 336. 1887; Cooke, Fl. Pres. Bombay 3: 86. 1958 (Repr.). Shah, Fl. Guj.

2: 618, 1978; Singh, et al Fl. Maha. Dicot. 2: 872. 2000.

Habit: Trees, elliptic – oblong, apex obtuse or acute to acuminate, margins entire or serrulate. Flowers dioecious in axillary clusters; petals absent.

FLS and FRTS : April – October.

Herbarium No and date of Collection: 892, 22/07/01.

Local Name: Putranjiva.

Distribution and Status in the Study Area: It is found in zone no 6.

Ecological Data: Frequency-0.48, Abundance-0.15, Density-0.09.

Distribution in Gujarat: Wild in some forests at pavagadh and Chhotaudepur in central Gujarat and Vireshwar in north Gujarat ; planted at many places in gardens, at times along roads (Shah, 1978).

EMBLICA Gaertn.

About 1 species, 1 in GNPS.

Emblica officinalis Gaertn. Fruct. 2: 122, t. 108. 1790. *Phyllanthus emblica* L. Sp. Pl. 982. 1753; Hook. f. Fl. Brit. India 5; 289. 1887; Cooke, Fl. Pres. Bombay 3:81.1958 (Repr.). Shah, Fl. Guj. 2: 618, 1978; Webster in J. Arnold Arbor. 38. 76. 1957. Singh, et al Fl. Maha. Dicot. 2: 873. 2000.

Habit: Trees. Leaves pinnate; leaflets subsessile, closely set, distichous, linear. Flowers greenish – yellow. Fruits across, fleshy, globose, yellow, edible.

FLS and FRTS : February – October.

Herbarium No and date of Collection: 893, 02/06/01. **Photograph:** 162

Local Name: Ambla.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-11.57, Abundance-1.42, Density-0.47.

Distribution in Gujarat: In deciduous forests, occasional; also planted in gardens and along road sides (Shah, 1978).

EUPHORBIA L.

About 1600 species; cosmopolitan especially subtropical regions, 9 in GNPS.

Euphorbia geniculata Orteg. Nov. Rar. Pl. Matr. Decad. 18. 1797; Hook. f. Fl. Brit India 5. 239. 1887; Cooke, Fl. Pres. Bombay 3: 66. 1958 (Repr.). Shah, Fl. Guj. 2: 622, 1978; Sant. In Bull. Bot. Soc. Bengal 8:5. 1955. Singh, et al Fl. Maha. Dicot. 2: 880. 2000.

Habit: Herbs, annual, erect. Leaves, broadly elliptic or obovate, upper surface glabrous, lower hairy. Inflorescence of terminal branched cymes. Seeds grey.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 894, 12/12/00.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 6, 10, 11, 15, 16, 21, 22, 24, 25, 28, 31 to 37.

Ecological Data: Frequency-5.33, Abundance-0.37, Density-0.20.

Distribution in Gujarat: Native of tropical America, now naturalized in many parts of Gujarat as a road side weed (Shah, 1978).

Euphorbia hirta Linn. Sp. Pl. 454. 1753; Sant. in Bull. Bot. Soc. Bengal 8: 15. 1954. Carter in Kew Bull 39: 643. 1984. *E. pilulifera* auct. Pl non. L. 1753; Hook. f. Fl. Brit. India 5. 250. 1887; Cooke, Fl. Pres. Bombay 3: 64. 1958 (Repr.). Shah, Fl. Guj. 2: 623, 1978; Singh, et al Fl. Maha. Dicot. 2: 880. 2000.

Habit: Herbs, perennial, erect, diffuse or prostrate; branches densely or sparsely clothed with spreading hairs. Leaves elliptic or ovate-oblong. Capsules long, appressed hairy. Seeds reddish-brown, faintly transverse, rugose.

FLS and FRTS : July - December.

Herbarium No and date of Collection: 895, 23/12/99.

Sanskrit Name: Nagal-dudhali.

Local Name: Rati – dudhali.

Distribution and Status in the Study Area: It is found in zone no 4 to 22, 24, 26, 28, 30 to 36.

Ecological Data : Frequency-5.52, Abundance-0.69, Density-0.23.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

Euphorbia ligularia Roxb. Fl. Ind. 3: 465. 1832; Cooke, Fl. Pres. Bombay 3: 58. 1958 (Repr); Airy Shaw in Kew Bull 26: 265. 1972. *E. nerifolia* sec. Boiss. in. DC. Prodr. 79. 1862; Hook. f. Fl. Brit. India 5: 255. 1887. Shah, Fl. Guj. 2: 624, 1978. Singh, et al Fl. Maha. Dicot. 2: 882. 2000.

Habit: Shrubs, succulent, high, much branched. Leaves obovate-oblong, acute, base narrowed into short petioles. Involucres red or pale-yellow, 3-nate forming small, solitary or dichotomous cymes. Capsules 3-lobed.

FLS and FRTS : November - April.

Herbarium No and date of Collection: 896, 19/03/00.

Sanskrit Name: Guda, Adhoguda, Snuhi, Samantdugdha, Sehund, Vrajvriksha.

Distribution and Status in the Study Area: It is found in the zone no 1, 2, 4 to 9, 13 to 17, 24 to 28, 33 to 36.

Ecological Data: Frequency-8.90, Abundance-0.62, Density-0.41.

Distribution in Gujarat: As a hedge plant in many places (Shah, 1978).

Euphorbia nivulia Buch-Ham. in Trans. Linn. Soc. London 14: 286. 1825; Hook. f. Fl. Brit. India 5: 255. 1887; Sant. in Bull. Bot. Soc. Bengal 8: 8. 1954. Shah, Fl. Guj. 2: 624, 1978; Singh, et al Fl. Maha. Dicot. 2: 882. 2000.

Habit: Herbs. spines short, paired long. Leaves alternate, subsucculent, obovate, obtuse. Cyathia usually paired in subterminal, lax cymes. Involucres broadly copular, coriaceous. Male florets bracteolate along with sterile florets; female florets pendulous. Capsules across. Seeds 4-angular, smooth.

FLS and FRTS : December - April.

Herbarium No and date of Collection: 897, 13/12/00.

Sanskrit Name: Struhi, Sudha, Sudhavriksha, Mahavriksha.

Local Name: Thor.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 4, 7 to 10, 12, 13, 14, 17, 18, 22, 26, 28, 30, 32, 34 and 36.

Ecological Data : Frequency-3.76, Abundance-0.76, Density-0.22.

Distribution in Gujarat: Throughout, as a hedge plant; common in Saurashtra (Shah, 1978).

Euphorbia parviflora L. Syst. ed. 10. 2: 1047. 1759; Sant in Bull. Bot. Soc. Bengal 8:13. 1954. *E. hypericifolia* L. Sp. Pl. 454. 1753 p.p. tantum; Hook. f. Fl. Brit. India 5: 249. 1887 p.p. *E. hypericifolia* var. *parviflora* Prain, Beng. Pl. 2: 924. 1903 [2: 692. 1963 (Repr.)]; Cooke, Fl. Pres. Bombay 3: 63. 1958 (Repr.). Shah, Fl. Guj. 2: 625, 1978; Singh, et al Fl. Maha. Dicot. 2: 883. 2000.

Habit: Herbs. Leaves elliptic-oblong, apex obtuse, base rounded. Capsules subglobose, hairy. Seeds reddish-brown.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 898, 20/08/01.

Local Name: Dudheli.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 10, 11, 13, 15, 16, 17, 19, 20, 21, 24, 25, 27, 29, 31, 33, 35 and 37.

Ecological Data : Frequency-4.19, Abundance-0.57, Density-0.16.

Distribution in Gujarat: Throughout, everywhere. Common (Shah, 1978).

Euphorbia prostrata Ait. in. Hort. Kew ed. 1, 2: 139. 1789; Hook. f. Fl. Brit. India 5: 266. 1887; Airy Shaw in Kew Bull. 26(2): 266. 1972. Shah, Fl. Guj. 2: 625, 1978; Singh, et al Fl. Maha. Dicot. 2: 884. 2000.

Habit: Herbs. Leaves oblique. Seeds brown, rugulose.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 899, 25/07/01.

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 25 to 37.

Ecological Data : Frequency-10.90, Abundance-1.00, Density-0.40.

Distribution in Gujarat: Throughout (except Kutch); a weed in cultivated fields and drying moist ground (Shah, 1978).

Euphorbia thymifolia L. Sp. Pl. 454. 1753; Hook. f. Fl. Brit. India 5: 252. 1887; Cooke, Fl. Pres. Bombay 3 : 64. 1958 (Repr.). Shah, Fl. Guj. 2: 627, 1978; Sant in Bull. Bot. Soc. Bengal 8 (1 & 2) 16 : 1954; Airy Shaw in Kew Bull. 26 : 267. 1952. Singh, et al Fl. Maha. Dicot. 2: 885. 2000.

Habit : Herbs, prostrate, annual. Leaves blbquely oblong or ovate glabrous above, appressedly hairy beneath, apex obtuse. Capsules ovoid, cocci hairy.

FLS and FRTS : June – September.

Herbarium No and date of Collection: 900, 24/06/01. **Photograph:** 163

Local Name: Nani – dudhali.

Distribution and Status in the Study Area: It is found in zone no 2, 3, 5, 6, 7, 9, 10, 11, 14, 15, 16, 18, 20, 21, 24, 28, 30, 31, 32, 35 to 37.

Ecological Data : Frequency-9.00, Abundance-1.37, Density-0.60.

Distribution in Gujarat: Throughout a weed of cultivated fields, in small or large patches: common (Shah, 1978).

Euphorbia tirucalli L. Sp. Pl. 452. 1753; Hook. f. Fl. Brit. India 5 : 254. 1887; Cooke, Fl. Pres. Bombay 3: 66. 1958 (Repr.). Shah, Fl. Guj. 2: 627, 1978; Singh, et al Fl. Maha. Dicot. 2: 885. 2000.

Habit : stems green, articulated, succulent. Leaves linear – oblong, only at end of branches, deciduous, sap milky. Cyathia few, terminal.

FLS and FRTS : August – September.

Herbarium No and date of Collection: 901, 26/09/01.

Sanskrit Name: Dugdhika, Naga-arjuni.

Local Name: Kharasani.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 6, 15, 16, 17, 24, 28, 29, 31 to 37.

Ecological Data: Frequency-4.90, Abundance-0.32, Density-0.37.

Distribution in Gujarat: Throughout, as hedges; also naturalized in some places (Shah, 1978).

JATROPHA L.

About 170 species; tropical and subtropical regions and N. America, 2 in GNPS.

Jatropha curcas L. Sp. Pl. 1006. 1753; Hook. f. Fl. Brit. India 5: 383. 1887; Cooke, Fl. Pres. Bombay 3: 95. 1958 (Repr.). Shah, Fl. Guj. 2: 628, 1978; Airy Shaw in Kew Bull. 26: 283. 1972. Singh, et al Fl. Maha. Dicot. 2: 891. 2000.

Habit: Shrubs. Leaves ovate-cordate, entire or 3-5-lobed or angled. Flowers greenish-yellow, sepals and petals 5 each. Capsules ellipsoid, black, indehiscent.

FLS and FRTS : March – August.

Herbarium No and date of Collection: 902, 24/06/01.

Sanskrit Name: Kananeranda.

Local Name: Lapado.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 4, 10, 11, 16, 17, 21, 22, 24, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-4.79, Abundance-0.28, Density-0.59.

Distribution in Gujarat: Throughout, mostly planted as hedge or an escape, native of Tropical America (Shah, 1978).

Jatropha gossipifolia L. Sp. Pl. 1006. 1753. Hook. f. Fl. Brit. India 5: 383. 1887; Cooke, Fl. Pres. Bombay 3: 95. 1958 (Repr.). Shah, Fl. Guj. 2: 629, 1978; Airy Shaw in Kew Bull. 26: 283. 1972. Singh, et al Fl. Maha. Dicot. 2: 892. 2000.

Habit: Shrubs. Stems and branches dark coloured. Leaves as long as broad, 3-5-lobed, lobes obovate. Flowers monoecious, in terminal, long peduncled cymes; male flowers red and female flowers green. Sepals and petals 5 each. Capsules subglobose, green, reticulate.

FLS and FRTS : February - June.

Herbarium No and date of Collection: 903, 02/06/01. **Photograph:** 164

Sanskrit Name: Dravanti, Putrasrini, Sambari, Chitra.

Local Name: Lapado.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 10, 11, 16, 17, 21, 22, 24, 28, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-4.95, Abundance-0.54, Density-0.43.

Distribution in Gujarat: Naturalized in many parts, as a roadside weed; native of Brazil (Shah, 1978).

KIRGANELIA Poir.

About 1 species, 1 in GNPS.

Kirganelia reticulata (Poir.) Baill. Bot. Gen. Buph. 613. 1838. WI 5:320; Ch & O

211; S & J 45; S 246. *Phylanthus reticulatus* poir. in Lam. Encycl. 5:298. 1408; Fl. Brit. India 5:288. C 3:81. Shah, Fl. Guj. 2: 629, 1978.

Habit : Straggling, monoecious shrubs, with sarmentose branches and smooth, brownish or brownish-purple bark. Leaves elliptic or oblong, glabrous, sessile. Flowers greenish-yellow or creamy-white axillary, males 2-6-clustered, females solitary. Berries across, globose, smooth, glabrous, finely granulate

FLS and FRTS : August – January.

Herbarium No and date of Collection: 904, 28/10/00.

Distribution and Status in the Study Area: It is found in 3, 4, 6 to 9, 12, 13, 18 to 22, 24, 25, 26, 30, 31, 34 to 37.

Ecological Data: Frequency-9.85, Abundance-0.54, Density-0.35.

Distribution in Gujarat: Throughout as hedges in moist ground; common (Shah, 1978).

MALLOTUS Lour.

About 140 species; Indo-Malesia to E. Asia, Fiji, E. Australia, tropical Africa and Madagascar, 1 in GNPS.

Mallotus philippensis (Lam.) Muell.- Arg. In Linnaea 34: 196. 1865; Hook. f. Fl. Brit India 5: 442. 1887; Cooke, Fl. Pres. Bombay 3: 113. 1958 (Repr.). Shah, Fl. Guj. 2: 630, 1978; Airy Shaw in Kew Bull. 36: 328. 1981. *Croton philippense* Lam. Encycl. 2: 206. 1876. Singh, et al Fl. Maha. Dicot. 2: 894. 2000.

Habit: Trees, much branched. Leaves ovate or ovate-lanceolate. Inflorescence of rusty pubescent spikes. Flowers greenish-yellow. Capsules across, 3-lobed, loculicidally 3-valved, covered with bright red powder of minute stellate hairs and fine grain of resinous substance.

FLS and FRTS : July – March.

Herbarium No and date of Collection: 905, 24/07/01.

Sanskrit Name: Kampillak, Rechanaka, Raktang, Raktaphala.

Local Name: Lal kankudi.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 7, 10, 11, 22, 24 and 34.

Ecological Data: Frequency-6.23, Abundance-0.40, Density-0.28.

Distribution in Gujarat: In deciduous forests of South and Central Gujarat and Saurashtra; common at Dangs; not frequent at other places (Shah, 1978).

PHYLLANTHUS L.

About 600 species; tropical and subtropical regions, 1 in GNPS.

Phyllanthus fraternus Webster in Contr. Gray Herb. 176: 53. 1955 & in J. Arnold Arbor. 38: 309. 1957. *P. niruri* auct. pl. non. L. 1753; Hook. f. Fl. Brit. India 5: 298. 1887 p.p.; Cooke, Fl. Pres. Bombay 3: 84. 1954(Repr.). Shah, Fl. Guj. 2: 632, 1978. Singh, et al Fl. Maha. Dicot. 2: 898. 2000.

Habit : Herbs, annual. Leaves distichous, elliptic-oblong. Flowers whitish or yellowish, axillary. Capsules across, depressed-globose. Seeds trigonous, yellowish-brown.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 906, 27/08/00.

Sanskrit Name: Bhumyamalaki, Tamalki, Bhudhatri.

Local Name: Bhoyamli.

Distribution and Status in the Study Area: It is found in zone no 1 to 17, 19 to 32, 34 to 37.

Ecological Data : Frequency-11.32, Abundance-0.89, Density-0.53.

Distribution in Gujarat: Throughout; common; according to Webster (1955) it is a native of Western India (Shah, 1978).

RICINUS L.

A monotypic genus; E. and N.E. Africa to Middle East, naturalized throughout the tropics, 1 in GNPS.

Ricinus communis Linn. Sp. Pl. 1007. 1753; Hook. f. Fl. Brit. India 5: 457. 1886; Cooke, Fl. Pres. Bombay 3: 125, 1958 (Repr.). Shah, Fl. Guj. 2: 633, 1978; Shah, Fl. Guj. 2: 633, 1978; Singh, et al., Fl. Maha. Dicot. 2: 1001. 2000..

Habit: A large shrubs. Bark light grey; stem and branches cylindrical, with scars of fallen leaves.

FLS and FRTS : December - March.

Herbarium No and date of Collection: 907, 22/02/00.

Sanskrit Name: Panchangul, Eranda, Chitrabij, Gandharvahastak.

Local Name: Divalo.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 10, 11, 16, 21, 24, 27, 28, 32, 33, 35 to 37.

Ecological Data: Frequency-7.19, Abundance-0.56, Density-0.31.

Distribution in Gujarat: Throughout, cultivated or an escape (Shah, 1978).

SECURINEGA Commerson. ex Juss. nom. cons.

About 20 species; tropical and subtropical regions, 1 in GNPS.

Securinega leucopyrus (Willd.) Muell.-Arg. In DC. Prodr. 15(2): 451. 1866; Airy

Shaw in Kew Bull. 26: 340. 1972. *Fluggea leucopyrus* Willd. Sp. Pl. 4: 757. 1805; Hook. f. Fl. Brit. India 5: 328. 1887; Cooke, Fl. Pres. Bombay 3: 77. 1958 (Repr.). Shah, Fl. Guj. 2: 635, 1978. Singh, et al Fl. Maha. Dicot. 2: 903. 2000.

Habit: Shurbs, Leaves obovate or obcordate. Flowers white. Capsules, globose, smooth.

FLS and FRTS : March – August.

Herbarium No and date of Collection: 908, 24/06/01.

Local Name: Shenvi.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-17.51, Abundance-1.27, Density-0.51.

Distribution in Gujarat: Kutch, Saurashtra and Rajpipla: in the former locanty reported to be common (Shah, 1978).

ULMACEAE

Six genera and about 140 species; tropical and temperate regions especially of Northern hemisphere; 1 genera and 1 species in GNPS.

HOLOPTELEA Planch.

Two species; tropical Africa and India, 1 in GNPS.

Holoptelea integrifolia (Roxb.) Planch. In Ann. Sci. Nat. 3, 10: 269. 1849; Hook. f. Fl. Brit. India 5: 481. 1888; Cooke, Fl. Pres. Bombay 3: 128. 1958 (Repr.). Shah, Fl. Guj. 2: 636, 1978; *Ulmus integrifolia* Roxb. Pl. Cor. 1: 56, t. 78. 1795 et in Willd. Sp. Pl. 1: 1326. 1797. Singh, et al Fl. Maha. Dicot. 2: 911. 2000.

Habit: Deciduous trees. Leaves elliptic-acuminate, base rounded or cordate. Flowers brownish, polygamous, in axillary, short racemes or panicles on leafless branches. Fruits winged, samaroid, orbicular, wing or fruit emarginated at tip and crowned by persistent styles.

FLS and FRTS : January – June.

Herbarium No and date of Collection: 909, 29/05/01.

Sanskrit Name: Chirabilva.

Local Name: Kanjo.

Distribution and Status in the Study Area: It is found in zone no 3 to 14, 19, 20, 21, 26, 27, 29 to 32, 34 to 37.

Ecological Data: Frequency-13.38, Abundance-0.78, Density-0.53.

Distribution in Gujarat: Throughout, frequent (Shah, 1978).

MORACEAE

About 48 genera and 1200 species; tropical and subtropical regions, few in temperate zone; 3 genera and 8 species in GNPS.

ARTOCARPUS J. R. Forster & J.G.A. Forster. nom. cons.

About 31 species; Indo-Malesia, 1 in GNPS.

Artocarpus heterophyllus Lam. Encycl. 3: 210. 1789 ('heterophylla'); Jarrett in J. Arnold Arbor. 40: 334. 1959; Corner in Dassan. & Fosb. Rev Handb. Fl. Ceylon 3: 217, f. 2. 1981. *A. integrifolia* sensu Gamble, Fl. Madra Pres. 1369. 1928 [3: 957. 1967 (Repr.);] non L. f. 1781]; Hook. f. Fl. Brit. India 5: 541. 1888; Cooke, Fl. Pres. Bombay 3: 158. 1958 (Repr.). Shah, Fl. Guj. 2: 641, 1978; Talb. For. Fl. Bombay Pres. Sind 2: 526. 1911. Singh, et al Fl. Maha. Dicot. 2: 930. 2000.

Habit : Evergreen trees. Leaves elliptic or obovate, dark green. Inflorescence solitary, axillary.

FLS and FRTS : March - April.

Herbarium No and date of Collection: 910, 23/03/00. **Photograph**: 165

Local Name: Fanas.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 24 and 36.

Ecological Data: Frequency-0.62, Abundance-0.13, Density-0.09.

Distribution in Gujarat: Planted in gardens as ornamental (Shah, 1978).

FICUS L.

About 800 species; tropical and subtropical regions especially Indo-Malesia, 6 in GNPS.

Ficus amplissima J. E. Sm., in Rees. Cyclop. 14. n. 68. 1810; Corner in Dassan & Fosb. Rev Handb. Fl. Ceylon 3: 242. f. 9. 1981. *F. tsiela* Roxb. ex. Buch-Ham. in Trans. Linn. Soc. 15: 149. 1826; King in Hook. f. Fl. Brit. India 5: 515. 1888; Cooke Fl. Pres. Bombay 3: 150 1958 (Repr.). Shah, Fl. Guj. 2: 643, 1978; Talb. For. Fl. Bombay Pres. & Sind 2: 518, f. 526. 1911. Singh, et al Fl. Maha. Dicot. 2: 933. 2000.

Habit: Well branched trees, main trunk gregarious, bark smooth, light coloured, pale-green, whitish or grayish. Leaves ovate or ovate-lanceolate, bright green, base rounded, apex acute or cuspidate. Female flowers : sessile.

FLS and FRTS : April – September.

Herbarium No and date of Collection: 911, 23/04/01.

Local Name: Pipar.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-6.09, Abundance-0.93, Density-0.08.



166) *Ficus benghalensis* L., 167) *Ficus hispida* L.f., 168) *Ficus religiosa* L., 169) *Hydrilla verticillata* (L.f.) Royle., 170) *Ottelia alisnoides* (L.) Pers., 171) *Nervilia aragoana* Gaud.

Distribution in Gujarat: Dangs, Pavagadh, Panchmahals, North Gujarat, Saurashtra and Kachchh; occasional in later location (Shah, 1978).

Ficus benghalensis L. Sp. Pl. 1059. 1753; King in Ann. Roy. Bot. Gard. Calcutta 1: 18, t. 13. 1887 & in Hook. f. Fl. Brit. India 5: 499. 1888; Cooke, Fl. Pres. Bombay 3: 145. 1958 (Repr.). Shah, Fl. Guj. 2: 644, 1978; Talb. For. Fl. Bombay Pres. & Sind 2: 502, f. 518. 1911; Corner in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 251, f. 13. 1981. Singh, et al Fl. Maha. Dicot. 2: 934. 2000.

Habit: Trees with numerous aerial roots from spreading branches; twigs, stipules, petioles and leaves beneath puberulous at early stage, late glabrescent. Leaves ovate, coriaceous, base cordate or rarely cuneate; lateral veins 5-6 pairs, with intercostals, prominent on both sides; stipules stout; petiole long. Figs sessile, axillary, paired, ripening orange to red, depressed-globose; basal bracts obtuse; internal bristles none. Tepals free, in galls and female flowers; anthers shortly mucronate.

FLS and FRTS : Receptacles – April- June.

Herbarium No and date of Collection: 912, 23/03/00. **Photograph:** 166

Sanskrit Name: Vata, Bahupad, Vaishnav-nallaya.

Local Name: Vad.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-10.16, Abundance-1.09, Density-0.35.

Distribution in Gujarat: Throughout; wild, self-sown or planted as a shade tree (Shah, 1978).

Ficus hispida L. f. Suppl. Pl. 442. 1782; King in Ann. Roy. Bot. Gard. Calcutta 2: 116, t. 154. 1888 & in Hook. f. Fl. Brit. India 5: 522. 1888; Cooke, Fl. Pres. Bombay 3: 154. 1958 (Repr.). Shah, Fl. Guj. 2: 645, 1978; Talb. For Fl. Bombay Pres. & Sind 2: 523, f. 530. 1911; Corner in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 277, f. 27. 1981. Singh, et al Fl. Maha. Dicot. 2: 937. 2000.

Habit: Shrubs to small trees, high, well branched; bark grey, smooth; latex white. Leaves opposite, ovate, oblong or subovate, base cordate to cuneate, apex acuminate, crenate-serrate along margins; stipules long, caduceous. Figs obovate, axillary to cauliflorous on short, tubercled branches, ripening pale yellow; basal bracts 3, subtriangular, internal bristles 0. male flowers in 1-2 rows, stamen 1. Galls and female flowers sessile or pedicellate; style hispid. Seeds slightly keeled, tuberculate, with prominent hilum.

FLS and FRTS : Receptacles – January - July.

Herbarium No and date of Collection: 913, 23/03/00. **Photograph:** 167

Sanskrit Name: Jantuphala, Yagnodumbar, Sadaphala.

Local Name: Dhedh Umardo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 7, 9, 10, 21, 22, 23, 28, 35 and 36.

Ecological Data: Frequency-2.18, Abundance-0.23, Density-0.07.

Distribution in Gujarat: Throughout, along roads and in forests (Shah, 1978).

Ficus racemosa L. Sp. Pl. 1060. 1753; Corner in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 266, f. 21. 1981. *F. glomerata* Roxb. Pl. Corom. 2: 13, t. 1.23. 1798; King in Ann. Roy. Bot. Gard. Calcutta 2: 173, tt. 218, 219. 1888 & in Hook. f. Fl. Brit. India 5: 535. 1888; Cooke, Fl. Pres. Bombay 3: 154. 1958 (Repr.). Shah, Fl. Guj. 2: 646, 1978; Talb. For. Fl. Bombay Pres. & Sind 2: 524, f. 531. 1911. Singh, et al Fl. Maha. Dicot. 2: 939. 2000.

Habit: Trees, high, much branched, often with well spreading canopy; bark grayish-white or pinkish, smooth. Leaves ovate-oblong, elliptic-lanceolate, base cuneate or rarely subcordate, apex subacute or subacuminate, entire, subcoriaceous; lateral veins pairs, petioles long. Receptacles in large clusters on the main branches and trunks, across, obovoid pyriform, pale green to red top urplish on ripening; peduncles long, perianth with dentate-lacerate lobes joined below, red. Male flowers rings, sessile, much compressed; stamens rarely 3. Galls long stalked. Females sessile or shortly stalked, ovary sessile or substipitate. Seeds long, lenticular, smooth.

FLS and FRTS : Receptacles – February - June.

Herbarium No and date of Collection: 914, 22/03/00.

Sanskrit Name: Udembera.

Local Name: Umaro.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-4.27, Abundance-0.76, Density-0.25.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Ficus religiosa Linn. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5: 513. 1886; Cooke, Fl. Pres. Bombay 3: 149, 1958 (Repr.). Shah, Fl. Guj. 2: 646, 1978; Singh, et al., Fl. Maha. Dicot. 2: 940. 2000.; *Ficus peepal* Griff. Not. Pl. Asiat. 4: 393. 1854. Singh, et al Fl. Maha. Dicot. 2: 940. 2000.

Habit: 10-16 m tall, trees with grey or greyish black, rough bark.

FLS and FRTS : Receptacles - January - April.

Herbarium No and date of Collection: 915, 19/03/00. **Photograph:** 168

Sanskrit Name: Pippala, Asvattha, Bodhidrum.

Local Name: Pipalo.

Distribution and Status in the Study Area: It is found in all zone.

Ecological Data: Frequency-6.94, Abundance-0.54, Density-0.11.

Distribution in Gujarat: Throughout, planted or self-sown (Shah, 1978).

Ficus rumphii Bl. Bijdr. 437. 1825; King in Ann. Roy. Bot. Gard. Calcutta 1 : 54, tt. 67. 1887 & in Hook. f. Fl. Brit. India 5 : 512. 1888; Cooke, Fl. Pres. Bombay 3 : 148. 1958 (Repr.). Shah, Fl. Guj. 2: 647, 1978; Talb. For Fl. Bombay Pres. & Sind. 2 : 514. Singh, et al Fl. Maha. Dicot. 2: 940. 2000.

Habit : Decious, glabrous trees. Leaves broadly ovate, subcoriaceous, apex subcordate apex, caudate- acuminate, entire along margins. Male flowers near the mouth; female flowers sessile; lanceolate.

FLS and FRTS : Receptacles - May – June.

Herbarium No and date of Collection: 916, 01/06/01.

Local Name: Piplo.

Distribution and Status in the Study Area: It is found in zone no 6, 16, 24, 28, 32, 34 and 37.

Ecological Data: Frequency-1.41, Abundance-0.16, Density-0.05.

Distribution in Gujarat: Patel R. T. (p. 259) listed it from South Gujarat Forest.

MORUS L.

About 7 species; subtropical regions, 1 in GNPS.

Morus alba L. Sp. Pl. 486, 1753; Hook. f. Fl. Brit. India 5: 492. 188; Cooke, Fl. Pres. Bombay 3: 159. 1958 (Repr.). Shah, Fl. Guj. 2: 647, 1978; Naik, Fl. Marathwada 2: 814, f. 97. 1998. Singh, et al Fl. Maha. Dicot. 2: 948. 2000.

Habit: Trees, deciduous; leaves ovate, membranous, glabrous above, pubescent on nerves beneath, cordate at base, toothed along margins, inflorescence of drooping.

FLS and FRTS : July – March.

Herbarium No and date of Collection: 917, 21/03/00.

Local Name: Shatur.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 7, 10, 11, 15, 16, 18, 21, 24, 25, 26, 28, 29, 32 to 37.

Ecological Data: Frequency-3.07, Abundance-0.45, Density-0.30.

Distribution in Gujarat: Cultivated (Shah, 1978).

CASUARIANACEAE

About genera and about 70 species; Indo-Malesia, Australia and W. Pacific regions, 1 species in GNPS.

CASURINA L.

About 70 species; tropical regions of Old World, 1 in GNPS.

***Casuarina equisetifolia* L.** Amoen Acad. 4 : 143. 1759; Hook. f. Fl. Brit. India 5 : 598. 1888; Cooke, Fl. Pres. Bomay 3 : 161. 1958 (Repr.). Shah, Fl. Guj. 2: 648, 1978; Frutis in Taxon 29 : 499. 1980. Singh, et al Fl. Maha. Dicot. 2: 949. 2000.

Habit : Tall trees, high; branches modified into cladodes. Leaves reduced to scales, in whorls of 6 – 7. flowers small, unisexual, monoecious; males spikes and branches in heads; perianth 1 – 2, scarious in male and absent in female flowers. Carpophores pubescent, cone like.

FLS and FRTS : February – March.

Herbarium No and date of Collection: 918, 18/02/00.

Local Name: Saru.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 11, 13, 16, 21, 24, 25, 29, 31, 32, 33, 35 to 37.

Ecological Data: Frequency-7.64, Abundance-0.33, Density-0.29.

Distribution in Gujarat: Extensively planted along seashores for soil reclamation, also an ornamental (Shah, 1978).

Notes: Fosberg & Sachet (Smithsonian Contrib. Bot. 24:4. 1975) treated this species as a synonym under *Casuarina littorea* L. But Friis (i.c.) has shown that the name *Casuarina equisetifolia* L. was validly published by Linnaeus in 1759. According to Friis (i.c.) "*Casuarina littorea* L. ex Fosberg & Sachet appears to be an illegitimate superfluous name, under Art. 63.1 (ICBN); it includes the type of a name (*C. equisetifolia* L.) which ought to have been adopted under the rules".

HYDROCHARITACEAE

About 22 genera and 275 species; subcosmopolitan especially dry W. N. America, 2 genera and 2 species in GNPS.

HYDRILLA L. C. Rich.

About 1 species, 1 in GNPS.

***Hydrilla verticillata* (L. f.) Royle, III. Bot. Himal. t. 376. 1839; Hook. f. Fl. Brit. India. 5: 659, 1888; Cooke, Fl. Pres. Bombay 3: 170, 1958 (Repr.). Shah, Fl. Guj. 2: 651,**

1978; Hartog in Steenis, Fl Males, 1, 5: 385, f 1. 1957; Subr Aquat. Ang. 55. 1962. *Serpicula verticillata* L. f. Suppl. 416. 1781. *Hydrilla polysperma* Blatt. In J. Proc. Asiat. Soc. Beng. (N.S.) 26: 356 1931. Sharma, et. al, Fl. Maha, Monocot, 3: 3. 1996.

Habit: Herbs, slender, submerged, free floating or rooting, roots fibrous. Leaves long, linear or linear-oblong, apex apiculate, margins entire or serrulate. Flowers unisexual, white; male flowers minute, shortly pedicelled, solitary, in subsessile, subglose, muricate spathes; female flowers sessile, solitary in cylindrical, membranous spathes. Fruits smooth, muricate. Seeds oblong.

FLS and FRTS : August - February.

Herbarium No and date of Collection: 919, 18/02/00. **Photograph:** 169

Distribution and Status in the Study Area: It is found in zone no 1 and 6.

Ecological Data : Frequency-1.09, Abundance-0.37, Density-0.29.

Distribution in Gujarat: Through in stagnant water; common (Shah, 1978).

OTTELIA L.

About 1 species, 1 in GNPS.

Ottelia alismoides (L.) Pers. Syn. Pl. 1: 400. 1805; Hook. f Fl. Brit. India 5: 662. 1888; Cooke, Fl. Pres. Bombay 3 : 173. 1958 (Repr.). Shah, Fl. Guj. 2: 651, 1978; Hartog in Steenis, Fl. Males. 1, 5: 398, f. 10. 1957; Subr. Aquat. Ang. 61. 1962. *Stratiotes alismoides* L. Sp. Pl. 535. 1753. Sharma, et. al, Fl. Maha, Monocot, 3: 4. 1996.

Habit: Herbs, annual, submerged, flaccid. Leaves of two kinds; submerged leaves shortly petioled, narrow or oblong or oblong, tapering to base; floating ones oblong or orbicular. Flowers white with yellow blotched base. Seeds oblong – fusiform.

FLS and FRTS : September – April.

Herbarium No and date of Collection: 920, 19/02/00. **Photograph:** 170

Local Name: Panivel.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 8, 9, 11 to 14, 17 to 22, 25, 26, 29 to 35.

Ecological Data : Frequency-3.56, Abundance-0.56, Density-0.12.

Distribution in Gujarat: Dharampur, Bulsar, Dangs, Chhotaudepur, Panchmahals, North Gujarat and Saurashtra; not common (Shah, 1978).

ORCHIDACEAE

About 250 genus and 650 species in all over world.



172) *Nervilia plicata* (Andr.) Schltr., 173) *Vanda tessellata* L., 174) *Curcuma inodora* Blatt., 175) *Musa paradisiaca* L., 176) *Curculigo orchiioides* Gaertn., 177) *Dioscorea bulbifera* Linn.

NERVILLIA Gaud.

About 206 species and 3 in GNPS.

Nervillia aragoana Gaud. in Freyc. Voy. Bot. 422, t. 35. 1829; Sant. & Kap. Orch. Bombay 134. 1966. *Pogonia flabelliformis* Lindl. Gen. Sp. Orchid. 415. 1840; Hook. F. Fl. Brit. India 6 :121. 1890. *P. carinata* (Roxb.) Lindl. Op. cit. 414; Hook.f. op. cit; cooke Fl. Pres. Bombay 3 :211 1958 (Repr.). Shah, Fl. Guj. 2: 659, 1978; *Nervillia carinata* (Roxb) Schltr. In Bot. Jahrb. 45 : 406. 1911. Sharma, et. al, Fl. Maha, Monocot, 3: 48. 1996.

Habit : Herbs. Tubers subglobose, white. Leaf appearing after flowers, petiolate, cordate broadly ovate to almost orbicular, acute, acuminate or apiculate. Racemes lax. Flowers drooping, green, shortly stalked. Capsules pendulous.

FLS and FRTS : May - September.

Herbarium No and date of Collection: 921, 23/06/01. **Photograph:** 171

Distribution and Status in the Study Area: It is found in zone no 10, 11, 19 to 22.

Ecological Data : Frequency-4.95, Abundance-2.26, Density-1.97.

Distribution in Gujarat: Dangs (Malegaon, Ahwa) in shaded spots; not common (Shah, 1978).

Nervillia plicata (Andr.) Schltr. In Engl. Bot. Jahrb. 45 : 403. 1911; Sant. & Kap. Orch. Bombay 137. 1966. *Arethusa plicata* Andr. Bot. Repos. T. 321. 1802. *Pogonia plicata* (Andr.) Lindl. Gen. Sp. Orchid. 415. 1840; Hook. F. Fl. Brit. India 6 : 119. 1890; Cooke, Fl. Pres. Bombay 3 : 211. 1958 (Repr.). Shah, Fl. Guj. 2: 660, 1978; *P. biflora* Wight Ic. T. 178\58. 1851; Hook.f. op. cit. *Nervillia discolor* (Bl) Schltr. Op. cit. Sant & Kap. Op. cit. 131. Sharma, et. al, Fl. Maha, Monocot, 3: 50. 1996.

Habit: Herbs, tuberous; tubers globose, white. Leaves solitary, lying flat on ground, broadly ovate or or suborbicular, obtuse – acute or shortly acuminate at apex, purplish. Inflorescence of 2 – 3 flowered racemes. Capsules oblong, ribbed, winged along ribs.

FLS and FRTS : May – August.

Herbarium No and date of Collection: 922, 26/06/01. **Photograph:** 172

Distribution and Status in the Study Area: It is found in zone no 10, 11, 19 to 22.

Ecological Data : Frequency-3.52, Abundance-1.50, Density-0.96.

Distribution in Gujarat: Dangs (Malegaon, Subir); not frequent (Shah, 1978).

VANDA L.

About 4 species and 1 in GNPS.

Vanda tessellata L. Santapau & Kapadia 220. pl.51. *Vanda roxburghii* R. Br. Bot.

Reg. 6: 506, 1820, Fl. Brit. India 6:52, C 3:208, Shah, Fl. Guj. 2: 662, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 53. 1996.

Habit: Herbs. Leaves linear-oblong, coriaceous. Flowers across, racemes, usually longer than leaves. Capsule oblong, sharply winged.

FLS and FRTS : March – December.

Local Name : Vando.

Herbarium No and date of Collection: 923, 27/06/01. **Photograph:** 173

Distribution and Status in the Study Area: It is found in zone no 10, 11, 19 to 22.

Ecological Data : Frequency-8.11, Abundance-2.41, Density-1.51.

Distribution in Gujarat: Vyara, Chhotaudepur, Rajpipla, Panchmahals, rare but locally abundant (Shah, 1978).

ZINGIBERACEAE

About 16 genera and 43 species.

CURCUMA Blatt.

About 1 species, 1 in GNPS.

Curcuma inodora Blatt. In J. Proc. Asiat. Soc. Beng (N.S.). 26: 357. 1930; Sant. In J. Bombay nat. Hist. Soc. 51: 135. 1952. Shah, Fl. Guj. 2: 665, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 75. 1996.

Habit : Rhizome with many tuberiferous fibrous roots; tubers white inside. Leaves radical, broadly elliptic – lanceolate, acuminate at tip, plicate; petiole deeply concave, winged. Inflorescence latera. Spikes long. Flowers corolla purplish with a yellow streak on the lip. Capsules 3 – valved. Seeds arillate.

FLS and FRTS : June – November.

Herbarium No and date of Collection: 924, 25/08/00. **Photograph:** 174

Local Name: Ambahaller.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-25.08, Abundance-4.74, Density-2.76.

Distribution in Gujarat: Through (except Kutch); common, in shaded spots and in the forest undergrowth (Shah, 1978).

MUSACEAE

About 4 genera and 23 species.

MUSA L.

About 1 species, 1 in GNPS.

Musa paradisiaca L. Sp. Pl. 1043. 1753; Cooke, Fl. Pres. Bombay 3 : 249. 1958 (Repr.). Shah, Fl. Guj. 2: 666, 1978; *M. cliffortiana* L. Sp. Pl. 1043. 1753 in Syn *M. sapientum* L. var. *paradisiaca* Baker in Ann. Bot. 7 : 213. 1893 & in Hook. F. Fl. Brit. India 6 : 262. Sharma, et. al, Fl. Maha, Monocot, 3: 89. 1996.

Habit : Herbs, Leaves oblong. Green. Inflorescence a terminal pendulous spike, long. Flowers unisexual, usually in 2 rows under each bract, those of lower bracts pistillate and of upper ones saminate. Fruits oblong, trigonous, ripens yellow; pulp sweet, edible. Seeds irregularly globose, black.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 925, 19/02/00. **Photograph**: 175

Local Name: Kela.

Distribution and Status in the Study Area: It is found in the zone no 1 to 4, 6, 10, 11, 13, 15, 16, 21, 22, 24, 28, 31 to 37.

Ecological Data : Frequency-10.86, Abundance-1.33, Density-0.92.

Distribution in Gujarat: Throughout; some varieties are cultivated in Gujarat (Shah, 1978).

CANNACEAE

About 2 genera and 3 species, North temperate regions to S.E. Asia, widely cultivated elsewhere, 1 in GNPS.

CANNA L.

About 1 species, 1 in GNPS.

Canna indica L. Sp. Pl. 1. 1753; Cooke, Fl. Pres. Bombay 3 : 251. 1958 (Repr.). Shah, Fl. Guj. 2: 667, 1978; Bailey, Man. Cult. PI 291. 1949. *C. indica* var. *orientalis* (Rosc.) Baker in Hook. F. Fl. Brit. India 6 : 260. 1892. Sharma, et. al, Fl. Maha, Monocot, 3: 91. 1996.

Habit : Rootstocks tuberous with many fibers; stems erect. Leaves oblong or elliptic – lanceolate, caudate – acuminate. Flowers rather distant. scarlet or yellow. Fruit erect, subspherical, obscurely 3 – lobed; testa crustaceous, black shining. Seeds black, globes.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 926, 19/02/00.

Local Name: Cana.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 8 to 11, 15, 16, 18, 21, 22, 24, 25, 28, 29, 31 to 37.

Ecological Data : Frequency-13.21, Abundance-1.97, Density-1.07.

Distribution in Gujarat: Ornamental (Shah,1978).

AMARYLLIDACEAE

About 4 genera and 36 species.

CRINUM L.

About 18 species, 1 in GNPS.

Crinum viviparum (Lam) R. Ansari & V.J. Nair in J Econ. Tax. Bot. 11: 205. (1987) 1988. *Amaryllis vivipara* Lam. Encyel. 1: 123. 1783. *Crinum defixum* Ker.-Gawl. In J. Sci. Arts London 3: 105. 1817; Hook. f. Fl. Brit. India 6: 281. 1892; Cooke, Fl. Pres. Bombay 3: 257. 1958 (Repr.). Shah, Fl. Guj. 2: 668, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 96. 1996.

Habit : Bulbs Leaves linear, coriaceous, scaberulous. Flowers white, Seeds rugose.

FLS and FRTS : June - October.

Herbarium No and date of Collection: 927, 29/10/00.

Local Name: Aavarikand.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 17, 19, 21, 22, 25 to 28, 30 to 35.

Ecological Data : Frequency-16.05, Abundance-2.52, Density-1.10.

Distribution in Gujarat: In water – logged stony soil at Kutch, Saurashtra, Panchmahals and Dangs; rather rare (Shah,1978).

HYPOXIDACEAE

About 6 genera and 12 species.

CURCULIGO Gaertn.

About 12 species, 1 in GNPS.

Curculigo orchoides Gaertn. Fruct. 1 : 63, t. 13. 1788; Hook. F. Fl. Brit. India 6 : 279. 1892; Cooke, Fl. Pres. Bombay 3 : 255. 1958 (Repr.). Shah, Fl. Guj. 2: 670, 1978; Nasir & Ali in Nasir, Fl. Pak. 134 : 5, f. 1, H & I. 1980. Sharma, et. al, Fl. Maha, Monocot, 3: 102. 1996.

Habit : Herbs, tall erect, perennial; rootstock stout, short or elongate, root – fibres copious, fleshy. Leave sessile or petiolate, linear or linear – lanceolate, membranous, plicate, base sheathing. Inflorescence of small racemes, upper staminate, lower hermaphrodite. Flowers bright – yellow. Capsules hypogaeous, seeded with a slender beak; septa spongy. Seeds oblong; testa deeply grooved in wavy lines, black.

FLS and FRTS : June – October.

Herbarium No and date of Collection: 928, 20/09/00. **Photograph:** 176

Local Name: Kalimali.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-18.66, Abundance-1.57, Density-0.71.

Distribution in Gujarat: Throughout (except Kutch), in the deciduous forests (Shah, 1978).

AGAVACEAE

About 15 genera and 45 species.

AGAVE L.

About 45 species, 1 in GNPS.

Agave americana L. Sp. Pl. 323. 1753; Bailey, Man. Cult. Pl. 239. 1949. var. *americana*. Shah, Fl. Guj. 2: 671, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 104. 1996.

Habit : Undershrubs. Leaves in a rosette, broad, oblong – lanceolate, grey, prickly on the edges. Flowers yellowish, green, in a bracteates cape or stalk, tall, Fruits oblong-clavate.

FLS and FRTS : October - December.

Herbarium No and date of Collection: 929, 13/12/00.

Local Name: Ketaki.

Distribution and Status in the Study Area: It is found in zone no 1 to 11, 13, 15, 16, 18, 21, 22, 24, 25, 27, 28, 29, 31 to 37.

Ecological Data : Frequency-5.12, Abundance-0.59, Density-0.43.

Distribution in Gujarat: Throughout planted, seldom reported in a wild state (Patel, 1984).

DIOSCOREACEAE

About 3 genera and 65 species.

DIOSCOREA L.

About 65 species, 5 in GNPS.

Dioscorea bulbifera Linn. Sp. Pl. 1033. 1753; Hook. f. Fl. Brit. India. 6: 295, 1890; Cooke, Fl. Pres. Bombay 3: 265, 1958 (Repr.). Shah, Fl. Guj. 2: 674, 1978; Sant, in J. Bombay nat Hist. Soc. 49: 628. 1951; Burkill in Steenis, Fl. Males. 1, 4: 311, f. 4a-b, 5f. 1951. *D. sativa* Thunb. Fl. Jap. 151. 1784 non L. 1753; Hook. f. op.cit. 295 p.p.

Sharma, et. al, Fl. Maha, Monocot, 3: 111. 1996.

Habit: Climbers, stout; tubers solitary, globose to pyriform with long roots produced above it; bulbils warted. Leaves alternate, broadly ovate-cordate. Inflorescence of axillary, pendulous spikes. Capsules reflexed, wings rounded at both ends. Seeds winged at base, brown.

FLS and FRTS : July - March.

Herbarium No and date of Collection: 930, 21/02/00. **Photograph:** 177

Local Name: Varahikand.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-16.90, Abundance-3.94, Density-2.16.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

Dioscorea daemona Roxb. FBI 6:289; C 3; 264. *Dioscorea triphylla* L. 1753; Thaker, Fl. Kutch 269.1926, Shah, Fl. Guj. 2:674, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 113. 1996.

Habit : An extensive, prickly twiner. Leaflets ovate-oblong or elliptic-oblong, persistently hairy and glandular beneath. Flowers greenish-yellow, males in dense, cylindric, pedunculate spike, female spike solitary.

FLS and FRTS : June – January.

Herbarium No and date of Collection: 931, 21/02/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-12.93, Abundance-1.13, Density-0.57.

Distribution in Gujarat: Dangs, Rajpipla, Chhotaudepur, Panchmahal, Saurashtra and Kutch, not common (Shah, 1978).

Dioscorea hispida Dennst. Schluess. Hort. Malab. 15. 1818; Sant. In . J. Bombay nat. Hist. Soc. 49 : 629, t. 2. 1951; Burkill in steenis, Fl. Males. 1, 4 : 318, f. 5k – n, 6e. 1951. *D. daemona* non Roxb. 1892; Hooke. F. Fl. Brit. India 6 : 289. 1892; Cooke, Fl. Pres. Bombay 3 : 264. 1958 (Repr.). Shah, Fl. Guj. 2: 674, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 112. 1996.

Habit : Tubes depressed – globose, often lobed; roots produced above the tuber; stems usually prickly. Leaves alternate; leaflets ovate – oblong or elliptic – oblong, hairy and glandular beneath. Flowers greenish – yellow; male flowers in dense panicle spikes; female flowers in elongate, simple, solitary spikes. Capsules long. Reflexed, wings semi – elliptic or semi – ovate with a short margin. Seeds brown, winged towards base.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 932, 22/12/99.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-7.18, Abundance-1.08, Density-0.70.

Distribution in Gujarat: Dangs, Rajpipla, Chhotaudepur, Panchmahals, Saurashtra and Kutch; not common (Shah, 1978).

Dioscorea pentaphylla L. sp. Pl. 1753; Hook. F. Fl. Brit. India 6 : 289. 1892; Cooke, Fl. Pres. Bombay 3 : 264. 1958 (Repr.). Shah, Fl. Guj. 2: 675, 1978; Sant. In J. Bombay nat. Hist. Soc. 49 : 631, t. 3. 1951; Burkill in steenis, Fl. Males. 1, 4 : 315, f. 5y, 6c. 1951. *D. jacquemontii* Hook. F. op. cit. Sharma, et. al, Fl. Maha, Monocot, 3: 113. 1996.

Habit: Tubers usually simple. Leaves alternate; leaflets elliptic-lanceolate, ovate or obovate. Flowers white or greenish-white; male flowers in racemes towards branch endings; female flowers in pendulous spikes. Capsules long, retuse at both ends. Seeds winged only towards base.

FLS AND FRTS : October – February.

Herbarium No and date of Collection: 933, 22/02/00.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6 to 21, 25 to 29, 31 to 37.

Ecological Data : Frequency-10.51, Abundance-6.17, Density-1.79.

Distribution in Gujarat: In deciduous and scrub forests ; not frequent (Shah, 1978).

Dioscorea wallichii Hook. f. Fl. Brit. India 6 : 295. 1892; Sant. In J. Bombay nat. Hist. Soc. 49 : 633, t. 1. 1951. Shah, Fl. Guj. 2: 675, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 114. 1996.

Habit : Leaves alternat, simple, cordate, acuminate, nerved. Flowers white or brown; male flowers in spikes on short leafless brnches; female flowers indecurved slender spikes. Seeds orbicular with brown wing all round.

FLS and FRTS : October – February.

Herbarium No and date of Collection: 934, 22/02/00.

Distribution and Status in the Study Area: It is found in zone no 8, 11, 12, 16, 19, 22, 27, 31 and 35.

Ecological Data : Frequency-2.44, Abundance-0.72, Density-0.35.

Distribution in Gujarat: Dangs; rare (Shah, 1978).

LILIACEAE

About 19 genera and 48 species.

ALLIUM L.

About 48 species, 1 in GNPS.

Allium cepa L. Sp. Pl. 300. 1753; Hook. F. Fl. Brit. India 6 : 337. 1892; Cooke, Fl. Pres. Bombay 3 : 284. 1958 (Repr.). Shah, Fl. Guj. 2: 677, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 141. 1996.

Habit : Herbs, perennials; rootstocks bulbous. Leaves fistular, subdistichous, acute. Scapes hollow, rounded, with many- flowered umbels at apex; perianth white. Capsules membranous.

FLS and FRTS : January – March.

Herbarium No and date of Collection: 935, 22/02/00.

Local Name: Kanda.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 11, 16, 21, 22, 28, 31 to 37.

Ecological Data : Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated as a cold season crop (Shah, 1978).

ALOE L.

About 10 species, 1 in GNPS.

Aloe benghalensis L. Sp. Pl. 41. 1753; Hook. F. Fl. Brit. India 6 : 370. 1892; Cooke, Fl. Pres. Bombay 3 : 291. 1958 (Repr.). Shah, Fl. Guj. 2: 677, 1978;

Habit : Herbs, long; branches diffuse or suberect, glabrescent. Leaves ovate or ovate – oblong, base inequilateral, margins ciliate or rufous – hairs. Spathes auricled on one side, pubescent. Flowers blue. Capsules pyriform. Seeds oblong, pitted.

FLS and FRTS : June – December.

Herbarium No and date of Collection: 936, 22/11/00.

Local Name: Kuwarpathu.

Distribution and Status in the Study Area: It is found in zone 1, 6, 16, 21, 24, 28, 32 and 36.

Ecological Data : Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Throughout in waste place, scattered or subgregarious; also cultivated near houses (Shah, 1978).

ASPARAGUS L.

About 10 species, 2 in GNPS.

Asparagus gonoclados Baker in J. Linn. Soc. Brit. 14 : 627. 1875; Hook. F. Fl. Brit. India 6 : 318. 1892; Cooke, Fl. Pres. Bombay 3 : 271. 1958 (Repr.). Shah, Fl. Guj. 2:

678, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 117. 1996.

Habit : Undershrubs, much – branched, subscandent, armed; main stems smooth, terete; branches firm, green, 3 – quetrous. Leaves spurred at base with hard spines, ascending, firm, subcostate, narrowed at both ends, finely spinous – pointed. Flowers white; pedicels jointed about the middle. Berries globose, didymous and twice as broad.

FLS and FRTS : June – January.

Herbarium No and date of Collection: 937, 19/01/00.

Local Name: Shatavari.

Distribution and Status in the Study Area: It is found in zone no 2 to 10, 16 to 20, 26 to 30, 34 to 37.

Ecological Data : Frequency-14.33, Abundance-4.78, Density-2.69.

Distribution in Gujarat: Saurashtra, north Gujarat, Panchmahals and Rajpipla; rare to occasional (Shah, 1978).

Asparagus racemosus Willd. Sp. Pl. 2 : 152. 1799; Hook. F. Fl. Brit. India 6 : 316. 1892; Jessop in Bothalia 9(1): 72. 1966; Gandhi in Sald. & Nicols. Fl. Hassan Dt. 793. 1976. Shah, Fl. Guj. 2: 679, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 117. 1996.

Habit : Undershrubs, spinous. Leaves linear – subulate with stout conical spinous spurs, straight. Cladodes spinous pined, needle – like. Flowers white; perianth long. Berries, Globes, rugose, 1 – seeded, with a wrinkled pericarp, red.

FLS and FRTS : June – October.

Herbarium No and date of Collection: 938, 22/07/01. **Photograph:** 178

Local Name: Shatavari.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-20.71, Abundance-4.19, Density-2.95.

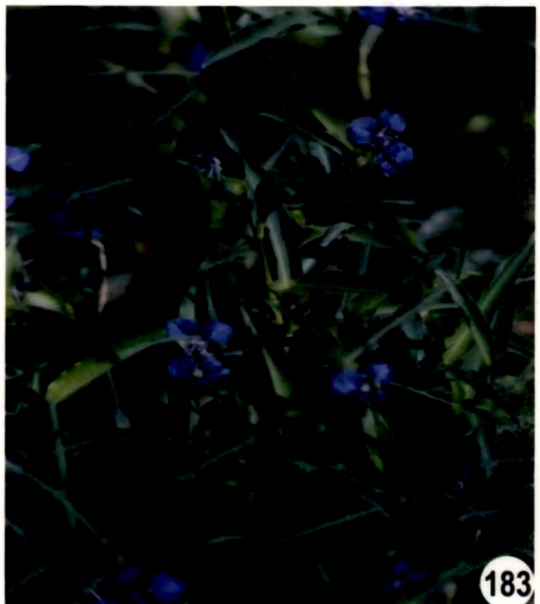
Distribution in Gujarat: Throughout, cultivated or wild in forest undergrowth and hedges (Shah, 1978).

CHLOROPHYTUM Ker – Gawl.

About 6 species, 1 in GNPS.

Clorophytum tuberosum (Roxb.) baker in J. Linn. Bot. 15 : 332. 1876; Hook. F. Fl. Brit. India 6 : 334. 1892; Cooke, Fl. Pres. Bombay 3: 281. 1958 (Repr.). Shah, Fl. Guj. 2: 680, 1978; *Anthericum tuberosum* Roxb. Fl. Ind. 2 : 149. 1824. Sharma, et. al, Fl. Maha, Monocot, 3: 129. 1996.

Habit : Herbs. Root – fibers cylindric, with ellipsoid tubers hanging from them.



178) *Asparagus racemosus* Willd., 179) *Gloriosa superba* L., 180) *Commelina benghalensis* L., 181) *Commelina diffusa* Burm. f., 182) *Commelina erecta* L., 183) *Commelina forskalaei* Vahl.

Leaves membranous, sessile, acuminate, margins undulate. Scape terete, naked. Racemes long. Flowers white. Capsules obovoid, shining transversely veined, emarginated. Seeds irregularly orbicular, black.

FLS and FRTS : June – September.

Herbarium No and date of Collection: 939, 24/07/01.

Local Name: Kalimusli.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-21.58, Abundance-6.21, Density-4.02.

Distribution in Gujarat: Throughout, among grasses in stony ground (Shah, 1978).

GLORIOSA L.

About 1 species, 1 in GNPS.

Gloriosa superba L. Sp. Pl. 305. 1753; Hook. F. Fl. Brit. India 6 : 358. 1892; cooke, Fl. Pres. Bombay 3 : 274. 1958 (Repr.). Shah, Fl. Guj. 2: 681, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 137. 1996.

Habit : Climbers, herbaceous, perennial. Leaves ovate – lanceolate, more or less sessile, apex acuminate. Flowers large, solitary or in subcorymbose cymes towards end of branches; perianth when young green, at maturity yellowish – green below middle and red above. Capsules linear – oblong.

FLS and FRTS : July – November.

Herbarium No and date of Collection: 940, 22/02/00. **Photograph**: 179

Local Name: Chingatriyo Vaishnav.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6, 10, 16 to 19, 26, 28, 31, 32, 35 to 37.

Ecological Data : Frequency-6.54, Abundance-1.15, Density-0.59.

Distribution in Gujarat: Throughout; common on hedges; rare in forest undergrowth (Shah, 1978).

URGINEA Roxb.

About 1 species, 1 in GNPS.

Urginea indica (Roxb.) Kunth, Enum. 4: 333. 1843; Hook. f. Fl. Brit. India. 6: 347, 1888; Cooke, Fl. Pres. Bombay 3: 277, 1958 (Repr.). Shah, Fl. Guj. 2: 682, 1978; Sharma, et al., Fl. Maha. Monocot. 141. 1996; *Scilla indica* Roxb. Fl. Ind. 2: 147. 1832.

Habit: Perennial herbs with tunicated bulbs. In absence of flowers and/or fruits the tunicated bulb with spreading long, radical, strap shaped leaves are sufficient for its identification.

FLS and FRTS : FLS. February - April FRTS. April - May.

Herbarium No and date of Collection: 941, 24/04/01.

Local Name: Padkando.

Distribution and Status in the Study Area: It is found in zone no 1 to 9, 11, 13, 14, 16, 18, 19, 24 to 37.

Ecological Data : Frequency-15.49, Abundance-0.96, Density-0.60.

Distribution in Gujarat: Bulsar, Dangs, Rajpipla, Chhotaudepur, Saurashtra; not common (Shah, 1978).

COMMELINACEAE

About 2 genera and 50 species.

COMMELINA L.

About 50 species, 6 in GNPS.

Commelina benghalensis L. Sp. Pl. 41. 1753; Hook. f. Fl. Brit. India. 6: 370, 1892; Cooke, Fl. Pres. Bombay 3: 291, 1958 (Repr.). Shah, Fl. Guj. 2: 687, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 149. 1996.

Habit: Herbs long; brnches diffuse or suberect, glabrescent. Leaves ovate or ovate-oblong base inequilateral, margins ciliate or rufous-hairy. Spathes auricled on one side, pubescent. Flowers blue. Capsules long, pyriform. seeds

FLS and FRTS : August - October.

Herbarium No and date of Collection: 942, 24/06/01. **Photograph:** 180

Local Name: Kush-puspi.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-17.71, Abundance-1.58, Density-0.86.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

Commelina diffusa Burm f. Fl. Ind. 18, t. 7, f. 2. 1768; Rolla Rao in Notes Roy. Bot. Gard. Edinb. 25: 179. 1964; Panigr. & Kammathy in J. Ind. Bot. Soc. 43: 299. 1964. *C. nudiflora* sensu Hook. f. Fl. Brit. India 6: 369. 1892 non L. 1753; Cooke, Fl. Pres. Bombay 3: 290. 1958 (Repr.). Shah, Fl. Guj. 2: 687, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 151. 1996.

Habit: Herbs, long, annual, diffuse, rooting at nodes. Leaves sessile, lanceolate, ovate-lanceolate, ovate or linear-oblong. Flowers bluse. Capsules broadly oblong, coriaceous. Seeds brown.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 943, 24/08/00. **Photograph:** 181

Local Name: Shishamuli.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-7.05, Abundance-0.87, Density-0.71.

Distribution in Gujarat: Throughout in plains in moist ground; common (Shah, 1978).

Commelina erecta L. Sp. Pl. 41. 1753; Morton in J. Linn. Soc, London (Bot.) 60 (382) : 183. 1967; Rolla Rao in M.V.M. Patrika 6: 53. 1971. *C.undulata* R. Br. Prodr. 270. 1810; Hook. f. Fl. Brit. India 6: 373. 1892; Rolla Rao in Notes Roy. Bot. Gard. Edinb 26:352. 1966. *C. kurzii* C.B.Cl. in J. Linn. Soc. Bot. 11: 444. 1871; Hook. f. op. cit.; Rolla Rao & Kammathy in J. Bombay nat. Hist. Soc. 59:61, t. 1 (A&D) 1962; Rolla Rao in Blumea 14: 351. 1966. *C. kurzii* var. *glochidea* Hook. f. op. cit. 374. *C. paludos* Bl. Var. *mathewii* (C.B.Cl) Rolla Rao & kammathy in Bull. Bot. Surv. India 3: 168. (1961) 1962. Shah, Fl. Guj. 2: 687, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 151. 1996.

Habit: Herbs, high, annual erect or suberect, dichotomously branched, hairy or glabrate. Leaves lanceolate or ovate-lanceolate, pubescent beneath; sheaths ciliate. Flowers blue. Capsules ellipsoid, apiculate. Seeds oblong, blackish-brown.

FLS and FRTS : August - October.

Herbarium No and date of Collection: 944, 23/07/01. **Photograph:** 182

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-10.10, Abundance-1.39, Density-0.98.

Distribution in Gujarat: South to north Gujarat in forest undergrowth; occasional (Shah, 1978).

Commelina forskalaei Vahl. Enum. Pl. 2: 172. 1806; Hook. f. Fl. Brit. India 6: 371. 1892; Cooke, Fl. Pres. Bombay 3: 292. 1958 (Repr.). Shah, Fl. Guj. 2: 687, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 153. 1996.

Habit: Herbs; stems slender, rooting at lower nodes. Leaves linear-oblong or slightly elliptic, sparsely hairy, margins wavy. Flowers blue. Capsules oblong, laterally compressed. Seeds orange-brown.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 945, 21/09/00. **Photograph:** 183

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 24 to 37.

Ecological Data : Frequency-20.06, Abundance-3.57, Density-3.21.

Distribution in Gujarat: Throughout in moist ground (Shah, 1978).

Commelina nudiflora L. Fl. Ind. 18, t. 7, f. 2. 1768; Rolla Rao in Notes Roy. Bot. Gard. Edinb. 25: 179. 1964; Fl. Brit. India 6: 369. 1892 non L. 1753; Cooke, Fl. Pres. Bombay 3: 290. 1958 (Repr.). Shah, Fl. Guj. 2: 687, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 154. 1996.

Habit: Herbs, long, annual, diffuse, rooting at nodes. Leaves sessile, lanceolate, ovate-lanceolate, ovate or linear-oblong. Flowers bluse. Capsules broadly obling, coriaceous. Seeds brown.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 946, 24/06/01.

Local Name: Shishamuli.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-12.48, Abundance-3.59, Density-1.57.

Distribution in Gujarat: Throughout in plains in moist ground; common (Shah, 1978).

Commelina suffruticosa Bl. Enum. P. Jav. 1: 3 1827; Hook. f. Fl. Brit. India 6: 374. 1892; Fernandez et al. in J. Bombay nat. Hist. Soc. 52: 662. 1954; Rolla Rao & Kammathy, Ibid. 59: 65, t. 1(E). 1962. Shah, Fl. Guj. 2: 688, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 161. 1996.

Habit: Herbs, Leaves cauline, sessile lanceolate or elliptic, subacuminate, uneual sided, the lower leaves often smaller. Obcordate, laterally flattended, seed flat, outer on convex.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 947, 28/07/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data : Frequency-9.18, Abundance-1.33, Density-0.92.

Distribution in Gujarat: Dangs, in forest undergrowth; frequent.

CYANOTIS Heyne ex. Roth.

About 20 species, 2 in GNPS.

Cyanotis cristata (L.) D. Don, Prodr. Fl. Nepal. 46. 1825; Hoof. F. Fl. Brit. India 6: 385. 1892; Cooke Fl. Pres. Bombay 3: 304. 1958 (Repr.). Shah, Fl. Guj. 2: 689, 1978; *Tradescantia cristata* L. Sp. Pl. 42. 1753. Sharma, et. al, Fl. Maha, Monocot, 3: 163. 1996.

Habit : Leaves oblong, ovate – oblong, elliptic – oblong or ovate – lanceolate, apex obtuse or subacute, flat, glabrous or sparsely hairy, base rounded or cordate. Flowers purple, in recurved scorpioid cymes. Capsules subglobose, trigonous.

FLS and FRTS : June – November.

Herbarium No and date of Collection: 948, 27/07/01.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 8, 9, 11, 13, 15, 17, 19, 21, 22, 25, 27, 29, 31, 33, 35 to 37.

Ecological Data : Frequency-14.00, Abundance-6.61, Density-1.61.

Distribution in Gujarat: Throughout (except Kutch), in shaded spots; common (Shah, 1978).

Cyanotis fasciculata (Heyne ex Roth) J. A. & J. H. Schult. in R. & S. Syst. Nat. 7: 1152. 1830; Hook. f. Fl. Brit. India 6: 387. 1892; Cooke, Fl. Pres. Bombay 3: 303. 1958 (Repr.). Shah, Fl. Guj. 2: 689, 1978; *Tradescantia fasciculata* Heyne ex Roth, Nov. Pl. Sp. 189. 1821. Sharma, et. al, Fl. Maha, Monocot, 3: 165. 1996.

Habit: Herbs Leaves sessile lanceolate to ovate – lanceolate, fleshy. Inflorescence of compact, axillary and terminal cymes. Flowers blue or bluish – purple. Capsules oblong, pilose at apex. Seeds oblong, faintly rugose.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 949, 19/09/00.

Distribution and Status in the Study Area: It is found in zone no 3 to 8, 10, 11, 12, 14 to 18, 20, 22, 25, 27, 29, 32 to 37.

Ecological Data : Frequency-9.49, Abundance-2.64, Density-0.71.

Distribution in Gujarat: Saurashtra, Chhotaudepur, Dangs, Bular; not common (Shah, 1978).

MURDANNIA Royle (nom. cons.).

About 16 species, 1 in GNPS.

Murdannia semiteres (Dalz.) Sant. in Poona Agric. Coll. Mag. 41: 284. 1951 & In J. Bombay nat. Hist. Soc. 52: 658. 1954. *Aneilema semiteres* Dalz. In Hook Kew J. Bot. 3: 138. 1851. *A. paniculatum* Wall. Ex C. B. Cl. In DC. Monogr. Phan. 3: 215. 1881 non Wight, 1853; Hook. F. Fl. Brit. India 6: 381. 1892; Cooke, Fl. Pres. Bombay 3: 300 (Repr.). Shah, Fl. Guj. 2: 690, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 176. 1996.

Habit: Herbs, erect, scarious sheaths at base. Leaves linear, finely acuminate. Flowers blue. Capsules ellipsoid or subglobose, smooth, shining. Seeds pale yellow, irregularly angular.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 950, 28/10/00.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 5 to 8, 10,



184) *Borassus flabellifer* L., 185) *Cocos nucifera* L., 186) *Pandanus fascicularis* Lamk., 187) *Amorphophallus commutatus* Engl., 188) *Cyperus compressus* L., 189) *Cymbopogon martinii* (Roxb.) Wats.

12, 14, 16, 18, 20, 24, 25, 26, 28, 30, 31, 32, 34 and 35.

Ecological Data : Frequency-6.47, Abundance-0.65, Density-0.34.

Distribution in Gujarat: South Gujarat in deciduous forests among grasses in stony ground; common (Shah, 1978).

ARECACEAE

About 12 genera and 45 speice worldwide, 4 Genera and 4 species in GNPS.

BORASSUS L.

About 1 species, 1 in GNPS.

Borassus flabellifer L. Sp. Pl. 1187. 1753: Besc. & Hook. F. in Hook. F. Fl. Brit. India 6: 482. 1892; Cooke. Fl. Pres. Bombay 3 : 321. 1958 (Repr.) Blatt. Palms Brit. India & Ceyl. 174, tt. 38 & 39. 1978 (Repr.). Shah, Fl. Guj. 2: 692, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 199. 1996.

Habit : Trees. Leaves segments folded along midrib, linear – lanceolate; petioles long. Floers dioecious. Spadix large, simple branched, sheathed with numerous open spathes. Male flowers small, in spikes; female flowers larger, globose. Fruit a large subglobose brown drupe. Seeds oblong, 3 – lobed at top.

FLS and FRTS : March – August.

Herbarium No and date of Collection: 951, 26/06/01. **Photograph:** 184

Local Name: Tad.

Distribution and Status in the Study Area: It is found in zone no 6 and 32.

Ecological Data: Frequency-0.33, Abundance-0.01, Density-0.01.

Distribution in Gujarat: Throughout in plains (Shah, 1978).

COCOS L.

About 1 species, 1 in GNPS.

Cocos nucifera L. Sp. Pl. 1188. 1753; Hook. f. Fl. Brit. India. 6: 482, 1888; Cooke, Fl. Pres. Bombay 3: 322, 1958 (Repr.). Blatt. Palms Brit. Ind. & Ceyl. 499, t. 97. 1978 (Repr.). Shah, Fl. Guj. 2: 693, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 200. 1996.

Habit: Trees. Trunk high, annulate, thickened at base. Leaves long; leaflets equidistant, long, linear-lanceolate, coriaceous; petioles long, stout. Spadix long, stout, androgynous, simply paniced; branches bearing scattered female flowers towards their bases and numerous male above. Lower spathes long. Fruits long, 3-gonously obovoid or subglobose, green or yellowish.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 952, 26/07/01. **Photograph:** 185

Local Name: Nariyal.

Distribution and Status in the Study Area: It is found in zone no 1, 3, 4, 10, 11, 13, 16, 21, 24, 25, 28, 31 to 37.

Ecological Data: Frequency-5.20, Abundance-0.39, Density-0.24.

Distribution in Gujarat: Planted at some places (Shah, 1978).

PHOENIX L.

About 6 species, 1 in GNPS.

Phoenix sylvestris (L.) Roxb. Fl. Ind. 3: 787. 1832; Hook. f. Fl. Brit. India. 6: 425. 1892; Cooke, Fl. Pres. Bombay 3: 311, 1958 (Repr.). Shah, Fl. Guj. 2: 694, 1978; Blatt. Palms. Brit. Ind. Cycl. 3, t. 2. 1978 (Repr.). *Elate sylvestris* L. Sp. Pl. 1189. 1753; Moore ex Dransfield in Taxon 28: 67. 1979. Sharma, et. al, Fl. Maha, Monocot, 3: 195. 1996.

Habit: Trunks high, rough from persistent bases of leaf-sheaths. Leaves long, grayish-green; pinnules numerous, densely fascicled, ensiform. Male flowers; white; spadix long, erect; spathes woody; spikes numerous towards apex of peduncle in fascicles, simple. Female flowers; spadix and spathe same as in male; spikes arranged in distinct groups, fruiting spadix long. Fruits long, oblong-ellipsoid, orange-yellow. Seeds rounded at the ends.

FLS and FRTS : January – October.

Herbarium No and date of Collection: 953, 25/07/01.

Local Name: Khajur.

Distribution and Status in the Study Area: It is found in zone no 6, 12, 13, 14, 25, 31, 32 and 35.

Ecological Data: Frequency-4.16, Abundance-0.19, Density-0.17.

Distribution in Gujarat: Throughout, in waste places (Shah, 1978).

ROYSTONEA O.F. Cook.

About 4 species, 1 in GNPS.

Roystonea regia (H.B. & K.) O.F. Cook. In Bul. Torr. Bot. Cl. 531. 1901; Shah, Fl. Guj. 2: 694, 1978.

Habit: Trunks high, rough from persistent bases of leaf-sheaths. Leaves long, grayish-green; pinnules numerous, densely fascicled, ensiform. Male flowers; white; spadix long, erect; spathes woody; spikes numerous towards apex of peduncle in fascicles, simple. Female flowers; spadix and spathe same as in male; spikes arranged in distinct groups, fruiting spadix long. Fruits long, oblong-ellipsoid, orange-yellow. Seeds rounded at the ends.

FLS and FRTS : January – October.

Herbarium No and date of Collection: 954, 28/07/01.

Distribution and Status in the Study Area: It is found in zone no 6, 12, 13, 14, 25, 31, 32 and 35.

Ecological Data: Frequency-1.10, Abundance-0.05, Density-0.04.

Distribution in Gujarat: Throughout planted in gardens (Shah, 1978).

PANDANACEAE

About 6 genera and 12 species, 1 genera and 1 species in GNPS.

PANDANUS Parkinson.

About 12 species, 1 in GNPS.

Pandanus fascicularis L. f. Suppl. 64. 1781; St. Hohn in Taxon 12: 201. 1963. *P. tectorius* auct. Pl. non. Soland. ex Parkinson, J. Voy. H. M. S. End. 46. 1773; Cooke, Fl. Pres. Bombay 3: 324. 1958 (Repr.). Shah, Fl. Guj. 2: 695, 1978; *P. fascicularis* Lam. Encycl. 1: 372, t. 1. 1785; Hook. f. Fl. Brit. India 6: 485. 1893. Sharma, et. al, Fl. Maha, Monocot, 3: 206. 1996.

Habit: Trees, high, stems supported by aerial roots. Leaves glaucous-green, long, ensiform, caudate acuminate, coriaceous, the marginal spines pointing forward, those on the midrib pointing forward or backward. Maleflowers : spadix with numerous, subsessile, cylindric spikes, enclosed in long white fragrant, caudate-acuminate spathes. Female flowers: spadix solitary, diam. Syncarpium oblong or globose, yellow or red. Drupes numerous, each consisting of 5-12 carpels.

FLS AND FRTS : March - December.

Herbarium No and date of Collection: 955, 22/07/01. **Photograph:** 186

Local Name: Kavado.

Distribution and Status in the Study Area: It is found in the zone no 6, 21, 16 and 25.

Ecological Data: Frequency-1.12, Abundance-0.04, Density-0.05.

Distribution in Gujarat: Planted; seldom wild in north Gujarat (Shah, 1978).

TYPHACEAE

About 2 genera and 3 species, 1 genera and 1 species in GNPS.

TYPHA L.

About 3 species, 1 in GNPS.

Typha angustifolia L. Sp. Pl. 9714. 1753; Backer in Steenis, Fl. Males. 1, 4: 243, f. l. 1951. *T. angustata* Bory & Chaub. Exped. Sci. Moree Bot. 2, 1: 338. 1832: Hook. f.

Fl. Brit. India 6: 489. 1893; Cooke, Fl. Pres. Bombay 3: 326. 1958 (Repr.). Shah, Fl. Guj. 2: 695, 1978; Subr. Aquat. Ang. 74.1962. Sharma, et. al, Fl. Maha, Monocot, 3: 207. 1996.

Habit : Herbs. Robust, tufted, perennial. Leaves linear, thick, subcylindrical above the sheath. Male and female spikes separated by a considerable interval brown. Male flowers slender and paler than the female ones which are mixed with clavate sterile pistillodes. Nutlets small, ellipsoid, membranous, indehiscent, brown.

FLS and FRTS : March - October.

Herbarium No and date of Collection: 956, 24/07/01.

Local Name : Ghabajariu and Ramban.

Distribution and Status in the Study Area: It is found in zone no 3 to 6, 8, 9, 11, 13, 14, 19 to 22, 25, 30, 31, 33, 34, 35 and 37.

Ecological Data : Frequency-7.19, Abundance-1.00, Density-0.42.

Distribution in Gujarat: Common, in scattered, compact patches, in marshy grounds along water courses (Shah, 1978).

ARACEAE

About 15 genera and 49 species, 2 genera and 2 species in GNPS.

AMORPHOPHALLUS Bl. ex. Decne. (nom. cons.)

About 49 species, 1 in GNPS.

Amorphophallus commutatus (Schott) Engl. in DC. Mongr. Phan. 2: 319. 1879 & Pflanzent. 4, 23C, 48: 95. 1911; Hook. f. Fl. Brit. India 6: 515. 1893; Cooke, Fl. Pres. Bombay 3: 337. 1958 (Repr.). Shah, Fl. Guj. 2: 697, 1978; Blatt. In J. Bombay nat. Hist. Soc. 35: 27, t. 7. 1931. *Conophallus commutatus* Schott in Bonplandia 7: 28. 1859. Sharma, et. al, Fl. Maha, Monocot, 3: 210. 1996.

Habit : Annuals, Leaves solitary, Spadices sessile. Male inflorescence female inflorescence: stigma orange-red. Beries ripen orange.

FLS and FRTS : April – October.

Herbarium No and date of Collection: 957, 29/05/01. **Photograph:** 187

Local Name: Jangli suran.

Distribution and Status in the Study Area: It is found in zone no 17, 18, 19, 26, 27 and 30.

Ecological Data : Frequency-2.52, Abundance-0.91, Density-0.51.

Distribution in Gujarat: Throughout in deciduous forests in shade; quite frequent (Shah, 1978).

COLOCASIA L.

About 49 species, 1 in GNPS.

Colocasia esculenta (L.) Schott in Schott & Endl. Meletem. Bot. 1 : 18. 1832. *Arum esculentum* L. Sp. Pl. 965. 1753. *Colocasia antiquorum* Schott in Schott & Endl. op. cit.; Hook. f. Fl. Brit. India 6: 523. 1983; Cooke, Fl. Pres. Bombay 3: 340. 1958 (Repr.). Shah, Fl. Guj. 2: 699, 1978; Blatt. In J. Bombay nat. Hist. Soc. 35: 29. 1931. Sharma, et. al, Fl. Maha, Monocot, 3: 228. 1996.

Habit : Rootstocks tuberous. Leaves thinly coriaceous, peltate-ovate, cordate at base, Spathe pale yellow, Female inflorescence as long as the staminate male inflorescence. Berries oblong, many-seeded.

FLS and FRTS : July - November.

Herbarium No and date of Collection: 958, 23/09/00.

Local Name: Alavi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 4, 6, 7, 8, 10, 12, 14 to 19, 22, 24, 26 to 29, 32, 34 and 36.

Ecological Data : Frequency-5.90, Abundance-0.69, Density-0.37.

Distribution in Gujarat: Throughout under cultivation or wild in waste, moist places (Shah, 1978).

ERIOCAULACEAE

About 1 genus and 43 species, 1 genus and 2 species in GNPS.

ERIOCAULON L.

About 43 species, 2 in GNPS.

Eriocaulon sollyanum Royle, Ill. Pl. Himal 409, t. 97, f. 1. 1839. *E. trilobum* Buch – Ham. Ex. Koern in Linnaea 27 : 645. 1856; Hook. f. Fl. Brit. India 6 : 583. 1893; Cooke, Fl. Pres. Bombay 3 : 361. 1958. (Repr.). Shah, Fl. Guj. 2: 711, 1978; Fyson in J. Indian Bot. 2 : 206, t. 10. 1921. Sharma, et. al, Fl. Maha, Monocot, 3: 264. 1996.

Habit : Herbs. Leaves linear. Heads dark; involucral bract linear – oblong; floral bracts. Seeds oblong, dark brown.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 959, 18/11/00.

Distribution and Status in the Study Area: It is found in zone no 2 to 8, 15 to 18, 20, 21 to 25, 28, 29, 31, 32, 33, 35 and 37.

Ecological Data : Frequency-8.86, Abundance-1.22, Density-0.63.

Distribution in Gujarat: Dangs (Unai, Dungarda) and Saurashtra (Shah, 1978).

Eriocaulon truncatum Buch. – Ham. Ex. Mart. In Wall. Pl. Asiat. Rar 3 : 29. 1832; Hook. f. Fl. Brit. India 6 : 578. 1893; Fyson in J. Indian Bot. 2 : 199. 1921; Kulkarni & Desai in J. Bombay nat. Hist. Soc. 69 : 239. 1972. Shah, Fl. Guj. 2: 711, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 265. 1996.

Habit : Herbs, leaves subulate, narrowed from the base. Heads hemispheric; involucre bracts elliptic or globose; floral bracts obovate. Female sepals narrow, 2 boat – shaped, toothed at apex, and third sepal if present acute; petals 3, narrow.

FLS and FRTS : July – November.

Herbarium No and date of Collection: 960, 28/10/00.

Distribution and Status in the Study Area: It is found in zone no 2 to 5, 8 to 14, 19, 20, 22, 24, 25, 27, 29, 30, 31, 33, 34 and 36.

Ecological Data : Frequency-10.11, Abundance-1.11, Density-0.75.

Distribution in Gujarat: Saurashtra (Sasangir) (Shah, 1978).

CYPERACEAE

About 23 genera and 404 species, 1 genus and 3 species in GNPS.

CYPERUS Kern.

About 404 species, 3 in GNPS.

Cyperus alulatus Kern in Reinwardtia 1: 463, f.l. 1952. *C. iria* var. *rectangularis* Kuekenh. In Engl. Pflanz. 4, 20, 101 : 152. 1935. *C. rectangularis* (Kuekenh.) Bennet in India Forester 95: 692. 1969. Shah, Fl. Guj. 2: 720, 1978; Sharma, et. al, Fl. Maha, Monocot, 3: 278. 1996.

Habit : Leaves, linear. Inflorescence of terminal, lax, compound umbels. Spikelets reddish or greenish-yellow.

FLS and FRTS : July – September.

Herbarium No and date of Collection: 961, 28/10/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 9, 10, 13, 19 to 22, 24 to 27, 30, 33, 34 and 36.

Ecological Data : Frequency-6.10, Abundance-0.65, Density-0.36.

Distribution in Gujarat: Throughout in most ground, often gregarious (Shah, 1978).

Cyperus compressus L. Sp. Pl. 46. 1753 emend. Dandy in Exell. Cat. S. Tomes 357. 1944; C.B.Ci. in Hook. f. Fl. Brit. India 6. 605. 1893; Cooke, Fl. Pres. Bombay 3: 379. 1958 (Repr.). Shah, Fl. Guj. 2: 723, 1978; Kern in Steenis, Fl. Males. 1, 7: 617. 1974. Sharma, et. al, Fl. Maha, Monocot, 3: 280. 1996.

Habit : Herbs, erect. Leaves basal, shorter or slightly longer than culms, linear.

Inflorescence of simple umbels. Spikelets, greenish- yellow, in clusters.

FLS and FRTS : July - October.

Herbarium No and date of Collection: 962, 28/10/00. **Photograph**: 188

Distribution and Status in the Study Area: It is found in zone no 1, 4, 6, 7, 8, 11 to 15, 17, 19, 21, 24, 26, 28, 29, 31, 32, 34 to 37.

Ecological Data : Frequency-11.43, Abundance-1.37, Density-0.98.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Cyperus triceps (Rottb.) Endl. *Kyllinga triceps* Roxb. Descr. Et Icon. 14.t. 4f. 6.

1773. Fl. Brit. India 6:587, C 3: 391, Shah, Fl. Guj. 2:787, 1978.

Habit : Herbs, erect. Leaves narrowly linear. Inflorescence of simple umbels. Spikelets, greenish- white, in terminal.

FLS and FRTS : August – January.

Herbarium No and date of Collection: 963, 28/10/00.

Distribution and Status in the Study Area: It is found in zone no 1, 4, 6, 7, 8, 11 to 15, 17, 19, 21, 24, 26, 28, 29, 31, 32, 34 to 37.

Ecological Data : Frequency-10.38, Abundance-1.88, Density-1.46.

Distribution in Gujarat: Throughout, common (Shah, 1978).

POACEAE

About 116 genera and 986 species, 27 genera and 31 species in GNPS.

ALLOTEROPSIS C. B. Presl.

About 26 species, 1 in GNPS.

Alloteropsis cimiciana (L.) Stapf in Prain, Fl. Trop. Afr. 9: 487. 1919.; Blatt. & McC. Bombay Grass. 129. 1935; Bor, Grass. Ind. 276. 1960. *Milium cimicinum* L. Mant. Altd. 184. 1771. *Axonopus cimicinus* (L.) P.Beauv. Ess. Agrost. 12. 1812; Hook. f. Fl. Brit. India 7 : 64. 1896; Cooke, Fl. Pres. Bombay 3 : 441. 1958 (Repr.). Shah, Fl. Guj. 2: 775, 1978. Sharma, et. al, Fl. Maha, Monocot, 3: 389. 1996.

Habit: Herbs, Leaves, ovate or ovate-lanceolate. Spikes, digitate, terminal. Spikelets, narrowly elliptic-ovate, green; Grains ovate, flattened.

FLS and FRTS : July – November.

Herbarium No and date of Collection: 964, 28/10/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 6, 8, 9, 11 to 14, 17 to 20, 22, 24, 25, 26, 29 to 32, 34 to 36.

Ecological Data: Frequency-7.20, Abundance-0.69, Density-0.37.

Distribution in Gujarat: Throughout; common (Shah, 1978).

ANDROPOGON L.

About 13 species, 1 in GNPS.

Andropogon pumilus Roxb. Fl. Ind. 1: 277. 1820; Hook. f. Fl. Brit. India 7: 170. 1896; Cooke, Fl. Pres. Bombay 3: 495. 1958 (Repr.). Shah, Fl. Guj. 2: 776, 1978; Blatt. & McC. Bombay Grass. 93. 1935; Bor, Grass. Ind. 93. 1960.

Habit: Herbs, leaves, linear, finely acuminate. Sessile spikelets awned; pedicelled unawned; spathes flattened.

FLS and FRTS : August – January.

Local Name : Zinauo.

Herbarium No and date of Collection: 965, 19/01/00.

Distribution and Status in the Study Area: It is found in zone no 1 to 18, 24 to 33.

Ecological Data: Frequency-14.38, Abundance-1.03, Density-0.99.

Distribution in Gujarat: Saurashtra, surat, Broach, Rajpipla ; rather rare (Shah, 1978).

APLU DA L.

About 24 species, 1 in GNPS.

Apluda mutica Linn. Sp. Pl. ed. 1. 82, 1753; Hook. f. Fl. Brit. India. 7: 150, 1896; Cooke, Fl. Pres. Bombay 3: 474, 1958 (Repr.). Shah, Fl. Guj. 2: 776, 1978; *A. varia* ssp. *aristata* Hack. Op. cit.; Blatt. & McC. Bombay Grass. 29. 1935; Hoo. F. op. cit. 181. *A. varia* ssp. *aristata* Hack. Var. *ciliate* Hook. f. op. cit. *A. varia* ssp. *aristata* var. *rostrat* Hook. f. op. cit. *A. varia* ssp. *aristata* var. *villosula* Hook. f. op. cit. *A. varia* ssp. *mutica* Hack. Op. cit.; Hook. f. op. cit. 150. *A. varia* ssp. *mutica* var. *humilis* Hook. f. op. cit. Sharma, et. al, Fl. Maha, Monocot, 3: 390. 1996.

Habit: Herbs Leaves linear-lanceolate or lanceolate, petioled, greenish-red or greenish-orange. Grains elliptic-oblong, reddish-brown.

FLS and FRTS : October - May.

Herbarium No and date of Collection: 966, 27/04/01.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-18.86, Abundance-3.74, Density-1.30.

Distribution in Gujarat: Throughout, gregarious, everywhere; common (Shah, 1978).

ARISTIDA L.

About 8 species, 1 in GNPS.

Aristida adscensionis L. Sp. Pl. 82. 1753; Hook. f. Fl. Brit. India 7 ; 224. 1896; Cooke, Fl. Pres. Bombay 3 : 529. 1958 (Repr.). Shah, Fl. Guj. 2: 778, 1978; Blatt. &

McC. Bombay Grass. 209. 1935; Bor Grass. Ind. 407. 1960. *A. depressa* Retz. Obs. Bot. 4 : 22. 1786; Bor. Op. cit. 409. *A. adscensionis* var. *pumila* (Decne.) Coss & Dur. Fl. D' Alger. Glum. 84 . 1855; Bor, op. cit.

Habit : Herbs. Leaves convolute, filiform; ligule of fine hairs. Inflorescence of linear panicles or fascicled. Spikelets ovoid – oblong or oblong – lanceolate, erect.

FLS and FRTS : February – April.

Herbarium No and date of Collection: 967, 23/03/00.

Local Name: Uthanpado.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-19.71, Abundance-3.04, Density-1.04.

Distribution in Gujarat: Throughout everywhere; common and abundant gregarious (Shah, 1978).

ARUNDINELLA Raddi.

About 6 species, 1 in GNPS.

Arundinella pumila (Hochst. Ex A. Rich.) Steud. Syn. Pl. Glum. 1 : 114. 1854; Bor in Kew Bull. 1955 : 402. 1955 & Grass. Injd. 423. 1960. *Acratherum pumilum* Hochst. Ex A. Rich. Tent. Fl. Abyss. 2 : 414, t. 100. 1851. *Arundinella tenella* Ness ex steud. Op. cit. 115; Hook. f. Fl. Brit. India 7 : 71. 1896; Cooke, Fl. Pres. Bombay 3 : 522. 1958 (Repr.). Shah, Fl. Guj. 2: 786, 1978; Blatt & McC. Bombay Grass. 193. 1935.

Habit : Herbs, annual. Leaves ovate to linear – lanceolate, apex acuminate, base narrowed. Spikelets delicately awned. Grains small, subellipsoid.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 968, 22/11/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-11.19, Abundance-1.50, Density-0.84.

Distribution in Gujarat: Throughout (except Kutch); common (Shah, 1978).

BAMBUSA Schreb. (nom. cons.).

About 28 species, 1 in GNPS.

Bambusa arundinacea (Retz.) Willd. Sp. Pl. 2 : 245. 1799; Gamble in Hook. f. Fl. Brit. India 7 : 395. 1896 & Ann. Roy. Bot. Gard. Calcutta 7 : 51. 1896; Cooke, Fl. Pres. Bombay 3 : 569. 1958 (Repr.). Shah, Fl. Guj. 2: 787, 1978; Blatt. & McC. Bombay Grass. 283. 1935; Holt. In Gard. Bull. Singapore 16 : 59. 1958 *Bambos arundinacea* Retz. Obs. Bot. 5 : 24. 1789.

Habit : Culms tall. Leaves linear or linear – lanceolate, apex stiff, base rounded,

ciliate. Inflorescence of enormous, leafless, compound panicles. Spikelets lanceolate. Caryopsis oblong, beaked by style bases, grooved on one side.

FLS and FRTS : Once in life time (100 years) often during September – May.

Herbarium No and date of Collection: 969.

Local Name: Kalak.

Distribution and Status in the Study Area: It is found in zone no 6, 10, 24 and 32.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: In moist deciduous forests of Dangs (See also Blatter & McCann (1935) for locality in Gujarat).

CENCHRUS L.

About 11 species, 1 in GNPS.

Cenchrus ciliaris L. Mant. Alt. 302. 1771; Bor, Grass. Ind. 287, f. 33. 1960. *Pennisetum cenchroides* L. C. Rich. In Pers. Syn. 1 : 72. 1805; Hook. f. Fl. Brit. India 7 : 88. 1896; Cooke, Fl. Pres. Bombay 3 : 432. 1958 (Repr.). Shah, Fl. Guj. 2: 796, 1978; *P. ciliare* Link, Hort. Berol. 1 : 213. 1827 ; Blatt & McC. Bombay Grass. 181, t . 1935.

Habit : Herbs, with tubercle based hairs. Racemes cylindric, involucre bristles free, antrosely scabrid; spikelets oblong – lanceolate, suborbicular, shortly cuspidate; lower lemma suborbicular.

FLS and FRTS : July – December.

Herbarium No and date of Collection: 970, 02/11/01.

Local Name: Jhinu Dhamnu.

Distribution and Status in the Study Area: It is found in zone no 1 to 15, 18 to 22, 24, 25, 26, 31 to 37.

Ecological Data: Frequency-17.14, Abundance-3.14, Density-1.44.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

CHLORIS Swartz.

About 29 species, 2 in GNPS.

Chloris barbata Swartz, Fl. Ind. Occ. 1: 200. 1797; Hook. f. Fl. Brit. India 7: 292. 1896; Cooke, Fl. Pres. Bombay 3: 557. 1958 (Repr.). Shah, Fl. Guj. 2: 798, 1978; Blatt. & McC. Bombay Grass. 256. 1935; Bor, Grass. Ind. 465. 1960.

Habit: Herbs, long, tufted, base creeping. Leaves narrowly linear, flat or folded, finely acuminate. Spike long. Spikelets long, arranged in rows, unilateral on axis, 2-awned. Grains subtrigonus.

FLS and FRTS : August – December.

Herbarium No and date of Collection: 971, 28/09/01.

Local Name: Mindadiu.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-26.57, Abundance-7.38, Density-3.54.

Distribution in Gujarat: Throughout, common (Shah, 1978).

Chloris dolichostachya Langasca, Gen. & Sp. Pl. 5. 1816; Bor, Grass. Ind. 466. 1960. *C. incomplete* Roth, Nov. Pl. Sp. 60. 1821; Hook. f. Fl. Brit. India 7 : 290. 1896; Cooke, Fl. Pres. Bombay 3 : 556. 1958 (Repr.). Shah, Fl. Guj. 2: 798, 1978; Blatt & McC. Bombay Grass. 253. 1935.

Habit: Herbs. Leaves narrowed in to a fine point, flat. Spikelets narrowly fusiform. Caryopsis oblong – lanceolate, brown, dorsally compressed.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 972, 13/12/00.

Local Name: Silariu.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-22.29, Abundance-2.80, Density-1.62.

Distribution in Gujarat: In many parts (except Kutch) (Shah, 1978).

COIX L.

About 6 species, 1 in GNPS.

Coix gigantean Koen. Ex. Roxb. Fl. Ind 3 : 570. 1832; Bor, Grass. Ind. 264. 1960. *C. lacryma – jobi* var. *gigantean* (Roxb) stapf ex Hook. f. Fl. Brit. India 7 : 100. 1896. Shah, Fl. Guj. 2: 802, 1978.

Habit : Herbs, annual, stilt – rooted. Leaves broad, upper with a few conspicuous glands. Racemes 1 – many, peduncles flat. Female spikelets solitary, males many, lanceolate. Grains flat, broadly ovoid.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 973, 28/09/01.

Local Name: Kasai.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 14, 17 to 20, 22, 25, 26, 27, 30, 31 and 34.

Ecological Data: Frequency-9.71. Abundance-1.00, Density-0.59.

Distribution in Gujarat: Throughout, in moist places; common to rare in areas of occurrence (Shah, 1978).

CYMBOPOGON Spr.

About 8 species, 1 in GNPS.

Cymbopogon martini (Roxb.) Wats. In Atkins. Gaz. N. W. Prov. Ind. 392. 1882; Blatt. & Mcc. Bombay Grass. 104. 1935; Bor, Grass. Ind. 129. 1960; Soenarko in Reinwardtia 9 : 330. 1977. *Andropogon martini* Roxb. Fl. Ind 1 : 280. 1820. *A. Schoenanthus* L. var. *martini* Hook. f. Fl. Brit. India 7 : 204. 1896. Shah, Fl. Guj. 2: 806, 1978.

Habit : Herbs, perennial, erect, aromatic. Leave linear – lanceolate or ovate-lanceolate. Panicles oblong; spikes long. Sessile spikelets elliptic – oblong or oblong, awned.

FLS and FRTS : September – December.

Herbarium No and date of Collection: 974, 01/11/01. **Photograph**: 189

Local Name: Rosha Ghas.

Distribution and Status in the Study Area: It is found in zone no 3 to 11, 16 to 20, 24 to 30, 33 to 36.

Ecological Data: Frequency-6.68, Abundance-0.69, Density-0.37.

Distribution in Gujarat: Throughout, in hilly areas, gregarious; common (Shah, 1978).

CYNODON L. C. Rich. (nom. cons.).

About 9 species, 1 in GNPS.

Cynodon dactylon (L.) Pers. Syn. Pl. 1 : 85. 1805; Hook. f. Fl. Brit.india 7 : 288. 1896; Cooke, Fl. Pres. Bombay 3 : 554. 1958 (Repr.). Shah, Fl. Guj. 2: 808 1978; Blatt & Mcc. Bombay Grass. 249. 1935; Bor, Grass. Ind. 469, f. 52. 1960; Jain in Bull. Bot. Surv. India 9 : 139 (1967) 1968. *Panicum dactylon* L. Sp. Pl. 58. 1753.

Habit : Perennials, weak; culms terete, ascending, rooting at nodes. Spikes long. Spikelets sessile; lemmas silky pubescent on keels. Caryopsis obovoid, turgid.

FLS and FRTS : Throughout the year.

Herbarium No and date of Collection: 975, 18/06/00.

Local Name: Dhro.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-14.76, Abundance-1.55, Density-0.64.

Distribution in Gujarat: Throughout; common (Shah, 1978).

DACTYLOCTENIUM Willd.

About 13 species, 2 in GNPS.

Dactyloctenium aegyptium (L.) Willd. Enum. Pl. Hort. Berol. 1029. 1809; Blatt & Mcc. Bombay Grass. 262. 1935; Bor, Grass. Ind. 489. 1960. *Cynosurus aegyptius*

(L.) Desf. Fl. Atlant. 1 : 85. 1798; Hook. f. Fl. Brit. India 7 : 295. 1896; Cooke, Fl. Pres. Bombay 3 : 560. 1958 (Repr.). Shah, Fl. Guj. 2: 808, 1978;

Habit : Annuals, erect, suberect or geniculately ascending, tufted. Leaves linear. Spikes bearded at base, digitately radiating. Spikelets long. Grains subglobose, red, strongly rugose.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 976, 21/02/00.

Distribution and Status in the Study Area: It is found in zone no1, 2, 4, 5, 6, 9, 10 to 15, 21, 22, 24 to 30, 34 to 37.

Ecological Data: Frequency-9.12, Abundance-0.88, Density-0.49.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

Dactyloctenium indicum Boiss. Blatt & Mcc. Bombay Grass. 262. 1935; Bor, Grass. Ind. 489. 1960. Hook. f. Fl. Brit. India 7 : 296. 1896; Cooke, Fl. Pres. Bombay 3 : 561. 1958 (Repr.). Shah, Fl. Guj. 2: 809, 1978.

Habit : Annuals, diffuse herbs. erect, suberect or geniculately ascending, tufted. Leaves ovate-lanceolate, flat, hairy, ciliate on margins. Spikes digitate.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 976-a, 21/02/00.

Distribution and Status in the Study Area: It is found in the zone no1, 2, 4, 5, 6, 9, 10 to 15, 21, 22, 24 to 30, 34 to 37.

Ecological Data: Frequency-12.19, Abundance-1.02, Density-0.46.

Distribution in Gujarat: Throughout, everywhere; common (Shah, 1978).

DENDROCALAMUS Nees.

About 35 species, 1 in GNPS.

Dendrocalamus strictus (Roxb.) Nees in Linnaea 9 : 476. 1834; Gamble in Hook. f. Fl. Brit. India 7 : 404. 1896 & Ann. Roy. Bot. Gard. Calcutta 7 : 78. 1896; Cooke, Fl. Pres. Bombay 3 : 572. 1958 (Repr.). Shah, Fl. Guj. 2: 809, 1978; Blatt & McC. Bombay Grass. 285. 1935; Holtt. In Gard. Bull. Singapore 16 : 98. 1958. *Bambos stricta* Roxb. Pl. Cor 1 : 58, t. 80. 1795.

Habit : Culms, solid, tufted. Leaves linear – lanceolate or ovate – lanceolate. Spikelets long, hairy, spinescent. Caryopsis long, ovoid to subglobose, brown, beaked with persistent style bases.

FLS and FRTS : October – March.

Herbarium No and date of Collection: 977, 20/03/00.

Local Name: Vans.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 6 to 14, 17 to 20, 24, 25, 26, 29 to 32, 33, 35 to 37.

Ecological Data: Frequency-17.38, Abundance-2.30, Density-0.36.

Distribution in Gujarat: Throughout (except Kutch) in deciduous forests; also planted at some places (Shah, 1978).

DIMERIA R. Br.

About 14 species, 1 in GNPS.

Dimeria orinthopoda Trin. Fund. Agrost. 167, t. 14. 1820; Hook. f. Fl. Brit. India 7: 104. 1896; Cooke, Fl. Pres. Bombay 3: 462. 1958 (Repr.). Shah, Fl. Guj. 2: 815, 1978; Blatt. & McC. Bombay Grass. 8. 1935; Bor, Grass. Ind. 142. 1960.

Habit: Annuals, culms slender, tufted, nodes hairy. Leaves linear to linear – lanceolate, hairy on both sides. Spikelets lower glume linear, hairy, with a few long hairs at tip, upper glume linear, equal to or slightly longer than lower one, hairy, keeled, narrow.

FLS and FRTS : October – December.

Herbarium No and date of Collection: 978, 12/12/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-23.43, Abundance-3.88, Density-2.42.

Distribution in Gujarat: Saurashtra in open forests (Shah, 1978).

DINEBRA Jacq.

About 17 species, 1 in GNPS.

Dinebra retroflex (Vah.) Panz. In Denkschr. Acad. Wiss. Munchen 270, t. 12. 1814; Blatt & McC. Bombay Grass. 264. 1935; Bor, Grass. Ind. 491. 1960. *Cynosurus retroflexus* Vahl, Symb. Bot. 2 : 20. 1791. *Dinebra arabica* Jacq. Fragm. Bot. 77, t. 121, f. 1. 1809; Hook. f. Fl. Brit. India 7 : 297. 1896; Cooke, Fl. Pres. Bombay 3 : 562. 1958 (Repr.). Shah, Fl. Guj. 2: 816, 1978.

Habit : Herbs, tufted. Culms erect or geniculately ascending. Leaves linear, finely acuminate. Inflorescence pyramidal, spicate, racemes stiff, oblong.

FLS and FRTS : September – February.

Herbarium No and date of Collection: 979, 28/10/00.

Local Name: Khariyu.

Distribution and Status in the Study Area: It is found in zone no 3, 4, 5, 6, 11 to 15, 17, 19, 21, 22, 24, 25, 26, 28 to 33.

Ecological Data: Frequency-9.71, Abundance-0.74, Density-0.49.

Distribution in Gujarat: Throughout; common (Shah, 1978).

ECHINOCHLOA P. Beauv.

About 4 species, 1 in GNPS.

Echinochloa colonum (L.) Link, Hort. Berol. 2 : 209. 1833; Blatt & McC. Bombay Grass. 148. 1935; Bor, Grass. Ind. 308. 1960. *Panicum colonum* L. Syst. Nat. ed. 10 . 2. 870. 1759; Hook. f. Fl. Brit. India 7 : 32. 1896; Cooke, Fl. Pres. Bombay 3: 447. 1958 (Repr.). Shah, Fl. Guj. 2: 817, 1978.

Habit : Herbs, annual, rooting at base. Leaves linear – lanceolate, scabrid, apex acute to acuminate. Racemes spiciform, distant.

FLS and FRTS : September – January.

Herbarium No and date of Collection: 980, 28/10/00.

Local Name: Samo.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 5 to 15, 18, 20, 21, 27 to 37.

Ecological Data: Frequency-16.30, Abundance-2.03, Density-1.33.

Distribution in Gujarat: Throughout in damp places; common (Shah, 1978).

ERAGROSTIS N. M. Wolf.

About 29 species, 2 in GNPS.

Eragrostis ciliaris (L.) R. Br. In Tuckey, Narr. Exp. Congo, App. 478. 1818; Stapf in Hook. f. Fl. Brit. India 7 : 314. 1896; Blatt & McC. Bombay Grass. 231. 1935 p.p.; Bor, Grass. Ind. 506. 1960. *Poa ciliaris* L. Syst. Nat. ed. 10. 2 : 875. 1759. *Eragrostis ciliaris* var. *branchystachya* Boiss. Fl. Orient. 5 : 582. 1884; Stapf in Hook. f. op. cit. 315; Cooke, Fl. Pres. Bombay 3 : 545. 1958 (Repr.). Shah, Fl. Guj. 2: 823, 1978; Bor, op. cit. 315;

Habit : Herbs, annual; culms tufted, erect, ascending or prostrate with short floriferous branches. Leaves linear, acuminate; sheaths and ligules hairy. Panicles Inog, oblong, lobed or interrupted. Spikelets 3 – 9 flowered, broadly ovate, compressed. Caryopsis oblong – ovoid.

FLS and FRTS : September – January.

Herbarium No and date of Collection: 981, 19/09/00.

Local Name: Mamaru.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-24.99, Abundance-5.93, Density-3.33.

Distribution in Gujarat: Kutch, Saurashtra, north Gujarat (Ahmedabad), central Gujarat (Baroda) and Rajpipla; or the whole rare (Shah, 1978).

Eragrostis japonica (Thunb.) Trin. In Mem. Acad. Sci. Petersb. 6, 1 : 405. 1831,

Bor, Grass. Ind. 509. 1960; T. A. Cope in Nasir & Ali, Fl. Pak. 143 : 88. 1982. *Poa japonica* Thunb. Fl. Jap. 51. 1784. *Eragrostis diarrhena* (Schult.) Steud. Syn. Pl. Glum. 1 : 266. 1854; Bor, op. cit. 507. *E. diplachnoides* Steud. Op. cit. 268; Bor, op. cit. 508. *E. interrupta* sensu Stapf in Hook. f. Fl. Brit. India 7 : 316. 1896 non (R. Br.) P. Beauv 1812; Blatt. & McC. Bombay Grass. 233. 1935 p. p. *E. interrupta* var. *diplachnoides* (Schult.) Stapf in Hook. f. op. cit. *E. interrupta* var. *diplachnoides* (Steud.) Stapf in Hook. op. cit. *E. interrupta* var. *koenigii* Stapf in Hook. f. op. cit.; Cooke, Fl. Pres. Bombay 3 : 546. 1958 (Repr.). Shah, Fl. Guj. 2: 825, 1978; *E. interrupta* var. *tenuissima* Stapf in Hook. f. op. cit. *E. namaquensis* Schrad. var. *diplachnoides* (Steud.) W. D. Clayton in Kew Bull. 25 : 251. 1971.

Habit: Herbs, annual or perennial, erect, strongly tufted. Leaves linear, flat; ligule. Spikelets linear – oblong ovoid or linear, red. Caryopsis ellipsoid, reddish – brown.

FLS and FRTS : September – March.

Herbarium No and date of Collection: 982, 21/02/00.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-25.39, Abundance-2.36, Density-1.01.

Distribution in Gujarat: Throughout (except Kutch), in cultivated fields and river beds (Shah, 1978).

HETEROPOGON Pers.

About 16 species, 1 in GNPS.

***Heteropogon contortus* (L.) P. Beauv. Ex R. & S. syst. Veg. 2 : 836. 1817; Blatt. & McC. Bombay Grass. 109. 1935; Bor, Grass. Ind. 163. 1960. *Andropogon contortus* L. Sp. Pl. 1045. 1753; Hook. f. Fl. Brit. India 7 : 199. 1896; Cooke, Fl. Pres. Bombay 3 : 510. 1958 (Repr.) Shah, Fl. Guj. 2: 831, 1978.**

Habit : Herbs, perennial, densely tufted; culms tall, decumbent below. Leaves, linear, acuminate, flat; sheaths compressed. Racemes long. Sessile spikelets long, dark brown; pedicelled spikelets long. Grains enclosed by lemmas.

FLS and FRTS : August – February.

Herbarium No and date of Collection: 983, 01/10/01.

Local Name: Dabh.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-27.39, Abundance-6.53, Density-1.76.

Distribution in Gujarat: Throughout, scattered or gregarious; common (Shah, 1978).

OPLISMENUS P. Beauv.

About 5 species, 1 in GNPS.

Oplismenus burmannii (Retz) P. Beauv. Ess. Agrost. 54, 168, 169. 1812; Hook. f. Fl. Brit. India 7: 68. 1896; Cooke, Fl. Pres. Bombay 3: 443. 1958 (Repr.). Blatt. & McC. Bombay Grass. 154. 1935; Bor, Grass. Ind. 317. 1760. *Panicum burmannii* Retz. Obs. Bot. 3: 10. 1783. Shah, Fl. Guj. 2: 843, 1978;

Habit: Herbs, slender Leaves ovate or ovate-lanceolate. Spikelets lanceolate. Grains ellipsoid-oblong.

FLS and FRTS : July - February.

Herbarium No and date of Collection: 984, 23/01/00.

Distribution and Status in the Study Area: It is found in zone no 1, 4 to 10, 13 to 16, 21, 22, 24, 25, 32 to 37.

Ecological Data: Frequency-50.10, Abundance-1.46, Density-0.77.

Distribution in Gujarat: Throughout in shaded spots; common (Shah, 1978).

ORYZA L.

About 19 species, 1 in GNPS.

Oryza sativa L. Sp. Pl. 333. 1753; Hook. f. Fl. Brit. India 7 ; 92. 1896; Cooke, Fl. Pres. Bombay 3 : 565. 1958 (Repr.). Shah, Fl. Guj. 2: 845, 1978; Blatt & McC. Bombay Grass. 274. 1935 p.p.; Bor, Grass. Ind. 605. 1960; Duistermatt in Blumea 32 ; 174. 1987. *O. nivara* Sharma & Shastri in ind. J. Gen. Pl. Breed. 25 (2) 161. 1965.

Habit: Herbs, annuals, erect, linear – lanceolate, minutely scaberulous on nerves above and along margins, glabrous below. Spikelets laterally compressed, cuneately oblong, pale green. Caryopsis oblong, red or dirty white.

FLS and FRTS : August – November.

Herbarium No and date of Collection: 985, 20/08/01.

Local Name: Dangar.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 11, 15, 16, 21, 24, 28, 30 to 37.

Ecological Data: Frequency-10.76, Abundance-2.61, Density-1.47.

Distribution in Gujarat: Cultivated (Shah, 1978).

PASPALIDIUM Stapf.

About 986 species, 1 in GNPS.

Paspalidium flavidum (Retz.) A. Camus in Lecomte, Fl. Gen. Indo – Chine 7 : 419. 1922; Blatt. & McC. Bombay Grass. 141. 1935; Bor, Grass. Ind. 333. 1960. *Panicum flavidum* Retz. Obs. Bot. 4 : 15. 1786; Hook. f. Fl. Brit. India 7 : 28. 1896; Cooke, Fl.

Pres. Bombay 3 : 445. 1958 (Repr.). Shah, Fl. Guj. 2: 850, 1978.

Habit : Herbs, perennial; tufted, erect or ascending from a decumbent base. Leaves lanceolate; sheaths hairy at throat. Spikelets ovoid, Grains orbicular.

FLS and FRTS : July – October.

Herbarium No and date of Collection: 986, 25/07/01.

Local Name: Goriu.

Distribution and Status in the Study Area: It is found in zone 1 to 10, 11, 16 to 21, 26 to 37.

Ecological Data: Frequency-10.67, Abundance-0.82, Density-0.35.

Distribution in Gujarat: Throughout; common (Shah, 1978).

PENNISETUM L. C. Rich, ex Pers.

About 16 species, 1 in GNPS.

Pennisetum americanum (L.) K. Schum. In Engl. Pflanzenew. Ost. Afr. B. 51, c. t. 4, f. A & B 1895; Bor in Rech. F. Fl. Iran. 70: 503. 1970. *Panicum americanum* L. sp. Pl. 56. 1753. *Pennisetum* L.C. Rich. In Pers. Syn. Pl. 1 : 72. 1805; Hook. f. Fl. Brit. India 7 : 82. 1896; Cooke, Fl. Pres. Bombay 3 : 432. 1958 (Repr.). Shah, Fl. Guj. 2: 856, 1978; *P. typhoides* (Burm. F.) Stapf & C. E. Hubb. In Kew Bull. 1933. 271. 1933; Bor, Grass. Ind. 350. 1960. *P. picatum* R. & S. Syst. Veg. 2 : 499. 1817; Blatt & McC. Bombay Grass. 182. 1935.

Habit : Herbs. Leaves linear – lanceolate, scabrid. Panicles cylindrical. Panicles cylindrical.

FLS and FRTS : September – November.

Herbarium No and date of Collection: 987, 01/11/01.

Local Name: Bajari.

Distribution and Status in the Study Area: It is found in zone no 1, 6, 10, 11, 15, 16, 21, 24, 28, 30 to 37.

Ecological Data: Frequency-14.57, Abundance-2.76, Density-1.64.

Distribution in Gujarat: Cultivated in many parts of Gujarat; also an escape in waste places (Shah, 1978).

SACCHARUM L.

About 7 species, 2 in GNPS.

Saccharum officinarum L. Sp. Pl. 54. 1753; Hook. F. Fl. Brit. India 7 : 118. 1896; Cooke, Fl. Pres. Bombay 3 : 466. 1958 (Repr.). Shah, Fl. Guj. 2: 860, 1978; Blatt. & McC. Bombay Grass. 46. 1935; Bor, Grass. Ind. 212. 1960.

Habit : Annuals, stout, erect; culms; culms cylindric, many noded. Leaves rigid,

linear – lanceolate, drooping at tip. Panicles large, pyramidal, spreading. Spikelets with silky white hairs.

FLS and FRTS : October – December.

Herbarium No and date of Collection: 988, 17/12/00.

Local Name: Sherdi.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 15, 16, 21, 22, 24, 28, 29, 32, 34, 36 and 37.

Ecological Data: Frequency-4.76, Abundance-0.42, Density-1.09.

Distribution in Gujarat: Cultivated at some places (Shah, 1978).

Saccharum spontaneum L. Mant. Alt. 2 : 183. 1771; Hook. f. Fl. Brit. India 7 : 118. 1896; Cooke, Fl. Pres. Bombay 3 : 465. 1958 (Repr.). Shah, Fl. Guj. 2: 860, 1978; Blatt. & McC. Bombay Grass. 45. 1935; Bor, Grass. Ind. 214. 1960.

Habit : Herbs, perennial, rhizomatous, erect, tufted. Leaves narrowly linear; sheaths smooth with fimbriate mouth; ligules ovate, membranous. Panicles large, silvery silky hairy. Spikelets, lanceolate.

FLS and FRTS : September – March.

Herbarium No and date of Collection: 989, 17/02/00.

Local Name: Kans.

Distribution and Status in the Study Area: It is found in the zone no 1 to 3, 6, 10, 15, 16, 21, 22, 24, 28, 29, 32, 34, 36 and 37.

Ecological Data: Frequency-11.43, Abundance-2.21, Density-1.08.

Distribution in Gujarat: Throughout, common (Shah, 1978).

SORGHUM Moench. (nom. cons.).

About 16 species, 2 in GNPS.

Sorghum bicolor (L.) Moench. Meth. 207. 1794; Bor, Grass. Ind. 228. 1960. *Holcus bicolor* L. Mant. 301. 1771. *Andropogon sorghum* Brot. Fl. Lusit. 1 : 88. 1804; Hook. f. Fl. Brit. India 7: 183. 1896; Cooke, Fl. Pres. Bombay 3 : 5111. 1958 (Repr.). Shah, Fl. Guj. 2: 866, 1978.

Habit : Sessile spikelets broadly obovoid, sometimes obovoid – rotund to subglobose when in fruit; upper lemma awned. Grains enclosed or more often exposed at top.

FLS and FRTS : October – December.

Herbarium No and date of Collection: 990, 20/11/00.

Local Name: Jawar.

Distribution and Status in the Study Area: It is found in zone no 1, 2, 3, 6, 10, 15, 16, 21 to 24, 28, 29, 32, 34, 36 and 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated as a cereal crop at some places, extensively in many parts of south Gujarat (Shah, 1978).

***Sorghum halepense* (L.) Pers.** Syn. Pl. 1: 101. 1805; Blatt & McC. Bombay Grass. 5. 1935; Bor, Grass. Ind. 222. 1960. T. A. Cope in Nasir & Ali, Fl. Pak. 143: 295. 1982. *Holcus halepensis* L. Sp. Pl. 1047, 1753. *Andropogon halepensis* (L.) Brot. Fl. Lusit. 1 : 89. 1804; Hook. f. Fl. Brit. India 7 : 182. 1896; Cooke, Fl. Pres. Bombay 3 : 502. 1958 (Repr.). Shah, Fl. Guj. 2: 867, 1978; *Sorghum miliaceum* (Roxb.) Snowden in J. Linn. Soc. 55 : 207. 1955; Bor, op. cit. 223. *S. miliaceum* var. *parvispiculum* snowden, op. cit. 209; Bor, op. cit.

Habit : Herbs, perennial erect; culms simple or branched, solid. Leaves linear – lanceolate; sheaths striate; ligules short, membranous, ciliate. *Decompound*. Sessile spikelets ovoid – lanceolate; pedicelled spikelets as long as sessile but narrower. Grains terete, dark brown.

FLS and FRTS : July – January.

Herbarium No and date of Collection: 991, 18/01/00.

Local Name: Baru.

Distribution and Status in the Study Area: It is found in zone no 1 to 22, 24 to 29, 32 to 35.

Ecological Data: Frequency-18.19, Abundance-2.85, Density-1.29.

Distribution in Gujarat: Throughout, in hedges and forest undergrowth; common (Shah, 1978).

THEMEDA Forssk.

About 11 species, 1 in GNPS.

***Themeda cymbaria* Hack.** In DC. Monogr. Phan. 6 : 668. 1889; Cooke, Fl. Pres. Bombay 3 : 514. 1958 (Repr.). Shah, Fl. Guj. 2: 874, 1978; Blatt. & McC. Bombay Grass. 118. 1935; Bor, Grass. Ind. 251. 1960. *Anthistiria cymbaria* Roxb. Fl. Ind. 1: 255. 1820 excl. syn.; Hook. f. Fl. Brit. India 7: 215. 1896.

Habit: Herbs, perennial, strongly compress, equitant. Leaves linear, finely pointed, scabrous above, smooth beneath, margins scabrid.

FLS and FRTS : August – October.

Herbarium No and date of Collection: 992, 26/10/00.

Local Name: Ratad.

Distribution and Status in the Study Area: It is found in all zones.

Ecological Data: Frequency-28.29, Abundance-6.53, Density-5.55.

Distribution in Gujarat: Throughout, common in open areas (Shah, 1978).

TRITICUM L.

About 3 species, 1 in GNPS.

Triticum aestivum L. Sp. Pl. 85. 1753; Blatt & McC. Bombay Grass. 279. 1935; Bor. Grass. Ind. 679. 1960. *T. vulgare* Vill. Hist. Pl. Dauph. 2: 153. 1787; Hook. f. Fl. Brit. India 7: 367. 1896. *T. sativum* Lam. Fl. Franc. 3: 625. 1778; Cooke, Fl. Pres. Bombay 3: 574. 1958 (Repr.). Shah, Fl. Guj. 2: 880, 1978.

Habit : Annuals, tufted. Leaves linear – lanceolate, scaberulous, apex acute. Spikes terminal, subcompressed. Grains oblong, ventrally grooved, free within lemma and palea.

FLS and FRTS : January – March.

Herbarium No and date of Collection: 993, 21/03/00.

Local Name: Ghahun.

Distribution and Status in the Study Area: It is found in zone no 1 to 4, 6, 15, 16, 21, 28, 29, 31 to 37.

Ecological Data: Frequency-0.00, Abundance-0.00, Density-0.00.

Distribution in Gujarat: Cultivated; seldom an escape and then rare (Shah, 1978).

ZEAL.

About 5 species, 1 in GNPS.

Zea mays L. Sp. Pl. 971. 1753; Hook. f. Fl. Brit. India 7 : 102. 1896; Cooke, Fl. Pres. Bombay 3 : 574. 1958 (Repr.). Shah, Fl. Guj. 2: 882, 1978; Blatt & McC. Bombay Grass. 2 : 1935; Bor, Grass. Ind. 270. 1960.

Habit : Annuals, stout, monoecious. Male inflorescence terminal, in large panicles; female inflorescence solitary, axillary. Spikelets numerous, seated on a spongy axis.

FLS and FRTS: July – October.

Herbarium No and date of Collection: 994, 26/09/01.

Local Name: Makai-Doda.

Distribution and Status in the Study Area: It is found in zone no 1, 4, 6, 10, 11, 16, 21, 24, 28, 29, 31 to 37.

Ecological Data: Frequency-14.49, Abundance-3.65, Density-2.34.

Distribution in Gujarat: Cultivated (Shah, 1978).