NYCTAGINACEAE

Plants herbaceous, unarmed; leaves opposite; flowers without coloured bracts:

A prostrate or ascending herbs; flowers small, pink ...................Boerhavia

An erect herb or undershrub; flowers showy, purple-blue ..................Mirabilis

Plants woody, generally armed; leaves alternate; flowers subtended by coloured bracts .........................Bougainvillea

Boerhavia Linn.

**Boerhavia diffusa** Linn. Sp. Pl. 3:1753; C. 2: 563; Sant. 220; Fl. Dang, 78; Fl. Delhi, 292; Fl. Pavagadh, 194.

**Boerhavia repens** Linn. Sp. Pl. 3: 1753; FBI. 4: 709; D. & G. 213.

**B. procumbens** Roxb. Fl. Ind. 1: 146, 1820; Wt. Ic. t.874.

Prostrate to ascending herb with swollen nodes and purplish stems. Leaves opposite, unequal in pairs, broad ovate or suborbicular. Flowers small, pink, bracteate; umbels arranged in axillary and terminal panicles. Fruit clavate,
A common weed of waste lands, roadsides and cultivated fields.

**Mirabilis** Linn.

**Mirabilis jalapa** Linn. Sp. Pl. 177, 1753; C. 2: 567; Bailey, Man. Cult. Pl. 358; Sant. 221; Fl. Delhi, 292.

An erect, much-branched, herb or undershrub. Leaves opposite, ovate, truncate or cordate, acuminate, long-petioled. Flowers purple-blue, showy, in a calyx-like involucre; corolla tube elongated. (Fl. Fr. August - December). DNT. 999.

Rarely as an escape, often cultivated.

**Bougainvillea** Comm. ex Juss. (nom. cons.)

**Bougainvillea spectabilis** Willd. Sp. Pl. 2: 348, 1799; C. 2: 567; Bailey, Man. Cult. Pl. 358; Bor & Raizada, 269, f. 98; Sant. 221; Fl. Dang, 78; Fl. Delhi, 292; Fl. Pavagadh, 193.

A woody, armed, scandent or straggling shrub. Leaves ovate to orbicular-ovate. Flowers creamy white, subtended by
large, variously coloured bracts. (Fl. Fr. January - May).
DNT. 1613 A.

Cultivated in private gardens.

AMARANTHACEAE

Anther 1-celled:

Flowers in terminal, cylindric or globose heads; stigma bifid ...............Gomphrena

Flowers in axillary, sessile heads;
stigma capitate .......................Alternanthera

Anther 2-celled:

Leaves opposite:

Stamens perfect:

Flowers all perfect, in spikes.......Nothosaerva

Flowers 1-3 perfect, surrounded by several imperfect ones with hooked bristles, on long spikes ...............Pupalia

Stamens with interposed, fimbriate staminodes .................Achyranthes

Leaves alternate:
Stamens perfect:

Ovary 2-many-ovuled; fruit a utricle. **Celosia**

Ovary 1-ovuled:

Flowers bisexual, pink; fruit a crustaceous nut. **Digera**

Flowers unisexual or polygamous; fruit indehiscent or circumsciss. **Amaranthus**

Stamens with interposed staminodes forming a hypogynous cup. **Aerva**

**Gomphrena** Linn.


A prostrate herb with smooth, silvery hairs. Leaves spathulate or oblong-elliptic. Flowers white or dirty white in cylindrical or oblong, terminal heads; heads substended by two leafy bracts. Fruit enclosed in the perianth. (Fl. Fr. June - October). DNT. 1734.

Commonly observed along roadsides and in cultivated fields.
Alternanthera Forsk.

Stamens 3 .................................. sessilis

Stamens 5 :

Leaves suborbicular or circular;
perianth segments spine-tipped ........ pungens

Leaves spathulate, broad at the apex
and decurrent along the petiole; perianth
covered with white woolly hairs ........ paronycioides

Alternanthera sessilis (Linn.) DC. Cat. Hort. Monsp. 77, 1813;
Gr. 168; D. & G. 220; Wt. Ic. t. 727; Backer, in Fl.
Males. I, 4(2): 94, 1948; Sant. 225; Fl. Dang, 78;
Fl. Delhi, 299; Fl. Pavagadh, 200.


Alternanthera triandra Lamk. Encycl. 1: 95, 1783; C.2: 584.

A prostrate, much-branched, annual herb, usually rooting
at nodes. Leaves linear-oblong, opposite, glabrous. Flowers
white, sessile, in small axillary, sessile clusters. Seeds
suborbicular. (Fl. Fr. June - November). DNT. 589, 1116, 1734,
1920.

A very common herb of moist-wet places throughout the area.

A prostrate, hairy herb, rooting at nodes. Leaves opposite, spatulate, broad at the apex and decurrent along the petiole. Flowers white, in axillary clusters; perianth covered with white woolly hairs. (Fl. Fr. December - February). DNT. 1888.

Rare; noted forming patches on the wet river banks at Hampeshwar.


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

A prostrate, much-branched herb, rooting at nodes. Leaves suborbicular or nearly circular. Flowers white, in axillary heads; perianth segments spine-tipped. (Fl. Fr. August - December). DNT. 1742.

Noted in dense patches on open waste places.
Santapau & Shah (l.c.) mention this plant as a new record for Bombay in 1961. It may, however, be noted that the plant was reported from Baroda in 1956. (Phatak & Joshi, l.c.)

**Nothosaerva** Wight

*Nothosaerva brachiata* (Linn.) Wight, *Ic.* 611, 1853; *FBI.* 4: 726; *C.* 2: 580; *Bäcker,* *loc. cit.* 86, 1949; *Fl.* Dang, 80; *Fl.* Delhi, 299; *Fl.* Pavagadh, 198.

**Achyranthes brachiata** Linn. *Mant.* 1: 50, 1767.


Commonly observed in moist situations near streams and in cultivated fields.

**Pupalia** Juss. (*nom. cons.*)


A large, straggling undershrub. Leaves ovate or elliptic, acute, tomentose on both sides. Flowers white or greenish white, in distinct clusters forming long, terminal spikes. Fruits with glabrous, hooked awns; seeds black, smooth. (Fl. Fr. July – February). DNT. 116, 443, 1013, 1600.

Commonly found in hedges and along forest paths.

Achyrhanthes Linn.

Achyrhanthes aspera Linn. var. porphyristachya Hook. f. in FBI. 4: 730, 1885; Sant. 224; Fl. Delhi, 299; Fl. Pavagadh, 196.

Achyrhanthes porphyristachya Wall. cat. 6925, 1832.

A. aspera Cooke, 2: 580, pro. parte; Fl. Dang, 78.

An erect, annual herb or undershrub. Leaves thick, elliptic or ovate, acute. Flowers greenish white, in long terminal spikes; bracts and bracteoles, persistent, ending in a spine. Utricle oblong. (Fl. Fr. June – February). DNT. 356.

Common weed of waste places, in hedges and along roadsides.

Celosia Linn.

Celosia argentea Linn. Sp. Fl. 205, 1753; Wt. Ic. t. 1767; FBI. 4: 714; C. 2: 570; Sant. 221; Fl. Dang, 79; Fl.
Delhi, 295; Fl. Pavagadh, 195; Fl. Mel. 276.


Faily common; a much variable plant observed on the plains, in moist places, along roadsides and in cultivated fields.

**Morphological characters**

**PLATE No. 63**

<table>
<thead>
<tr>
<th>Characters</th>
<th>Variations</th>
<th>Index value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Height</td>
<td>less than 50 cm.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>between 50 to 70 cm.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>more than 70 cm.</td>
<td>5</td>
</tr>
<tr>
<td>II Internodal length</td>
<td>less than 20 mm.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>between 20 to 30 mm.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>more than 30 mm.</td>
<td>5</td>
</tr>
<tr>
<td>III Shape of the leaf</td>
<td>ovate</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>linear-lanceolate</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ovate and linear-lanceolate</td>
<td>5</td>
</tr>
<tr>
<td>IV Length of lamina</td>
<td>less than 20 mm.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>between 20 to 40 mm.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>more than 40 mm.</td>
<td>5</td>
</tr>
</tbody>
</table>
Closia argentea Linn.
V Position of spike terminal 1
axillary 3
terminal and axillary 5

VI Length of spike less than 20 mm. 1
between 20 to 40 mm. 3
more than 40 mm. 5

VII Length of bracts less than 5 mm. 1
between 5 to 7 mm. 3
more than 7 mm. 5

VIII Length of tepals less than 7 mm. 1
between 7 to 9 mm. 3
more than 9 mm. 5

The variations observed in different populations of the species collected from various habitats are studied using polygraphic method. The range of variation in different characters are more or less co-related with the edaphic conditions of the habitats. The gross increase or decrease in size or length of the various parts (vegetative and reproductive) in robust and weak forms is very evident.

*Digera Forsk.*


*A. alternifolia* Linn. Mant. 50, 1767.


*D. arvensis* Forsk. Aeg.-Arab. 65, 1775; D. & G. 218; FBI. 4: 717; C. 2: 572.

An erect, annual herb with spreading branches. Leaves alternate, glabrous, entire, ovate, elliptic or lanceolate. Flowers pink or rose, in lax, axillary pedunculate spikes. Fruit globose, muricate. (Fl. Fr. June - November). DNT. 36, 573, 768.

A common weed of cultivated fields and along roadsides.

*Amaranthus* Linn.

Sepals 5; Stamens 5:

Leaf axils with spines ....................*spinosus*

Leaf axils without spines:

Bracts and bracteoles shorter than the perianth ...............*dubius*

Bracts and bracteoles longer
than the perianth .................. hybridus
ssp. cruentus
var. paniculatus

Sepals 3; stamens 3:

Fruit circumscissile ............... tricolor

Fruit indehiscent ................... viridis

Amaranthus spinosus Linn. Sp. Pl. 991, 1753; Wt. Ic. t. 513;
FBI. 4: 718; C. 2: 573; Backer, in Fl. Males. I. 4(2):
78, 1949; Sant. 221; Fl. Dang, 79; Fl. Delhi, 296;
Fl. Pavagadh, 195; Fl. Mel. 278.

An erect, annual, spinous herb or undershrub. Leaves
lanceolate, ovate, entire, spinous tipped. Flowers green, in
axillary or terminal dense panicles. (Fl. Fr. July - October).
DNT. 512.

Observed as a weed in cultivated fields and in waste lands.

ex Thell.
Amaranthus dubius Mart. Hort. Erl. 197, 1814; Thell. in Asch. &
Gr. Syn. 5, 1: 265, 1914; Backer, in Fl. Males. loc. cit.
79; Naik, in Proceedings of the Ind. Acad. Sci, 71:
229, f. 1, 1970.

An erect, much-branched, annual herb with striate stem.
Leaves ovate or broadly lanceolate, acute, cuneate at base.
Flowers greenish white, in axillary clusters or in axillary and terminal, interrupted spikes or panicles; bracts and bracteoles shorter than perianth, aristate. Seeds black. (Fl. Fr. July - December). DNT. 621.

PLATE No. 64

Rare; observed as a weed in cultivated fields at Rangpur.

Our observations tally with that of Backer (l.c.) while, they differ from the description and Fig. of Naik (l. c.) in the following respects:

1. Tepals midrib in the lower half is very thin, in upper half much thickened, produced into a short mucro. Naik showed it throughout thickened.

2. Utricles circumsciss a little below the middle not above the middle as shown by Naik.

3. Filament short, not exerted as shown by Naik.

A native of Tropical America, which was reported to be "rather a recent introduction to Java, collected for the first time in 1922" (Backer, l.c.). The report of its occurrence in Osmanabad District of Marathwada region of Maharashtra State (Naik, l.c.) was its first record from India. The occurrence of this plant in our area is, therefore, very interesting.
It is suggested that a careful reappraisal of all the available Indian material be made to throw light on the time of introduction of this weed and its present distribution in India.

Tentatively, therefore, the plant is reported here as a new record for Gujarat State.

*Amaranthus hybridus* Linn. *ssp. cruentus* (Linn.) Thell. *var. paniculatus* Thell. in Aschers. & Graebn. Syn. 5(1); 247, 1914; Backer, *loc. cit.* 79; Sant. 224; Fl. Delhi, 296.


Observed either under cultivation or as an escape.

*Amaranthus tricolor* Linn. Sp. Pl. 989, 1753; Backer, *loc. cit.* 77; Sant. 222; Fl. Delhi, 297.

*Amaranthus gangeticus* Linn. Syst. 1268, 1759; FBI. 4: 719; C. 2: 574.

An erect, much-branched, stout herb. Leaves variable in size, ovate-oblong or lanceolate with a cuneate base. Flowers in axillary clusters, forming long, terminal, interrupted spikes. Fruit circumscissile, rugose; seeds black. (Fl. Fr. October - February). DNT. 57, 1497, 1519.

Observed in moist places in ditches and in waste places.


*Amaranthus gracilis* Desf. Tabl. Hort. Par. 43, 1804; Fl. Delhi, 297.


Observed as a weed in cultivated fields and in moist places near streams.

*Aerva* Forsk. (nom. cons.)

Plants erect, flowers bisexual and unisexual, spikes all axillary ....................*lanata*
Plants sub-erect undershrub, often climbing; flowers bisexual, spikes terminal and axillary ...................... sanguinolenta

Aerva lanata (Linn.) Juss. in Ann. Mus. Par. 2: 131, 1808; FBI. 4: 728; C. 2: 578; Backer, loc. cit. 84; Sant. 223; Fl. Delhi, 294; Fl. Pavagadh, 197.

Achyranthes lanata Linn. Sp. Pl. 204, 1753 (non Celosia lanata Linn. ibid, 205).

An erect or sub-erect, much-branched, woolly tomentose herb. Leaves alternate, elliptic, obovate or sub-orbicular, obtuse, white-woolly beneath. Flowers greenish white or white, in dense, axillary spikes. Seeds black, smooth. (Fl. Fr. August - March). DNT. 413, 907, 1531, 1838, 1906.

A common weed of cultivated fields, also noted along roadsides and in hedges.

Aerva sanguinolenta (Linn.) Blume, Bijdr. 547, 1825; Backer, loc. cit. 85; Sant. 223; Fl. Dang, 78; Fl. Pavagadh, 197.

Achyranthes sanguinolenta Linn. Sp. Pl. (ed. 2) 294, 1762.

Aerva scandens Wall. Cat. 6911, 1829; Moq. in DC. Prodr. 13(2): 302, 1849; Wt. Ic. t. 724 (excl. utr. & seed); FBI. 4: 727; C. 2: 577.

Commonly observed on the slopes of the hillocks in moist, shaded localities.

CHENOPODIACEAE

Flowers usually bisexual, all similar ........Chenopodium

Flowers unisexual, dimorphic .................Spinacea

Chenopodium Linn.

Chenopodium album Linn. Sp. Pl. 219, 1753; FBI. 5: 3; Backer, in Fl. Males. I. 4(2): 102, 1949; Sant. 226; Fl. Delhi, 302; Fl. Pavagadh, 201.

Chenopodium viridis Linn. Sp. Pl. 219, 1753; Gr. 171.

An erect, annual herb, coated with white, granular pubescence. Leaves entire, lanceolate or rhomboid-oblong, acute. Flowers greenish, in axillary and terminal clusters, forming condensed spikes. (Fl. Fr. November - March). DNT. 623, 918, 1488, 1611.

A common weed of cultivated fields and noted in moist, waste places.
Spinacea Linn.


An erect, annual herb. Radical leaves narrow-oblong to ovate-oblong, cauline leaves smaller, becoming lanceolate. Flowers greenish, unisexual; males in spikes or panicles; females in clusters. (Fl. Fr. June - August). DNT. 987 A.

Cultivated.

BASELLACEAE

Basella Linn.

Basella rubra Linn. Sp. Pl. 272, 1753; FBI. 5: 20; C. 2: 594;

Bailey, Man. Cult. Pl. 354; Fl. Delhi, 304.

Basella alba Linn. Sp. Pl. 272, 1753.

A glabrous, twining, succulent herb. Leaves broad, ovate, cordate, entire. Flowers pink or pale-purple, in lax, axillary, elongated spikes. Fruit ovoid, fleshy utricle, black. (Fl. Fr. September - January), DNT. 656.

Cultivated on hedges.
POLYGONACEAE

Perianth in two whorls, each 3-merous; stigma fimbriate .........................Rumex

Perianth 4-5-merous; stigma capitata..............................Polygonum

*Rumex* Linn.

*Rumex dentatus* Linn. Mant. 2: 226, 1771; FBI. 5: 59; C. 3: 10; Sant. 227; Fl. Delhi, 307.


Rare; noted in moist, muddy soils on the river banks at Hampeshwar.

*Polygonum* Linn.

A diffusely branched prostrate herb ...............*plebeium*

An erect herb:

Stipules not ciliate .........................*glabrum*
Stipules ciliate with long stiff bristles.... **barbatum**

**var. gracile**

*Polygonum plebeium* R. Br. *Prodr.* 420, 1810; *FBI*. 5: 27; *C*. 3:
4: Sant. 226; Fl. Dang, 80; Fl. Delhi, 305; Fl. Pavadgh, 201.


Commonly noted in moist places on the river banks.

*C*. 3: 5; Sant. 227; Fl. Delhi, 306.


Noted in marshy places along the river banks.


Commonly observed on sandy banks of streams and rivers.

ARISTOLOCHIACEAE

Aristolochia Linn.


Aristolochia bracteata Retz. Obs. Bot. 5: 29, 1789; FBI. 5: 75; Č. 3: 16; Fl. Delhi, 308.


Rare; noted in sandy soils on the river banks at Hampheshwar.
PROTEACEAE

Grevillea R. Br. (nom. cons.)

Grevillea robusta A. Cunn. in R. Br. Prot. Nov. 24, 1830;

Bailey, Man. Cult. Pl. 345; Sant. 233; Fl. Dang, 81;

Fl. Pavagadh, 308.

A tall, robust tree. Leaves bi- or tripinnate; leaflets pinnatifid. Flowers orange-yellow, in one-sided, showy racemes.

(Fl. Fr. March - May). DNT. 1364.

Only one tree noted near Kawant village.

LORANTHACEAE

Leafless parasite; flowers unisexual ........Viscum

Parasite with leaves; flowers hermaphrodite ......................Dendrophthoe

Viscum Linn.

Viscum articulatum Burm. f. Fl. Ind. 211, 1768; FBI. 5: 226;

C. 3: 47; Bertal Hansen and Kai Larsen, in Dansk.


A leafless, parasitic, dichotomously much-branched shrub;
branches jointed, linear, flattened. Flowers minute, in fascicles, at the nodes. (Fl. April - August). DNT. 172.

Observed as a parasite on Diospyros and Cassine in the forests.

Dendrophthoe Mart.

Flowers white or white with a greenish tinge ..........falcata
Flowers bright scarlet .........................facata var. coccinea

Dendrophthoe falcata (Linn. f.) Etting, in Denkschr. Akad. Wissen. Math.-Naturw Cl. 32: 52, 58, t. 13, f. 14, 1872; Sant. 234; Fl. Dang, 81; Fl. Delhi, 309; Fl. Pavagadh, 203; Fl. Mel. 283.

Loranthus falcatus Linn. f. Suppl. 211, 1781.

L. longifolius Desr. in Lamk. Encycl. 3: 598, 1789; Gr. 86; Wt. Ic. t. 302; FBI. 5: 214; C. 3: 42.

A large, bushy parasite. Leaves thick, coriaceous, ovate, linear-oblong, obtuse. Flowers white with or without a greenish tinge, in short, spreading, stout, axillary, unilateral racemes. (Fl. August - January). DNT. 1512.

Observed as a partial parasite, on Diospyros, Boswellia, Cassine etc..
Dendrophthoe falcata Etting, var. coccinea (Talb.) Santapau, in Pl. Saur. 34, 1953; Sant. 234.

Loranthus lonqifolius Desr. var. coccinea Talb. Trees, ed. 1. 172, 1894; C. 2: 549.

A large, bushy, branched parasite. Leaves large, thick, coriaceous, broadly ovate, linear-oblong, obtuse. Flowers bright scarlet, in stout, unilateral, axillary racemes. (Fl. October - March). DNT. 1634.

Observed as a partial parasite, on Madhuca.

SANTALACEAE

Santalum Linn.

Santalum album Linn. Sp. Pl. 349, 1753; FBI. 5: 231; C. 3: 49; Fl. Pavagadh, 204; Fl. Mel. 284.


Noted in the temple premises at Hampheshwar.

EUPHORBIACEAE

1. Flowers in cyathia:
2. Involucre regular .......................... \textit{Euphorbia}

2. Involucre obliquely zygomorphic ........... \textit{Pedilanthus}

1. Flowers not in cyathia:

3. Cells of the ovary 1-ovuled:

4. Petals present, in one or both sexes
or if absent, calyx petaloid:

5. Flowers in androgynous cymes ........ \textit{Jatropha}

5. Flowers in androgynous spikes or racemes ................ \textit{Chrozophora}

4. Petals absent in both the sexes:

6. Capsules prickly ......................... \textit{Ricinus}

6. Capsules not as above:

7. Male sepals 4-6, imbricate, free. \textit{Baliospermum}

7. Male sepals closed in bud, splitting valvately into 3-5 concave sepals:

8. Herbs or undershrubs;
   stamens less than 10 .......... \textit{Acalypha}

8. Trees or shrubs; stamens more than 10:
9. Trees; filaments free..................Mallotus

9. Shrubs; filaments connate in
   bundles or branched..................Homonia

3. Cells of the ovary 2-ovuled:

10. Petals present, small; calyx valvate....Bridelia

10. Petals absent; calyx imbricate:

11. Pistillodes in males large, disc
    present in both the sexes.........Securinega

11. Pistillodes absent in males:

12. Herbs; fruits dry, capsular........Phyllanthus

12. Shrubs or trees; fruits fleshy:

13. Shrubs; fruits small,
    dark purple.......................Kirganelia

13. Trees; fruits large,
    pale yellow.......................Emblica

Euphorbia Linn.

1. Stems reduced to a fleshy, elongated,
   underground tubers; leaves all radical......fusiformis
1. Stems well-developed, above ground; leaves not radical:

2. Shrubs or trees:

3. Plants armed with stipular spines.....neriifolia

3. Plants unarmed .........................tirucalli

2. Annual or perennial herbs:

4. Involucre with a single, large gland.....heterophylla

4. Involucral glands not large:

5. Leaves exstipulate, alternate below, opposite above or all alternate, except the upper most floral leaves..dracunculoides

5. Leaves all opposite, stipulate or if stipules absent, the opposite pairs of leaves jointed by inter-petiolar line:

6. Glands of involucre with a conspicuous, petaloid limb; capsules hairy ....................hypericifolia

6. Glands of involucre without a petaloid limb, or limb not conspicuous:


Stem reduced to stout, cylindric, underground rootstock. Leaves all radical, sub-sessile, fleshy, obovate or oblanceolate, obtuse. Involucres in cymes, on long peduncles from the crown of the root stock after the leaves have fallen. (Fl. Fr. April - June). DNT. 187.

PLATE No. 65
Rare; observed on the plains in the forest at Luni.

**Euphorbia neriifolia** Linn. Sp. Pl. 451, 1753; FBI. 5: 255; C. 3: 59; Sant. 240; Fl. Dang, 83; Fl. Delhi, 311; Fl. Pavagadh, 206.

A large, fleshy, armed shrub. Leaves fleshy, obovate-oblong, alternate. Leafless during flowering and fruiting. Cyathia yellowish or greenish yellow. (Fl. Fr. January - May). DNT. 1545 A.

Commonly grown as a hedge plant around cultivated fields.

**Euphorbia tirucalli** Linn. Sp. Pl. 452, 1753; FBI. 5: 254; C. 3: 66; Fl. Dang, 84; Fl. Pavagadh, 206.

A leafless, unarmed shrub or a small tree. Branches green, smooth. Leaves very small or absent. Cyathia in sessile clusters at the top of branchlets. (Fl. Fr. August - October). DNT. 387 A.

Cultivated as a hedge plant.


Commonly observed along forest paths, forest fringes and hedges.

**Euphorbia dracunculoides** Lamk. Encycl. Method 2: 428, 1788; FBI. 5: 262; C. 3: 66; Santapau, loc. cit. 11; Fl. Delhi, 312; Fl. Pavagadh, 207.

An erect, dichotomously branched, annual herb. Leaves linear to linear-lanceolate, alternate or opposite. Involucres nearly sessile, solitary, glabrous; capsule glabrous. (Fl. Fr. March - May). DNT. 1693.

Observed as a weed in cultivated fields.

**Euphorbia hypericifolia** Linn. Sp. Pl. 454, 1753; FBI. 5: 249 (pro parte); Airy Shaw, loc. cit. 265.


**Euphorbia parviflora** Linn. Syst. (ed. 10) 1047, 1759; Roxb. Fl. Ind. 2: 472; Sant. 243; Santapau, loc. cit. 13; Fl. Pavagadh, 207.
E. hypericifolia var. parviflora Prain, Beng. Pl. 2: 924, 1903; C. 3: 69.


Fairly common; observed along roadsides and in cultivated fields.

Euphorbia hirta Linn. Sp. Pl. 454, 1753; Fl. Dang, 83; Fl. Delhi, 312; Fl. Pavagadh, 207; Airy Shaw, loc. cit. 264.

Euphorbia pilulifera auct. (non Linn.); FBI. 5: 250; C. 3: 64.


A common weed of cultivated fields and roadsides.

Euphorbia microphylla Heyne ex Roth, Nov. Pl. Sp. 229, 1821


A common weed in cultivated fields and waste places.

Euphorbia thymifolia Linn. Sp. Pl. 454, 1753; FBI. 5: 252; C. 3: 64; Sant. 241; Fl. Dang, 84; Fl. Delhi, 313; Fl. Pavagadh, 208; Airy Shaw, loc. cit. 265.


Rare; observed on the river banks at Hampheshwar.

Euphorbia prostrata Ait. Hort. Kew (ed. 1) 2: 139, 1789; FBI. 5: 266; Santapau, loc. cit. 16; Fl. Delhi, 313; Fl. Pavagadh, 208; Airy Shaw, loc. cit. 266.


Commonly observed in muddy soils on the river banks.

Pedilanthus Neck.


Euphorbia tithymaloides Linn. Sp. Pl. 453, 1753; D. & G. Suppl. 76.


Cultivated near habitation.


Plants erect; leaves glandular at the base; hairs sessile ..................rottleri
Plants prostrate; leaves not glandular at the base; hairs stipitate .................prostrata

Chrozophora rottleri (Geis.) Juss. ex Spreng. Syst. 3: 850, 1826; Pax & Hoffm. in Pfreich. 57: 19; Sant. 248; Fl. Pavagadh, 212.

Croton rottleri Geisel. Grot. Monogr. 54, 1807.

Chrozophora plicata Voigt, Hort. Sub. Calc. 156, 1846; D. & G. 233; C. 3: 104 (non A. Juss.).

C. plicata (forma 1) Hook. f. in FBI. 5: 409, 1887.


Commonly observed along roadside ditches and in waste places.

Chrozophora prostrata Dalz. in D. & G. 223, 1861; C. 3: 105; Sant. 249; Fl. Delhi, 315.

Chrozophora plicata (forma 3) Hook. f. in FBI. 5: 410.

A prostrate, stellately hairy herb. Leaves broadly ovate or orbicular, finely pubescent. Flowers in short, few-flowered,
axillary racemes, capsules densely woolly. (Fl. Fr. December - June). DNT. 924 A.

Commonly noted along roadside ditches, in cultivated fields and in open waste lands.

**Jatropha Linn.**

Leaves lobed, eglandular; flowers yellowish-green .................. *curcas*

Leaves lobed, margin with a row of short, viscid glands; flowers red..................... *gossypifolia*

**Jatropha curcas Linn.** Sp. Pl. 1006, 1753; FBI. 5: 383; C. 3: 95; Sant. 248; Fl. Dang, 84; Fl. Pavagadh, 214.

A large shrub or a small tree. Leaves 3-5-lobed or angled. Flowers yellowish-green, in terminal, cymose panicle. Capsule subglobose, glabrous. (Fl. Fr. August - December). DNT. 157.

Commonly noted in hedges.

**Jatropha gossypifolia** Linn. Sp. Pl. 1006, 1753; FBI. 5: 383; C. 3: 94; Fl. Dang, 84; Fl. Delhi, 314.

A much-branched, glandular shrub. Leaves palmately 3-5-lobed, clothed with numerous fascicled and branched glandular
bristles. Flowers in terminal cymes. Capsule oblong, 3-lobed.
(Fl. Fr. August - February). DNT. 956.

Noted on waste lands, roadsides and in hedges.

**Baliospermum Blume**

*Baliospermum montanum* Muell.-Arg. in DC. Prodr. 15(2): 1125, 1866; Fl. Dang, 81; Fl. Pavagadh, 215.

*Baliospermum axillare* Blume, Bijdr. 604, 1825; FBI. 5: 461; C. 3: 106.

*E. polyandrum* Wt. Ic. t. 1885; D. & G. 232.

A stout undershrub. Leaves sinuately toothed, alternate, the upper ones lanceolate. Flowers numerous, small, in axillary racemes or contracted panicles. Capsule ovoid. (Fl. Fr. December - April). DNT. 909, 1866.

Commonly observed as an undergrowth of forests and in waste places.

**Ricinus Linn.**

*Ricinus communis* Linn. Sp. Pl. 1007, 1753; FBI. 5: 457; C. 3: 125; Sant. 252; Fl. Dang, 85; Fl. Delhi, 316; Fl. Pavagadh, 214.
An evergreen shrub or a small tree. Leaves peltate, palmately 3-7-lobed. Flowers in terminal panicles. Capsules 3-lobed, echinate. (Fl. Fr. October - March). DNT. 955.

Cultivated in fields and in gardens.

_Acalypha_ Linn.

Bracts concealing the capsule:

- Bracts of female flowers shortly dentate, truncate. _indica_
- Bracts of female flowers fimbriate. _ciliata_
- Bracts not concealing the capsule. _malbarica_

_Acalypha indica_ Linn. Sp. Pl. 1003, 1753; Wt. Ic. t. 877; FBI. 5: 416; C. 3: 108; Fl. Dang, 81; Fl. Delhi, 316; Fl. Pavagadh, 213.

An erect, annual herb with spreading branches. Leaves membranous, ovate, serrate, acute. Flowers minute, in lax, elongate axillary spikes; male clusters towards the top; females solitary or paired, enclosed by a shortly dentate, truncate bract. Capsule hispid, concealed by persistent bract. (Fl. Fr. September - January). DNT. 61.

A common weed of waste lands and cultivated fields.

_Acalypha ciliata_ Forsk. Fl. Aeg.-Arab. 162, 1775; FBI. 5: 417;

A common weed of waste places and along forest paths.

_Acalypha malabarica_ Muell.-Arg. in Linnaea 34: 42, 1865; FBI. 5: 416; C. 3: 109.


Commonly observed as a weed in cultivated fields and along forest paths.

_Mallotus_ Lour.

_Mallotus philippensis_ (Lamk.) Muell.-Arg. in Linnea 34: 196, 1865; FBI. 5: 442; C. 3: 113; Sant. 249; Fl. Dang, 85; Airy Shaw, _loc. cit._ 300.


_Rottlera tinctoria_ Roxb. Pl. Cor. 2: 36, t. 167, 1798; Gr. 184; D. & G. 230.

Observed on the slopes of the hillocks and along forest paths.

*Homonia* Lour.


*Adelia neriifolia* Roth, Nov. Pl. Sp. 375, 1821; Gr. 185; D. & G. 231; Wt. Ic. t. 1868.

A rigid, evergreen shrub. Leaves numerous, closely set, linear-oblong or linear-lanceolate, acute. Flowers dioecious, sessile, in axillary bracteate spikes; stamens numerous, filaments branched or connate in bundles; styles 3, papilllose. (Fl. Fr. February - May). DNT. 845.

PLATE No. 66

Rare; noted in river beds at Kawant.

*Bridelia* Willd.

Nomenclature:

*Hymenia riparia* Lour.

Family: Dasyrhoeaceae
Genus: *Hymenia*
Species: *Hymenia riparia* Lour.
Locality: Chanthaboury.

Specimen: Specimen observed on river banks.

**PLATE No. 66.**
Bridelia retusa Spreng. var. squamosa Muell.-Arg. in DC. Prodr. 15(2): 493, 1866; FBI. 5: 268.

B. retusa Hook. f. in FBI. 5: 268; C. 3: 68; (amb pro parte, non Spreng.).


Fairly common and abundant in the area. Observed in association with Lannea, Anogeissus and Mitragyna.

Securinega Juss. (nom. cons.)

Securinega virosa (Roxb. ex Willd.) Pax & Hoffm. in Pfam. (ed.2) 19 c: 60, 1931; Sant. 244; Fl. Dang, 85; Fl. Delhi, 318; Airy Shaw, loc. cit. 340.


Fluggea microcarpa Blume, Bijdr. 580, 1825; FBI. 5: 328; C. 3: 77.

An erect, glabrous, unarmed shrub. Leaves variable, obovate

Fairly common; observed in hedges and along forest paths.

**Phyllanthus** Linn.

Stipules peltate; anthers with vertical dehiscence:

Leaves scattered on the branches;
capsule smooth ................................**maderaspatensis**

Leaves closely set on the branches;
capsule not as above:

Anthers oblong, connective apiculate or muticous; capsule echinate ..........**urinaria**

Anthers small, connective with crescentic crest; capsule crustaceous...**simplex**

Stipules simple; anthers with transverse dehiscence ..........................**asperulatus**

**Phyllanthus maderaspatensis** Linn. Sp. Pl. 982, 1753; Wt. Ic. t. 1895; FBI. 5: 292; C. 3: 82; Sant. 246; Fl. Delhi, 319; Fl. Pavagadh, 210.

Common among grasses on open grounds and as a weed in cultivated fields.

Phyllanthus urinaria Linn. Sp. Pl. 982, 1753; FBI. 5: 293; C. 3: 83; Sant. 45; Fl. Dang, 85.


Fairly common; observed in open waste lands, along forest paths and in cultivated fields.


Rare; observed growing on the river banks at Hampheshwar.
Phyllanthus asperulatus Hutch. in KB. 27-28, 1920; Webster, in JAA. 37: 14, 1956; Sant. 245.

Phyllanthus niruri auct. non Linn.; FBI. 5: 298; Wt. Ic. t. 1894; C. 3: 84.


A common weed of cultivated fields.

Kirganelia Baill.

Kirganelia reticulata (Poir.) Baill. Etud. Gen. Euph. 613, 1858; Sant. 246; Fl. Dang, 84; Fl. Delhi, 320; Fl. Pavagadh, 211.

Phyllanthus reticulatus Poir. in Lamk. Encycl. 5: 298, 1804; FBI. 5: 288; C. 3: 81.


Noted wild in hedges and on the elevated banks of rivers.
Emblica Gaertn.

**Emblica officinalis** Gaertn. Fruct. 2: 122, 1791; Wt. Ic. t. 1896; Sant. 246; Fl. Delhi, 320; Fl. Pavagadh, 211.

**Phyllanthus emblica** Linn. Sp. Pl. 982, 1753; FBI. 5: 289; C. 3: 81.

A small tree. Leaves linear-oblong, distichous. Flowers yellow, in axillary fascicles below the leaves; male flowers many, on short, slender pedicels; female flowers few, subsessile. Fruits fleshy, globose, pale yellow. (Fl. Fr. April - October). DNT. 675.

Commonly observed on the slopes and at the foot of the hillocks.

ULMACEAE

Fruit dry, winged ...................... Holoptelea

Fruit a drupe ........................... Trema

Holoptelea Planch.

**Holoptelea integrifolia** (Roxb.) Planch. in Ann. Sc. Nat. (ser.3) 10: 259, 1848; Wt. Ic. t. 1968; FBI. 5: 481; C. 3: 123; Sant. 252; Fl. Dang, 86; Fl. Delhi, 321.
**Ulmus integrifolia** Roxb. Pl. Cor. 1: 56, t. 78, 1795; Gr. 188.

A medium-sized, deciduous tree. Leaves broadly ovoid or ovate, acuminate. Flowers greenish, in fascicles at the scars of fallen leaves. Fruit a samara, orbicular, with reticulately veined wings. (Fl. Fr. March – May). DNT. 855.

Commonly observed along roadsides and on the slopes of the hillocks.

**Trema** Lour.

**Trema orientalis** (Linn.) Blume, Mus. Bot. Lugd.-Bat. 2: 58, 1856; FBI. 5: 884; C. 3: 129; Talb. 2: 500; Sant. 253; Fl. Dang, 86; Fl. Pavagadh, 215.

**Celtis orientalis** Linn. Sp. Pl. 1044, 1753; Gr. 189.

A small tree. Leaves rough, obliquely ovate, serrate, acuminate. Flowers greenish, minute, in axillary cymes. Drupe black. (Fl. Fr. 101, 555, 1416.

Commonly observed along forest paths and at the foot and slopes of hillocks.

**URTICACEAE**

**Laportia** Gaudich.


Fleurya interrupta (Linn.) Gaud. in Bot. Freye. Voy. 497, 1826; Wt. Ic. t. 1975; FBI. 5: 548; C. 3: 131; Sant. 253; Fl. Dang, 86; Fl. Pavagadh, 216.


Rare; observed as an undergrowth in the forest at Ambadungar.

MORACEAE

Flowers in short spikes or heads;
stamens inflexed in bud :.....................Streblus

Flowers crowded in globose heads or inside fleshy receptacles; stamens straight in bud :

Flowers all exposed .......................Artocarpus

Flowers on the inner wall of a closed receptacle .......................Ficus
Streblus Lour.

Streblus asper Lour. Fl. Cochinch. 2: 615, 1790; FBI. 5: 489; C. 3: 141; Talb. 2: 502, t. 516; Fl. Dang, 87; Fl. Delhi, 329; Fl. Pavagadh, 217.


Observed at the foot of hillock and in hedges.

Artocarpus J.R. & G. Forst. (nom. cons.)

Artocarpus heterophyllus Lamk. Encycl. 3: 210, 1789; Bailey, Man. Cult. Pl. 338; Sant. 260; Fl. Delhi, 322.

Artocarpus integrifolius auct. (non Linn. f.); C. 3: 158.

A large, evergreen tree. Leaves elliptic to obovate, coriaceous. Flowers crowded on globose large receptacle; male heads cylindric; females cylindric, tubercled and very large at maturity, hanging on the trunk and old branches.

Ficus Linn.

Receptacle sessile:

Leaves glabrous:
Leaves broadly ovate, cordate, acuminate; aerial roots absent ........... religiosa

Leaves elliptic or narrowly oblong-ovate, acute; aerial roots often present .......... amplissima

Leaves tomentose beneath ......................... benghalensis

Receptacle stalked:

Leaves alternate:

Male flowers with 1-stamen:

Receptacle solitary ......................... asperimma

Receptacle in pairs ....................... virens

Male flowers with 2-stamens ............. racemosa

Leaves opposite ....................... hispida

_Ficus religiosa_ Linn. Sp. Pl. 1059, 1753; FBI. 5: 513; C. 3: 149; Talb. 2: 514; Sant. 257; Fl. Delhi, 325; Fl. Pavagadh, 219.


A large, glabrous tree. Leaves entire, ovate, cordate,

Observed at the foot of hillocks and near habitation.

Ficus amplissima Sm. in Rees, Cyclop. 14: 1; Santapau & Janardhanan, 46.

Ficus tsiela Roxb. Fl. Ind. 3: 549, 1832; FBI. 5: 515; C. 3: 150; Talb. 2: 518; Fl. Delhi, 325.

A large, glabrous tree with or without aerial roots. Leaves elliptic-lanceolate, acute; stipules ovate, acuminate. Receptacles sessile, globose, clustered at the end of branches. (Fl. Fr. April - October). DNT. 1739.

Commonly seen as a strangler on Borassus flabellifer along roadside at Saidivasan.

Ficus benghalensis Linn. Sp. Pl. 1059, 1753; FBI. 5: 499; C. 3: 145; Talb. 2: 507, f. 514; Sant. 256; Fl. Dang, 86; Fl. Delhi, 324; Fl. Pavagadh, 219.

A large, evergreen tree with long, spreading branches, sending down aerial roots. Leaves ovate, obtuse, coriaceous. Receptacles axillary globose, sessile in pairs, red when ripe. (Fl. Fr. March - May). DNT. 1613.

Commonly noted near habitation.
Ficus asperrima Roxb. Fl. Ind. 3: 554, 1832; FBI. 5: 552; C. 3: 153; Talb. 2: 522, f. 529; Sant. 258.

A small tree. Leaves oblong-lanceolate, entire, elliptic, crowded at the end of branchlets. Receptacles solitary, pedunculate, globose. (Fl. Fr. March - April). DNT. 835 A.

Rare; noted near habitation at Kawant.


Ficus infectoria Roxb. Fl. Ind. 3: 551, 1832; C. 3: 151; Talb. 2: 519.

F. infectoria Roxb. var. lambertiana King, Sp. Fic. 63, t. 76, 1887; FBI. 5: 516; C. 3: 151; Talb. 2: 520.

A large, deciduous tree. Leaves coriaceous, rounded, ovate or ovate-oblong, emarginate, Receptacles axillary, in pairs, stalked. (Fl. Fr. September - December). DNT. 1475.

Rare; noted at the foot of a hillock near Banganga stream.


Ficus glomerata Roxb. Pl. Cor. 2: 13, t. 123, 1798; Wt. Ic. t. 667; FBI. 5: 535; C. 3: 154; Talb. 2: 524, f. 531;
Fl. Dang, 87; Fl. Delhi, 326; Fl. Pavagadh, 219.


Noted near habitation and at the foot of hillocks.

Ficus hispida Linn. f. Suppl. 442, 1781; FBI. 5: 522; C. 3: 154; Talb. 2: 523, f. 530; Sant. 258; Fl. Dang, 87; Fl. Pavagadh, 218.

A shrub or a small tree, all parts more or less pubescent. Leaves opposite, petiolate, ovate, oblong, apiculate. Receptacles obovoid, hispid, in pairs or fascicled on short, tubercled branches. (Fl. Fr. April - August). DNT. 1538.

Commonly observed in hedges, near streams and in crevices of old walls.

CASUARINACEAE

Casuarina Linn.

Casuarina equisetifolia Linn. Amoen. Acad. 4: 143, 1759 ('equisetifolia'); FBI. 5: 598; C. 3: 161; Sant. 261; Fl. Dang, 87; Fl. Delhi, 330; Fl. Pavagadh, 220.

A tall, weak tree. Branches drooping; branchlets very
slender, cylindrical, jointed, internodes ribbed. Leaves reduced to scales, arranged in whorls. Male flowers in cylindrical spikes; females in globose or ovoid heads. (Fl. Fr. March - July). DNT. 972.A.

Commonly grown in gardens.

Class II  MONOCOTYLEDONS

HYDROCHARITACEAE

Leaves cauline and in whorls .................. Hydrilla

Leaves radical .............................. Vallisneria

Hydrilla Rich.

Hydrilla verticillata (Linn. f.) Royle, Ill. Bot. Himal. t. 376, 1839; FBI. 5: 659; C. 3: 170; Fl. Delhi, 331;
Subramanyam, in Aquat. Angios. 55, f. 37.

Serpipula verticillata Linn. f. Suppl. 416, 1781.

A submerged, much-branched, slender herb. Leaves sessile, oblong-linear, entire in whorls. Flowers dioecious; male flowers small, pedicillate, female ones sessile. (Fl. Fr. September - December). DNT. 1419 A.

Common along river banks.
Vallisneria Linn.

**Vallisneria spiralis** Linn. Sp. Pl. 1015, 1753; FBI. 5: 660; C. 3: 171; Sant. 262; Subramanyam, loc. cit. 57, f. 39; Fl. Delhi, 331.

A submerged, stoloniferous herb. Leaves radical, linear, narrow. Flowers unisexual; male flowers small, on short peduncles; female ones on long spirally coiled peduncles. (Fl. January - April). DNT. 1558.

Abundant along the banks of Narmada.

**ORCHIDACEAE**

Epiphytic herbs:

Flowers pinkish-white; column prolonged into a foot ....................... *Aerides*

Flowers yellow with brown lines and white margins; column not prolonged into a foot...... *Vanda*

Terrestrial herbs:

Leaves 2.5 to 5 cm. long, linear; flowers greenish-white ....................... *Zeuxine*

Leaves 15 to 25 cm. long, elliptic-lanceolate; flowers greenish-yellow ....................... *Peristylus*
Aerides Lour.

*Aerides crispum* Lindl. (in Wall. Cat. 7319, 1832 nom. nud.)

*Aerides lindleyana* Wight, Ic. t. 1677, 1851; Lindl. in Journ. Linn. Soc. 3: 41, 1858; D. & G. 265.


PLATE No. 67

Rare; noted as an epiphyte on *Madhuca indica* at Luni.

Vanda R. Br.


*Vanda roxburghii* R. Br. in Bot. Reg. 6: t. 506, 1820;
FBI. 6: 52; Wt. Ic. t. 916; C. 3: 208.

An epiphytic, stout herb. Leaves thickly coriaceous, recurved. Flowers yellow with brown lines and white margins, in axillary, simple or dense lax-racemes. Capsules clavate-
oblong with acute ribs. (Fl. Fr. July - August). DNT. 132.

Commonly observed as an epiphytic on Madhuca and Mangifera.


**Orchis strateumatica** Linn. Sp. Pl. 943, 1753.


Rare; noted on muddy escarpments near streams along roadside at Chikhli.

**Peristylus** Blume

**Peristylus goodyeroides** Lindl. Gen. Sp. Orch. 299, 1835; D. & G. 300; Santapau & Kapadia, loc. cit. 133; Thaker & Sabnis, loc. cit. 46.
Habenaria goodyeroides D. Don, Prodr. Fl. Nep. 25, 1825; Gr. 201; FBI. 6: 161.

Peristylus goodyeroides var. affinis Lindl. loc. cit. 300; C. 3: 216.


PLATE No. G8

Rare; noted on the plains under the shade of Madhuca at Luni.

ZINGIBERACEAE

Lateral staminodes broad; corolla tube funnel-shaped ......................Curcuma

Lateral staminodes 0 or small; corolla tube cylindric:

Filaments forming with the produced connective an oblong petaloid process with linear anther cells placed in its middle........Costus

Filaments short ......................Zingiber

Curcuma Linn.

Curcuma inodora Blatter in Journ. Asiatic Soc. Beng. 26(1):.
A monsoon herb with few, oblong-lanceolate, petiolate leaves. Flowers pink to purple with a yellow streaks at the top, in spikes directly produced from rootstock; bracts rosy pink to purple, darker at the apex. (Fl. July - August). DNT. 19, 198.

Commonly observed as an undergrowth of forest in shaded localities.

Costus Linn.

Costus speciosus (Koening) Smith, in TLS. 1: 249, 1800; Wt. Ic. t. 2014; FBI. 6: 249; C. 3: 243; Sant. 276; Fl. Dang, 88.

Banksia speciosa Koening, in Retz. Obs. 3: 75, 1783.

An erect plant. Leaves cauline, sub-sessile, oblong or oblanceolate, acute, glabrous above and silky pubescent beneath. Flowers large, white, in dense spikes; petals white, yellow in the centre, crisped. Capsule subglobose, trigonous. (Fl. Fr. July - October). DNT. 1082 A.

Noted in moist places on the slopes of the hillocks.

Zingiber Boehm. (nom. cons.)

Zingiber officinale Roscoe in TLS. 8: 358, 1807; Bailey, Man.
A small, herb with horizontal, fleshy rhizome. Leaves distichous, linear-lanceolate, sessile. Flowers in long spikes; corolla tubular. (Fl. April). DNT. 925 A.

Cultivated near habitation.

MUSACEAE

Musa Linn.

Musa paradisiaca Linn. Sp. Pl. 1043, 1753; Moore, in Baileya 5: 185, 1957; Fl. Delhi, 332.

Musa paradisiaca Linn. ssp. sapientum (Linn.) K. Schum. in Pfreich. 4(45): 20, 1900; C. 3: 249.


M. sapientum Linn. Syst. 1303, 1759; FBI. 6: 262.

A stoloniferous, large, tree-like herb, with false stems formed by large, sheathing leaf-bases. Leaves large, oblong; erect or ascending. Flowers in large, drooping spikes; bracts many-flowered, deciduous. Fruit oblong, yellowish-green when ripe, sweet and edible. (Fl. Fr. April - July). DNT. 937 A.

Cultivated for its fruits.
CANNACEAE

Canna Linn.

Canna indica Linn. Sp. Pl. 1, 1753; FBI. 6: 260; C. 3: 251; Sant. 277.

A large, tall herb. Leaves alternate, elliptic-lanceolate, acuminate. Flowers generally red, showy, in terminal racemes; staminodes petaloid. (Fl. mostly throughout the year). DNT. 929 A.

Cultivated in gardens.

AMARYLLIDACEAE

Crinum Linn.

Crinum pratense Herbert, Amaryllid. 256, 1837; FBI. 6: 282; C. 3: 257.

A herb with tunicated white bulb. Leaves linear, sub-erect with entire margin. Flowers white, large, showy, in umbels, surrounded by large, ovate acute bracts. (Fl. Fr. October - January). DNT. 1571.

Observed on sandy banks.

AGAVACEAE

Agave Linn.

A stout shrub with radical leaves. Leaves persistent, stiff, heavy with spiny apex and margins. Flowers in panicles, on stout, very long scapes. (Fl. Fr. June - October). DNT. 1086 A.

Fairly abundant along roadsides, in hedges and waste places.

**HYPOXYDACEAE**

**Curculigo** Gaertn.

**Curculigo ochridoides** Gaertn. Fruct. 1: 63, t. 13, 1788; FBI. 6: 279; C. 3: 255; Sant. 278; Fl. Dang, 89.

**Curculigo malabarica** Wight, Ic. t. 2043, f. 1, 1853; D. & G. 276.


Commonly observed as an undergrowth in forests.

**TACCACEAE**

**Tacca** Forst.

Leontice leontopetaloides Linn. Sp. Pl. 313, 1753.


A perennial herb with globose rootstock. Leaves large, circular in outline, 3-partite, the segments variously pinnatifid, margins undulate. Flowers pedicillate, drooping; involucral bracts acuminate, tinged with purple; perianth greenish-yellow. Fruit globose or ovoid, yellow, 6-ribbed. (Fl. Fr. July - September). DNT. 8, 1179.

PLATE No. 69

Commonly found growing along the banks of streams and other moist spots in the hilly forest areas.

DIOSCOREACEAE

Dioscorea Linn.

Leaves simple:

Stems climbing by twining to the left;
leaves as broad as long ......................... bulbifera
Stems climbing by twining to the right; leaves much longer than broad .............. belophylla

Leaves compound:

Fertile stamens 6; leaf usually 3-foliolate.. hispida

Fertile stamens 3; leaf 3-5-foliolate .. pentaphylla


A large, twining herb with unarmed stem. Leaves broadly ovate, cordate, acuminate with axillary bulbils of various sizes. Flowers greenish-white in spikes. Fruit a quadrately oblong, glabrous capsule. (Fl. Fr. August - October). DNT. 199, 659, 1130.

Commonly observed in the forest and on hedges.

Dioscorea belophylla Voigt. Hort. Sub. Calc. 653, 1845; G. 3: 1056; Prain & Burkill, loc. cit. 348, t. 127; Santapau, loc. cit. 634; Sant. 281.
A large, twining herb. Leaves sagittate ovate, upper cordate ovate, much longer than broad, acuminate, membranous, lower alternate, upper usually opposite. Male flowers in spike on special leafless branches. Capsule covered with small hairs. (Fl. Fr. July - September). DNT. 76.

Rare; observed in the forest at Ambadungar.

**Dioscorea hispida** Dennst. Schuss Hort. Malab. 15, 1818; Prain & Burkill, *loc. cit.* 188, ff. 77-78; Santapau, *loc. cit.* 629; Fl. Dang, 89.


A large twiner with stems more or less prickly. Leaves usually 3-foliolate; leaflets cuneate-ovate, caudate, acuminate, 3-5-nerved, lateral leaflets oblique. Male flowers in dense, cylindric pedunculate spikes; female flowers in elongated, solitary spike. (Fl. July - October). DNT. 1.

Observed as a climber in forests.


**Dioscorea jacquemontii** Hook. f. FBI. 6: 290, 1892.
A large twiner with oblong root-tubers. Stem slender, glabrous, prickly towards the base. Leaves 3-5-foliolate; leaflets variable in size and shape. Male flowers in pedunculate racemes; female flowers in pendulous spikes. (Fl. July - September). DNT. 151.

Commonly observed in the forest.

**LILIACEAE**

Leaves thick, succulent with dentate margin ........... **Aloe**

Leaves not as above:

Climbing or straggling herbs:

Leaf apex tendrillar; flowers large, scarlet to crimson ......................... **Gloriosa**

Leaves scaly; flowers small, white ........... **Asparagus**

Erect herbs:

A distinct bulb or corm present:

Flowers on a leafless scape; leaves appearing after the flowers ............... **Urginea**

Racemes leafy ......................... **Iphigenia**
Small perennating organ present or absent, but a distinct bulb or corm absent:

Ovules 2 in each cell ............... Asphodelus

Ovules 4 or more in each cell ...... Chlorophytum

Aloe Linn.


Aloe perfoliata var. vera Linn. Sp. Pl. 320, 1753.

A. vera (Linn.) Webb. & Berth (non Mill.).

An erect herb with highly succulent, radical leaves. Leaves thick, numerous, dentate, linear-lanceolate. Flowers yellowish green, in simple, erect racemes. (Fl. March - April). DNT. 852 A.

Cultivated near habitation.

Gloriosa Linn.

Gloriosa superba Linn. Sp. Pl. 305, 1753; Wt. IC. t. 2047; FBI. 6: 358; C. 3: 274; Sant. 282; Fl. Dang, 90; Fl. Pavagadh, 224.
Methonia superba Dalzell & Gibson, Bom. Fl. 205, 1861.


Commonly noted on hedges.

Asparagus Linn.

Asparagus racemosus Willd. var. javanica Baker, in JLS. 14: 624, 1874; FBI. 6: 316; C. 3: 270; Sant. 282.


Commonly noted in shaded localities in forests.

Urginea Steinh.

Urginea indica (Roxb.) Kunth, Enum. 4: 333, 1843; FBI. 6: 347; C. 3: 277; Sant. 283; Fl. Delhi, 337.

Scilla indica Roxb. Fl. Ind. 2: 147, 1832; Gr. 220 (non Baker).

A herbaceous plant with tunicated bulb. Leaves flat, linear,
acute, appearing after the flowers. Flowers dingy brown, very
distant, in slender laxly-flowered racemes. Capsule ellipsoid,
tapering to both ends. (Fl. Fr. March – April). DNT. 941, 957.

- Commonly observed in the forests.

**Iphigenia Kunth.**

**Iphigenia indica** (Linn.) A. Gray, in Kunth. Enum. 4: 213, 1843;
FBI. 6: 357; C. 3: 275; Sant. 283.

- **Melanthium indicum** Linn. Mant. 226.

A small, delicate herb with sub-globose corm. Leaves alternate, few, sessile, linear or linear-lanceolate, acuminate,
coriaceous, sheathing. Flowers purple in few-flowered terminal,
erect racemes. Capsule oblong-ellipsoid. (Fl. Fr. June – August).
DNT. 191.

**PLATE No. 70**

Rare; a shade-loving plant. Observed in the forests at Luni.

**Asphodelus Linn.**

**Asphodelus tenuifolius** Cav. in Ann. Gene. Nat. 3: 46, t. 27,
f. 2, 1801; FBI. 6: 332; C. 3: 279; Fl. Delhi, 337.

Annual, erect, glabrous herb with radical, fistulous leaves.
**Aphigenia indica** A. Gray

**HERBARIUM**

No. DNT. 199.

Family
Liliaceae

Genus
*Aphigenia*

Species
*indica* (Linn.), A. Gray

Locality
Lumi,
Chotladepur.

Remarks
A shade-loving plant, noted on the plains in the forest.

30.7.69. Collected by

**PLATE No. 70.**

A common weed of cultivated fields of winter crops.

Chlorophytum Ker.

Chlorophytum tuberosum (Roxb.) Baker, in JLS. 15: 322, 1875;
FBI. 6: 334; C. 3: 281; Sant. 283; Fl. Delhi, 225.

Anthericum tuberosum Roxb. Fl. Ind. 1: 149, 1832; Gr. 219.


Common as an undergrowth in hilly forest area; also noted on barren or sparsely vegetated hillocks.

COMMELINACEAE

Fertile stamens 3, staminodes present:

Cymes enveloped in spathaceous bracts ......... Commelina

Cymes in panicles, not enveloped in spathaceous bracts ....................... Murdannia

Fertile stamens 6, staminodes absent:
Inflorescence sessile, embedded in the hollow axil of the leaf-sheath ....... Amiscocephalus

Inflorescence not as above .................. Cyanotis

Commelina Linn.

Spathes funnel-shaped or with margins connate to the top:

Ovary 5-ovuled; capsule 3-5-seeded ........... benghalensis

Ovary 3-2-ovuled; capsule 3-2-seeded ........ undulata

Spathes complicate with dorsal margins, free to the base ...................... diffusa

Commelina benghalensis Linn. Sp. Pl. 41, 1753; Wt. Ic. t. 2056; FBI. 6: 370; C. 3: 291; Sant. 284; Fl. Dang, 90; Fl. Delhi, 340; Tiwari & Maheshwari, in Ind. For. 91(8): 582, 1965; Fl. Pavagadh, 226.

A branched, diffuse or slender herb with stem dichotomously branched from the base upwards. Leaves ovate-obtuse, leaf sheath with ciliate margins. Flowers blue, enclosed in ovate-lanceolate spathes. Capsule usually 5-seeded. (Fl. Fr. July - November).

DNT. 96, 396'.

Commonly noted everywhere during monsoon.

Commelina obliqua Buch.-Ham. var. mathewii C. B. Clarke, in DC. Mon. Phan. 3: 179, 1881; FBI. 6: 372; C. 3: 293.


A glabrous, stout, diffuse herb. Leaves variable in size, lanceolate or linear-lanceolate, acute-acuminate. Flowers violet-blue, spathes sessile, solitary or crowded, in terminal heads. Capsule 3-2-seeded. (Fl. Fr. August - October). DNT. 1012.

Observed as an undergrowth in forest.

Commelina diffusa Burm. f. Fl. Ind. 18, t. 7, f. 2, 1768; Merr. in JAA. 18: 64, 1937; Sant. 284; Tiwari & Maheshwari, loc. cit. 582.


Commonly noted along roadside ditches and forest paths.

**Murdannia** Royle (nom. cons.)

Flowers in sub-globose or sub-corymbose cymes at the end of the branches of the panicle; cells of the ovary 2-ovuled; capsule 3-celled with 2 seeds in each cell .....................nudiflora

Flowers few, in branched panicles; cells of the ovary 3-many-ovuled; capsule 3-gonous, the cells 3-7-seeded..............................spirata

**Murdannia nudiflora** (Linn.) Brenan, in KB. 189, 1952; Rao, in BBSI. 3(3 & 4): 393, 1961; Raizada, loc. cit. 447.

**Commelina nudiflora** Linn. Mant. 177, 1767 (non Linn. 1753) pro parte.

**Murdannia malabarica** (Linn.) Bruckn. in Afam. (ed. 2) 159: 178, 1930; Sant. 286; Raizada, in Ind. For. 92(5): 317, 1966.

**Tradescantia malabarica** Linn. Sp. Pl. (ed. 2) 412, 1762.

**Aneilema nudiflorum** R. Br. Prodr. 271, 1810; FBI. 6: 378; C. 3: 298.

A slender, procumbent annual, often rooting at nodes. Leaves linear-oblong or lanceolate, acute-acuminate. Flowers
blue-purple, in terminal panicles. Capsule 3-gonous, sub-globose, 3-celled, having 2 seeds in each cell. (Fl. Fr. July - October). DNT. 181, 1121, 1166.

Commonly observed in moist places along roadside ditches and in sandy soil near water.

*Murdannia spirata* (Linn.) Bruckn. in Pfam. (ed. 2) 15 A : 173, 1930; Sant. 285; Tiwari & Maheshwari, *loc. cit.* 587.

*Commelina spirata* Linn. Mant. 176, 1767.


Commonly observed in moist places along river banks.

*Amischophacelus* Rolla Rao et Kammathy

Anther filaments bearded .........................*axillaris*

Anther filaments nearly naked .....................*cucullata*

*Amischophacelus axillaris* (Linn.) Rolla Rao et Kammathy, in *J. Linn. Soc. (Bot.)* 59 (379) : 306, 1966; Raizada,
Commelina axillaris Linn. Sp. Pl. 42, 1753.


A diffusely branched erect or prostrate herb. Leaves narrowly linear-lanceolate or linear, acute-acuminate. Flowers violet-blue, clustered in the inflated sheaths, cymes reduced to axillary fascicles. (Fl. Fr. August - October). DNT. 979, 1019.

Commonly noted on hillocks exposed to sun-light and near streams.

Amischophacelus cucullata (Roth) Rolla Rao et Kammathy, loc. cit. 306; Raizada, loc. cit. 431; Thaker & Sabnis, loc. cit. 46.

Tradescantia cucullata Roth, Nov. Pl. Sp. 189, 1821.

Cyanotis cucullata (Roth) Kunth, Enum. 4: 107, 1843; FBI. 6: 389; Tiwari & Maheshwari, loc. cit. 585.

Commonly observed along roadside ditches and as a weed in cultivated fields during monsoon.

*Cyanotis* D. Don (*nom. cons.*)

Filaments bearded with hairs of one colour;
seeds 3-gonous, striate .........................cristata

Filaments bearded with hairs of two colour;
seeds oblong, faintly rugose ....................fasciculata

*Cyanotis cristata* (Linn.) Schult. F. Syst. 1150, 1830; Wt. Ic. t. 2082; FBI. 6: 385; C. 3: 304; Sant. 288; Fl. Dang, 91; Tiwari & Maheshwari, *loc. cit.* 585; Fl. Pavagadh, 227.


Commonly noted in moist shaded localities.

*Cyanotis fasciculata* (Heyne ex Roth) Schult. F. Syst. 7: 1152, 1830; Wt. Ic. t. 2086; FBI. 6: 387; C. 3: 303; Sant. 287; Tiwari & Maheshwari, *loc. cit.* 585.
Tradescantia fasciculata Heyne ex Roth, Nov. Pl. Sp. 189, 1821.


Rare; observed as a weed in moist places, cultivated fields at Amirpura.

ARECACEAE (PALMAE)

Leaves simple, palmate or fan-like ........ Borassus

Leaves compound, pinnate:

Lower leaflets not spinescent ............ Cocos

Lower leaflets spinescent ............... Phoenix

Borassus Linn.


A tall tree with palmately divided leaves. Flowers unisexual, on branched spadix, enclosed into numerous open spathes.
Drupe subglobose, brown. (Fl. Fr. February - May). DNT. 1768.

Fairly common; planted near habitation for 'toddy'.

**Cocos** Linn.


A tall palm with pinnate leaves. Flowers in large spadix; male flowers above, female flowers below. Drupe fibrous, large, obovoid. (Fl. mostly throughout the year). DNT. 1746 A.

Observed at few places in private gardens.

**Phoenix** Linn.

*Phoenix sylvestris* (Linn.) Roxb. Hort. Beng. 73, 1814, nom. nud.

& Fl. Ind. 3: 787, 1832; FBI. 6: 425; C. 3: 311; Blatter, Palms 3, tt. 2, 3; Sant. 288; Fl. Dang, 91; Fl. Delhi, 343; Fl. Pavagadh, 228.

*Elate sylvestris* Linn. Sp. Pl. 1189, 1753, pro parte.

Noted near habitation.

PANDANACEAE

Pandanus Linn. f. (nom. cons.)


Pandanus fascicularis Lamk. Encycl. 1: 372, 1785; FBI. 6: 485; Fl. Delhi, 344.

P. tectorius Soland ex Balf. f. in JLS. 17: 63, 56, 1876; C. 3: 324.

A much-branched thick bush. Leaves erect, acuminate, dentate, closely, spirally arranged at the end of branches. Flowers dioecious; spadix with subsessile cylindric spikes. (Fl. February-August). DNT. 1756.

Rare; observed near water at Rangpur.

TYPHACEAE

Typha Linn.

Typha angustata Bory & Chaub. Exp. Mor. 3(2): 33, 1832; FBI. 6: 489; Graebn. in Pfreich. 2: 14, f. 4f.; C. 3: 326; Sant. 289; Fl. Delhi, 344.
T. elephantina Gr. 227, 1839 (non Roxb.).

An erect, stout, marshy shrub. Leaves semi-cylindric, linear, long, usually exceeding the flowering stem. Flowers small, brown, in very dense superposed cylindric spikes; the males and females separated by a considerable interval. (Fl. August – October). DNT. 1955.

Observed along streams and roadside ditches.

ARACEAE

Leaves entire, peltate ..................Colocasia

Leaves divided:

Flowers often dioecious; male
flowers stipitate .....................Arisaema

Flowers always monoecious; male
flowers sessile or nearly so .........Savromatum

Colocasia Schott

Colocasia esculenta (Linn.) Schott, in Schott & Endl. Melet. 1: 18, 1832; Sant. 293; Fl. Delhi, 345.


Colocasia antiquorum Schott, loc. cit. 18; FBI. 6: 523;
A rhizomatous, erect herb. Leaves large, ovate with a broad triangular sinus, peltate. Spathe petaloid, pale-yellow, erect. Spadix shorter than the spathe. (Fl. September - October) DNT. 83.

Cultivated for its edible leaves.

Arisaema Mart.

Arisaema neglectum Schott, in Bonpl. 7: 26, 1859; FBI. 6: 504; Engler, in Pfreich. 192, f. 43; Sant. 290; Fl. Pava-gadh, 228.

A tall, tuberous herb. Leaves pedatipartite; leaflets ovate-lanceolate. Flowers monoecious or dioecious; spadix covered by green spathe, male flowers stalked. (Fl. July - August ). DNT. 121.

Observed at the foot and slopes of the hillocks.

Sauromatum Schott

Sauromatum guttatum (Wall.) Schott, in Melet. 1: 17, 1832; FBI. 6: 508, emend; Engler, loc. cit. 123, f. 18-A-L; C. 3: 335; Sant. 291; Fl. Dang, 92.

Arum guttatum Wall. Pl. As. Rar. 2: 10, t. 15, 1831.

A tuberous herb, leafing after flowering. Leaves pedatisect
with a long petiole, segments elliptic, acuminate. Flowers monoecious, spathe with a short peduncle; spadix sessile; male flowers above, females below and neuters in between. (Fl. April - May). DNT. 940.

PLATE No. 71

Observed at the foot of hillocks in thickly shaded localities.

**LEMNACEAE**

*Spirodela* Schleid.

*Spirodela polyrhiza* (Linn.) Schleid. in Linnaea 13: 392, tt. 5, 6, 1839; McCann, in JBNHS. 43: 156, 1942; Subramanyam, in Aquat. Angios. 77, 1962; Fl. Delhi, 346.


A small, free-floating, aquatic herb. Fronds obovate to orbicular, green above, purple below with multiple roots. (Fl. not observed). DNT. 419 A.

Commonly noted in roadside ditches during monsoon.

**ALISMATACEAE**

*Sagittaria* Linn.

A floating aquatic or semiaquatic, fibrous rooted herb. Leaves with long petiole, sagittate, acute, smooth. Flowers white, in 3-5 whorls along the scapes, usually 3-5 flowers in each whorl in paniculate, cuspidate whorls. Fruits globose. (Fl. Fr. April - May). DNT. 900 A.

Rare; noted along the river banks at Hampheshwar.

POTAMOGETONACEAE

Potamogeton Linn.

Potamogeton crispus Linn. Sp. PI. 126, 1753; FBI. 6: 566; C. 3: 350; Fl. Delhi, 349.


Rare; noted in ditches along river banks at Hampheshwar.

ERIOCAULACEAE

Eriocaulon Linn.

Eriocaulon cuspidatum (?) Dalz. in Kew Journ. Bot. 3: 281, 1851;
A small, stemless, tufted plant, about 10 to 12 cm. high. Leaves narrowly linear, subulate. Flower peduncles numerous with small, white, globose heads. (Fl. Fr. September - November). DNT. 313, 1206.

Observed on marshy ground or rice fields during monsoon.

CYPERACEAE

1. Achene-bearing glumes containing perfect stamens as well:

2. Glumes all distichously arranged;
   hypogynous bristles 0 .......................... Cyperus

2. Glumes spirally arranged (basal ones sometimes distichous in Fimbristylis); hypogynous scales or bristles sometimes present:

3. Style base dilated and constricted or articulated above the achene:

4. Leaves 0; spikelets solitary, terminal;
   hypogynous bristles present ................. Eleocharis

4. Leaves usually developed; spikelets many; hypogynous bristles 0:
5. Style-base persistent, if falling, not leaving a tumour on the achene. **Fimbristylis**

5. Style deciduous, leaving a tumour on the achene. **Bulbostylis**

3. Style-base not dilated, continuous with achene:

6. Hypogynous scale or bristles absent. **Scirpus** (in part)

6. Hypogynous scale or bristles present:

7. Hypogynous scales 6, divided to the base into numerous hair like segments. **Eriophorum**

7. Hypogynous bristles present. **Scirpus** (in part)

1. Achene-bearing glume devoid of perfect stamens; inflorescence panicked; achene bony, variously sculptured and exserted. **Scleria**

*Cyperus* Linn.

1. Spikelets in a sessile heads or clusters:

2. Heads usually greenish. **michelianus** ssp. **pygmaeus**

2. Heads white:

3. Spikelets in angular or lobed heads. **triceps**
3. Spikelets in globose heads ............leucocephalus

1. Spikelets in umbels :

4. Umbels usually simple :

5. Spikelets 1-flowered ...............cyperoides

5. Spikelets more than 1-flowered :

6. Style bifid :

7. Fruit a laterally compressed achene :

8. Stamens usually 1; glumes
   bifid .........................pumilus

8. Stamens 2; glumes obtuse ......globosus

7. Fruit a dorsally compressed
   achene .........................laevigatus

6. Style trifid :

9. Spikelets in globose heads on
   the rays of an umbel ...........difformis

9. Spikelets spicate on the umbel rays :

10. Small or medium annuals :

11. Spikelets golden yellow...squarrosus
11. Spikelets green, compressed ........ compressus

10. Perennials:

12. Stolon slender; glumes closely imbricate ................. rotundus

12. Stolon long, slender; glumes plicate-striate ............. esculentus

4. Umbels usually compound or decompound:

13. Umbels usually compound:

14. Plant robust:

15. Spikelets in cylindric spikes, 8-20-flowered .............. exaltatus

15. Spikelets in cylindric spikes, many-flowered .............. eleusinoides

14. Plant not robust; glumes with a continuous, glistening with at the back ......................... pseudokyllingioides

13. Umbels decompound:

16. Rachis flexuous, hispid on the angles; glumes dorsally 7-nerved .......... rectangularis

16. Rachis glabrous; glumes dorsally 3-5-nerved .................... iria
Cyperus michelianus (Linn.) Link. ssp. pygmaeus (Rottb.) Aschers. et Graebner, Synops. 2: 273, 1903; Kuekenth. in Pfreich. 101: 312; Sant. 300; Sabnis, in BBSI. 4(1-4): 200, 1962.


Cyperus pygmaeus Rottb. Descr. et Icon. 20, 1773; C. 3: 372; Fl. Delhi, 352.

Juncellus pygmaeus C.B.Clarke, in FBI. 6: 596.

A small prostrate or sub-erect herb. Leaves numerous, linear, acuminate, green. Spikelets in compact, terminal, greenish heads; glumes of the spikelets distichously arranged. Achene ellipsoid, tipped by the style base. (Fl. Fr. July - November). DNT. 322.

Commonly observed on sandy river banks and on dried roadside ditches forming dense tufted patches.

Cyperus triceps (Rottb.) Endl. Cat. Hort. Vindob. 1: 94, 1842; Kuekenth, loc. cit. 578; Sant. 301; Sabnis, loc. cit. 200; Fl. Delhi, 353.

Kyllinga triceps Rottb. Descr. et Icon. 14, t. 4, f. 6, 1733; FBI. 6: 587; C. 3: 391.

A small, glabrous, tufted plant. Leaves linear, acute, as long as or longer than the stems. Spikes white, sessile, angular
heads in groups of 3; spikelets 1-flowered. Achene oblong or ellipsoid-oblong. (Fl. Fr. July - October). DNT. 150, 316.

Very common throughout the area in moist places and open grasslands during monsoon.

Cyperus leucocephalus Retz. Obs. 5: 11, 1789; Kuekenth, loc. cit. 278, f. 31; FBI. 6: 602; C. 3: 377; Sant. 299; Sabnis, loc. cit. 195.


Commonly noted as an undergrowth of forests immediately after rains.

Cyperus cyperoides (Linn.) O. Kuntze, Rev. Gen. 3(2): 333, 1898; Kuekenth, loc. cit. 514; Sant. 298.

Scirpus cyperoides Linn. Mant. 2: 181, 1771.

Mariscus sieberianus Nees, in Linnaea 9: 286, 1834; FBI. 6: 622.


A slender, stolon-bearing, perennial sedge. Spikelets
usually 1-flowered, divaricately arranged in simple umbels. (Fl. Fr. July - October). DNT. 1223.

Observed as an undergrowth of forest in moist, shaded localities.


A small, glabrous, tufted annual. Leaves narrowly linear, acuminate. Spikelets arranged in umbels, 20-30-flowered, linear, compressed, glumes ovate, bifid; stamens usually 1; stigma 2. Achene compressed, ellipsoid or obovoid. (Fl. Fr. August - October). DNT. 880, 1095, 1101, 1564.

Observed on wet sandy soils of river banks.


*P. capillaris* Nees, in *Linnaea* 9: 283, 1834; FBI. 6: 591.

A small, tufted, slender annual. Leaves slender, filiform,
shorter than the head. Spikes arranged in simple umbels; rachilla not winged; spikelets 20-30-flowered, glumes obtuse; stamens 2. Achene narrowly obovoid, laterally compressed. (Fl. Fr. September - October). DNT. 1040.

Commonly noted on sandy river beds.

Cyperus laevigatus Linn. Mant. 179, 1771; Kuekenth, loc. cit. 321; C. 3: 373; Fl. Delhi, 352.

Juncellus laevigatus C. B. Clarke, in FBI. 6: 596, 1893.


Observed in wet, sandy places along the river banks.

Cyperus difformis Linn. Cent. Pl. 2: 6, 1756; FBI. 6: 599; C. 3: 376; Kuekenth, loc. cit. 237; Sabnis, loc. cit. 200; Sant. 298; Fl. Delhi, 355; Fl. Pavagadh, 229.


Commonly observed on muddy or sandy banks during monsoon and post-monsoon periods.

*Cyperus aristatus* Rottb. Descr. et Icon. 23, t. 6, f. 1, 1773; FBI. 6: 606; C. 3: 380; Sabnis, loc. cit. 200.

A small, tufted, glabrous annual. Leaves linear, acuminate, usually shorter than the stem. Spikelets golden-yellow or brown, arranged on the rays of an umbel; glumes with squarrosely recurved arista. Achene apiculate, trigonous and reddish-brown. (Fl. Fr. July - February). DNT. 644, 1038, 1173.

Commonly noted in moist places and also noted as a weed in cultivated fields and on loose gravelly soils.

*Cyperus compressus* Linn. Sp. PI. 1: 46, 1753; FBI. 6: 605; C. 3: 379; Kuekenth, loc. cit. 156; Sant. 297; Sabnis, loc. cit. 200; Fl. Delhi, 356.


A very common weed; usually noted in cultivated fields, in moist places among grasses and along the banks of streams.

*Cyperus rotundus* Linn. Sp. PI. 1: 45, 1753; FBI. 6: 614; C. 3:

A common weed of cultivated fields and waste places during monsoon and post-monsoon periods.


Usually noted along the banks of streams and rivers.

*Cyperus exaltatus* Retz. Obs. 5: 11, 1789; Clarke, in JLS. 21: 186 & FBI. 6: 617; C. 3: 386; Kuekenth, 64, f. 9 A-F.

A large, glabrous perennial. Leaves few with more or less scaberulous margins. Umbels compound; spikelets 8-20-flowered,

Observed in marshy places along streams and river banks.

**Cyperus eleusinoides** Kunth, Enum. 2: 39, 1837; FBI. 6: 608; Sant. 298; Fl. Delhi, 357.


Commonly noted in moist places along the banks of rivers and streams.


**Courtoisia cyperoides** Nees, in Wight, Contrib. Bot. Ind. 92, 1832 et Linnaea 9: 286, 1834; FBI. 6: 625; C. 3: 391.

An erect, herbaceous annual. Spikelets yellowish-brown to almost golden yellow, in globose heads on the rays of an umbel; glumes with a continuous, glistening wing at the back. (Fl. Fr.
December - February. DNT. 1342, 1374.

Usually found in moist places among grasses.

**Cyperus rectangularis** (Kuekenthal) Bennet, in Ind. For. 95: 692, 1969.

**Cyperus iria** var. **rectangularis** Kuekenth, *loc. cit.* 152.

**Cyperus alulatus** Kern, in Reinwardtia, 1(4): 463-466; 1962.

A small, tufted annual. Spikelets small, few-flowered, in decompound umbels. The plant resembles *Cyperus iria* from which it differs in having hispid rachis and glumes dorsally 7-nerved. (Fl. Fr. July - October). DNT. 496.

Commonly noted on muddy banks.

**Cyperus iria** Linn. Sp. Pl. 45, 1753; FBI. 6: 606; Kuekenth. *loc. cit.* 150; Sant. 299; Fl. Delhi, 357.


Noted in moist places along the banks of streams and rivers.
**Eleocharis** R. Br.

**Eleocharis atropurpurea** (Retz.) Kunth, Enum. 2: 151, 1837; FBI. 6: 627; C. 3: 403; Sant. 302; Sabnis, loc. cit. 200; Fl. Delhi, 358.

**Scirpus atropurpureus** Retz. Obs. 5: 14, 1789.

A small, tufted, slender annual. Leaves absent. Spikelets ovoid, obtuse or sub-acute, dark brown, solitary and terminal; glumes broadly ovate-oblong; bristles white. Achene minute, black, biconvex. (Fl. Fr. July – January). DNT. 299.

Commonly noted on sandy or muddy river banks.

**Fimbristylis** Vahl (nom. cons.)

Style bifid, ovary and fruit compressed, biconvex:

Small tufted annuals ..................**bisumbellata**

Tall plants:

Achenes smooth, not ribbed nor trabeculate ..................**ferruginea**

Achenes pale, ribbed and trabeculate...**dichotoma**
Style trifid, ovary and fruit trigonous:

Spikelets solitary or rarely few ............... ovata

Spikelets many, in decompound umbels:

Slender annual plants; achenes
irregularly tubercled ......................... tenera

Taller annual plants:

Spikelets ellipsoid; glumes mucronate.... miliacea

Spikelets globose; glumes obtuse ........ littoralis

_Fimbristylis bisumbellata_ (Forsk.) Bub. Dodec. 30, 1850; Kern,
in Reinwardtia 6(2): 47, 1961; Sant. 301; Santapau &
Janardhanan, 51.

_Scirpus bisumbellatus_ Forsk. Fl. Aeg.-Arab. 15, 1775.

_Fimbristylis dichotoma_ (non Vahl) Sensu Clarke, in FBI.
6: 635; C. 3: 394.


Observed on sandy or muddy banks of river and streams.

_Fimbristylis ferruginea_ (Linn.) Vahl, Enum. 2: 291, 1806;
Scirpus ferrugineus Linn. Sp. Pl. 50, 1753.


Commonly noted on muddy banks of streams.

Fimbristylis dichotoma (Linn.) Vahl, Enum. 2: 287, 1806; FBI. 6: 635; Kern, loc. cit. 147; Sabnis, loc. cit. 201; Fl. Delhi, 359.

Scirpus dichotomus Linn. Sp. Pl. 50, 1753.

Fimbristylis diphylla Sensu Clarke, in FBI. 6: 636; C. 3: 396.


Common on river beds and muddy banks of streams.

Fimbristylis ovata (Burm. f.) Kern, in Blumea, 15: 126, 1967.
**Carex ovata** Burm. f. Fl. Ind. 194, 1768.


**Cyperus monostachyus** Linn. Mant. 2: 180, 1771.


Observed on open grassy slopes near river banks.

**Fimbristylis tenera** Roem. & Schult. Syst. Mant. 2: 57, 1824; FBI. 6: 642; Sant. 269.


**F. tenera** Roem. & Schult. var. oxylepis (Steud.) C. B. Clarke, in FBI. 6: 642.


Observed on loose, gravelly soils of river beds.
Fimbristylis miliacea Vahl Enum. 2: 287, 1806; FBI. 6: 644;
C. 3: 397.

An erect, glabrous herb. Umbels decompound; spikelets not globose but acute; glumes mucronate. Achene tuberculate, white or pale-yellow. (Fl. Fr. August – December). DNT. 1574.

Commonly observed in marshy places.


Fimbristylis miliacea Sensu Clarke, in FBI. 6: 644, 1893 non Scirpus miliaceus Linn.


Commonly noted in marshy situations during monsoon.

Bulbostylis Kunth (nom. cons.)

Bulbostylis barbata (Rottb.) C. B. Clarke, in FBI. 6: 651;
Kern, loc. cit. 51; Sabnis, loc. cit. 200; Fl. Delhi, 361.

Scirpus barbatus Rottb. Descr. et Icon. 52, t. 17, f. 4, 1773.

Stenophyllus barbatus (Rottb.) Cooke, 3: 401.

Commonly noted on loose, sandy soils of rivers and streams.

Eriophorum Linn.

Eriophorum comosum Wall. ex Nees, in Wight Contrib. Bot. Ind. 110, 1834; FBI. 6: 664; C. 3: 411; Fl. Delhi, 363.

A densely tufted sedge, growing in the crevices of rocks. Stems cylindrical below and trigonous above, leafy at the very base. Leaves as long as or even longer than the stem, linear, rigid with serrulate margins. Spikes in decompound umbel; spikelets reddish brown. Glumes mucronate. Achene trigonous, greyish-black with white bristles divided nearly to the base into innumerable comose segments. (Fl. Fr. December - May). DNT. 564,1881.

PLATE No. 72

Rare; observed in the crevices of rocks along Banganga stream.

Scirpus Linn.

Inflorescence a sublateral head of few small spikelets with squarrosely
Eriophorum comosum Hall. ex Nees

PLATE No. 72.
aristate glumes ......................... squarrosus

Inflorescence a compact, terminal
head of sessile, whitish spikelets......strobilinus

Scirpus squarrosus Linn. Mant. 181, 1771; FBI. 6: 663; C. 3: 410.

A slender, tufted, glabrous annual with filiform, terete, striate stems. Leaves shorter than the stem, filiform, acuminate. Spikelets green, solitary or 2-3 together forming sublateral heads; glumes with recurved mucro. Achene obovoid, trigonous. (Fl. Fr. August - November). DNT. 607, 1377.

Commonly observed on sandy river banks.


Scirpus maritimus Linn. var. affinis C. B. Clarke, in FBI. 6: 659; C. 3: 408; Sabnis, loc. cit. 200.


Commonly noted on sandy or muddy river banks.
Scleria Berg.


Rare; noted along roadside ditches near cultivated fields at Rangpur.
Key to the groups of Poaceae

Spikelets 2-flowered, falling entire at maturity, usually with the upper floret hermaphrodite and the lower male or barren and if the latter, often reduced to the lemma or rarely the lemma entirely absent, all alike or more often differing in size, shape and structure, frequently dorsally compressed...Panicoideae

Spikelets 1-many-flowered, breaking up at maturity above the more or less persistent glumes, or if falling entire, then not 2-flowered with the lower florets male or barren and the upper hermaphrodite, usually more or less laterally compressed or terete or if 2-flowered and falling entire, the glumes and lemmas all membranous and with a globose wrinkled seed which splits the palea when mature ..........Pooideae

Key to the genera of Panicoideae

1. Male and female spikelets in separate inflorescence or in different parts of the same inflorescence:
2. Female spikelets enclosed in a osseous or ivory bead-like structure ...............Coix

2. Female spikelets in crowded longitudinal rows on a very thick axis, not enclosed as above .................Zea

1. Spikelets all hermaphrodite with male or barren or hermaphrodite spikelets mixed in the same inflorescence:

3. Spikelets often paired, with one sessile and the other pedicelled, those of each pair similar or more often dissimilar, rarely solitary and all alike; upper lemma usually awned:

4. Spikelets of each pair similar, the sessile and the pedicelled hermaphrodite; joints of the panicle thin, linear or somewhat expanded at the top:

5. Spikelets awned .........................Spodiopogon

5. Spikelets unawned .......................Saccharum

4. Spikelets in each pair dissimilar, the sessile hermaphrodite, the pedicelled
male or sterile; joints of the raceme and the pedicel thick and swollen:

6. Joints of the rachis and pedicel of the pedicelled spikelet swollen, 3-angled, rounded or flattened:

7. Sessile spikelet with a male and a hermaphrodite floret; upper lemma awned ................. \textit{Apluda}

7. Sessile floret with a hermaphrodite floret only or occasionally with a male floret below; upper lemma unawned:

8. Sessile spikelet spherical........... \textit{Hackelochloa}

8. Sessile spikelet not spherical in shape ............................ \textit{Rottboellia}

6. Joints of the rachis and the pedicel narrow, seldom thickened upwards, occasionally with a translucent longitudinal groove:

9. Spikelets collected in whorled panicles, not interrupted by spathes:

10. Spikelets dorsally compressed, in panicles of many pairs or in threes
of which one is hermaphrodite.........Sorghum

10. Spikelets compressed from the sides ....Chrysopogon

9. Spikelets in paniculate racemes, interrupted by spathes, or the espatheate racemes digitate or in pairs or solitary and terminal :

11. Upper lemma of the sessile spikelet with a basal awn .........................Arthraxon

11. Upper lemma of the sessile spikelet awned from the tip or from the cleft or upper lemma reduced to hyaline base of the awn, very rarely unawned :

12. Upper lemma of the sessile spikelet not cleft, often stipitate and passing into the awn ...............Dichanthium

12. Upper lemma of the sessile spikelet 2-lobed or 2-cleft, awned in the sinus :

13. Aromatic grasses; racemes in pairs supported by spathes, often collected into huge panicles ......................Cymbopogon
13. Grasses not aromatic; racemes in pairs, or digitate or solitary:

14. Racemes solitary at the ends of the branches, surrounded at the base by an involucre of homogamous spikelets:

15. Involucral spikelets pedicellate; deciduous; callus of fertile spikelets very short, truncate or obtuse ......................Iseilema

15. Involucral spikelets sessile, not deciduous; callus of fertile spikelets pointed ..............Themeda

14. Racemes without an involucre ........ Heteropogon

3. Spikelets solitary or paired, more or less similar; upper lemma usually awnless:

16. Spikelets falling slightly, not subtended by bristles, or if so, then the bristles persisting after the spikelets have fallen:

17. Spikelets arranged in more or less often panicles, or with the panicles contracted and spike-like:
18. Spikelets not subtended by bristles like branches .......... Panicum

18. Spikelets subtended or replaced by one to many bristle-like branchlets, which are persistent ............... Setaria (in part)

17. Spikelets arranged in one-sided spikes, or spike-like racemes; spikes or racemes digitate or scattered, rarely solitary:

19. Lemma of the upper floret more or less crustaceous or coriaceous, usually with narrow inrolled margins, exposing much of the palea:

20. Spikelets abaxial:

21. Lower glume developed, although sometimes small:

22. Glumes acuminate or awned, rarely only acute; upper lemma not mucronate:

23. Leaf-blade linear; racemes dense .......... Echinochloa

23. Leaf-blade lanceolate
to ovate; racemes loose to moderately dense; Oplismenus

22. Glumes awnless, upper lemma acute, not mucronate............. Paspalidium

21. Lower glumes usually absent;
spikelets plano-convex ............. Paspalum

20. Spikelets adaxial .................... Brachiaria

19. Lemma of the upper floret thinly cartilaginous, usually with flat, hyaline margins :

24. Spikelets awnless ...................... Digitaria

24. Spikelets awned ....................... Alloteropsis

16. Spikelets with an involucre of bristles or subtended by a solitary bristle and falling with or without the bristle at maturity :

25. Upper lemma smooth; bristles caducous :

26. Involucre of free, naked or plumose bristles ..................... Pennisetum

26. Involucre of spines or rigid bristles united at the base into a hard cup .... Cenchrus
25. Upper lemma transversely rugose; bristles persistent ................. **Setaria**

**Coix** Linn.

**Coix lacryma-jobi** Linn. Sp. Pl. 972, 1753; FBI. 7: 100;
C. 3: 517; Fl. Dang, 93; Blatt. & McC. 3; Bor, 264;

A tall, annual or perennial grass. Leaves long, flat, broad. Inflorescence a drooping raceme with unisexual flowers. Male florets are terminal, drooping and each subtended by a bract. Female florets at the base, enveloped by hard, polished bluish-grey bracts. (Fl. Fr. October - March). DNT. 1768, 1877.

Commonly noted along roadside ditches in association with **Typha**.

**Zea** Linn.

**Zea mays** Linn. Sp. Pl. 971, 1753; FBI. 7: 102; C. 3: 574;
Gr. 240; Blatt. & McC. 2; Fl. Dang, 95; Bor, 270;
Patel, loc. cit. 321.

A tall, stout, annual. Male spikelets are produced terminally and female ones axillary lower down on the stem.
Cultivated as a staple crop.

**Spodiopogon Trin.**

**Spodiopogon rhizophorus** (Steud.) Pilger, in Pfam. (ed. 2)

14 e: 119, 1940; Fl. Dang, 94; Bor, 246; Patel, loc. cit. 319; Fl. Pavagadh, 240.


**Spodiopogon albidus** (Wall.) Benth. in JLS. 19: 66, 1881; FBI. 7: 108; C. 3: 464; Blatt & McC. 51.

A weak, straggling, tufted, leafy grass. Spikelets 1-2-flowered, silky-villous, one pedicellate, the other sessile, awned. (Fl. Fr. August - October). DNT. 559.

Observed as an undergrowth of forests.

**Saccharum Linn.**

**Saccharum spontaneum** Linn. Mant. Ait. 183, 1771; FBI. 7: 118; C. 3: 465; Blatt & McC. 45; Fl. Dang, 94; Bor, 214; Fl. Delhi, 371; Patel, loc. cit. 318; Fl. Pavagadh, 239.

An erect, perennial grass. Leaves linear, acuminate,

PLATE No. 73

Very common; observed along river banks and along water canals.

Apluda Linn.

_Apluda mutica_ Linn. Sp. Pl. 82, 1753; Bor, 93; Patel, _loc. cit._ 311; Fl. Pavagadh, 243.

_Apluda aristata_ Linn. Amoen. Acad. 4, 303, 1756; Bor, Fl. As. 5: 431; D. & G. 303; Sant. 303; Fl. Delhi, 369.

_Apluda varia_ Hack. in DC. Monogr. Phan. 6: 196, 1889; FBI. 7: 150; C. 3: 474; Blatt. & McC. 29, t. 20.

An erect, slender, leafy, annual herb with branches spreading among the hedges and bushes. Inflorescence a panicle, each one enclosed in a spathe. Spikelets sessile and pedicellate. (Fl. Fr. September - December). DNT. 547.

Commonly noted in hedges and on dry rocky places.

Hackelochloa O. Kuntze

_Hackelochloa granularia_ (Linn.) O. Kuntze, Rev. Gen. Pl. 776,
PLATE No. 73. Saccharum spontaneum Linn.
Cenchrus granularis Linn. Mant. 2: 575, 1771.


An erect, leafy annual. Inflorescence consisting of a solitary, axillary raceme resembling a string of minute beads. Sessile spikelets spherical; pedicelled spikelets reduced. (Fl. Fr. September - January). DNT. 1023, 1185.

Commonly observed on escarpments of hillocks and in moist places along with grasses.

Rottboellia Linn.


An erect, leafy grass. Leaves linear-lanceolate, setaceous acuminate, scabrid or hispid and green above, smooth, glaucous beneath. Racemes glabrous, fragile, involucral glumes scarcely winged. (Fl. Fr. September - December). DNT. 540.

Rare; observed along with grasses as an undergrowth of forest at Ambadungar.
Sorghum Moench (nom. cons.)

Panicles usually dense; rachis of spikelet not fragile ................... vulgare

Panicles usually open; rachis of spikelet fragile ....................... halepense


A tall, stout, annual grass. Inflorescence a decompound panicle. Extensively cultivated for its grain. (Fl. Fr. October-February). DNT. 1442.

Cultivated.

Sorghum halepense (Linn.) Pers. Syn. Pl. 1: 101, 1805; Bor, 222; Patel, loc. cit. 319; Fl. Pavagadh, 243.

Holcus halepensis Linn. Sp. Pl. (ed. 1) 1047, 1753.


An erect, perennial, leafy grass. Leaves linear-lanceolate,
margins scabridly serrulate. Inflorescence a decompound panicle, brown and purplish in colour; spikelets ovoid-lanceolate, dorsally compressed. (Fl. Fr. September – January). DNT. 689.

Observed along the roadsides and river banks.

**Chrysopogon Trin.**

Chrysopogon fulvus (Spreng.) Chiov. Fl. Somalia 1: 327, 1929; Bor, 116; Fl. Delhi, 401; Fl. Pavagadh, 244.

Pollinia fulvus Spreng. Pugill. 2: 10, 1815.


A tall, densely tufted perennial. Leaves linear, acute, flat, rigid, glaucous. Panicles open; spikelets few, compressed from the sides. (Fl. Fr. August – October). DNT. 1056.

Rare; noted on dry or water-logged soils along roadsides at Hampeshwar.

**Arthraxon Beauv.**

Arthraxon lancifolius (Trin.) Hochst. in Flora 39: 188, 1856; Blatt. & McC. 77; Bor, 100; Fl. Pavagadh, 246.

Arthraxon microphyllus (Trin.) Hochst. in Flora 39: 188, 1856; FBI. 7: 147; C. 3: 488.


Observed on the escarpments of hillocks near stream.

Dichanthium Willemet


Andropogon annulatum Forssk. Fl. Aeg.-Arab. 173, 1775; FBI. 7: 196; C. 3: 508.


Commonly noted in cultivated fields and in open waste places.

Cymbopogon Spreng.
Panicles narrow, of short dense fascicles of raceme-pairs; joints and pedicels villous all over; hairs long, more or less concealing the sessile spikelets..............\textit{jwarancusa}

Panicles often very large, decompound or compound, sometimes narrow but then with hairs not covering the joints and pedicels but confined to the edges of the joints and pedicels and increasing in length from below upwards and not concealing the sessile spikelets ..................................\textit{martinii}

\textbf{Cymbopogon jwarancusa} (Jones) Schult. Syst. Veg. 2, Mant. 458, 1824; Blatt. & McC. 102; Bor, 128; Patel, \textit{loc. cit.} 313.

\textbf{Andropogon jwarancusa} Jones, in Asiat. Res. 4: 109, 1795.

\textbf{A. iwarncusa} ssp. \textbf{iwarncusa} proper Hook. f. FBI. 7: 203; C. 3: 495.

A pale, often glaucous green, tall perennial. Panicles very variable; branches distant or crowded, simple or branched; joints and pedicels villous all over; proper spathes longer than the peduncles of the racemes. (Fl. Fr. August – January). P. & T. 281.
Rare; noted along with grasses in hedges at Raisingpura.

*Cymbopogon martini* (Roxb.) Wats. in Atkins. Gaz. N.W. Prov. Ind. 392, 1882; Blatt. & McC. 104; Sant. 307; Bor, 129; Patel, *loc. cit.* 314.


Fairly common in the forest areas.

**Iseilema** Anders.

Lower glumes of hermaphrodite spikelet convexly humped, appressed hairy at the base and ciliate on the margins in the basal quarter .................. *antheophoroides*

Lower glume of hermaphrodite spikelet flat or depressed longitudinally, glabrous and echinate in the lower quarter .................. *prostratum*

A small, tufted, leafy, perennial grass. Involucral spikelets broadly oblong, ciliate on the margins. (Fl. Fr. September - November). DNT. 1202.

Observed along with grasses as an undergrowth of forests.

Iseilema prostratum (Linn.) Anderss. in Nov. Act. Soc. Sci. Upsal. (s. 3) 2: 251, 1856; Bor, 188; Patel, loc. cit. 317.

Andropogon prostratus Linn. Mant. Alt. 304, 1771.

Iseilema wightii Anderss. loc. cit. 251; FBI. 7: 218; C. 3: 516; Blatt. & McC. 113.

A small, prostrate, perennial grass. Leaves linear, acute. Panicle occupying half the stem or more; spikelets not in dense fascicles. (Fl. Fr. August - October). P. & T. 156.

Noted along with grasses on roadsides.

Themeda Forssk.

Themeda quadrivalvis (Linn.) O. Kuntze, Rev. Gen. Pl. 2: 794, 1891 var. quadrivalvis; Blatt. & McC. 118; Bor, 252; Patel, loc. cit. 320; Fl. Pavagadh, 249.

Andropogon quadrivalvis Linn. in Murr. Syst. Veg. ed. 13, 758, 1774.
Anthistiria ciliata Linn. f. Suppl. 113, 1781; FBI. 7: 213.

Themeda ciliata (Linn. f.) Hack, in DC. Monogr. Phan. 6: 664, 1889; C. 3: 514.

A stout annual. Stems suberect, terete, glabrous. Panicles suberect, bearing at equal distances, shortly pedunculate clusters of racemes; spikelets brown red. (Fl. Fr. August - December). DNT. 325, 406, 1125.

Fairly common; noted as an undergrowth of foresta along roadsides and on waste lands.

Heteropogon Pers.

Heteropogon contortus (Linn.) Beauv. ex Roem. et Schult. Syst. 2: 836, 1817; Blatt. & McC. 109, t. 71; Bor, 163, f. 6; Sant. 355; Patel, loc. cit. 315; Fl. Pavagadh, 249.


A densely tufted, erect, perennial grass. Racemes with short internodes; spikelets closely appressed, the lower 2-6 or more, sessile, awnless, male or neuter, the upper sessile spikelets narrow, long-awned, female. (Fl. Fr. August - December). DNT. 368, 1028.
Observed in open forest areas and along roadsides.

**Panicum** Linn.

Lower glumes cuspidate or cuspidate-acuminate..... *trypheron*

Lower glumes not cuspidate-acuminate and spikelets not gaping:

- **Annuals; lower glume $\frac{1}{4}$ to $\frac{1}{2}$ the length of the spikelet .................. *miliare***
- **Perennials; lower glume $\frac{1}{2}$ to more $\frac{1}{4}$ the length of the spikelet or more ............... *antidotale***

**Panicum trypheron** Schult. Syst. Veg. 2: 244, 1824; FBI. 7: 47; C. 3: 452; Blatt. & McC. 158; Bor, 331; Patel, **loc. cit.** 325.


Observed in open forest areas and in waste places.

**Panicum miliare** Lamk. Ill. 1: 173, 1791; FBI. 7: 53; C. 3: 456; Blatt. & McC. 158; Bor, 331; Patel, **loc. cit.** 325.

Cultivated for its edible grains.

Panicum antidotale Retz. Obs. Bot. 4, 17, 1786; FBI. 7: 52; C. 3: 453; Blatt. & McC. 163; Bor, 322; Patel, loc. cit. 324.


Rare; noted as a weed in cultivated fields at Luni.

Setaria Beauv. (nom. cons.)

Bristles retrosely barbed ................. verticillata

Bristles antrorsely barbed:

Upper glume as long as the upper lemma; the latter quite smooth or minutely rugulose ...................... italica

Upper glume shorter than the upper lemma; the latter rugose:
Inflorescence a narrow panicle, sometimes loosely lobed below and tapering upwards .............. tomentosa

Inflorescence a cylindric false spike:

Upper lemma coarsely rugose, boat-shaped and slightly keeled upwards, broad and dorsally strongly curved in profile ......................... glauca

Upper lemma usually finely rugose, narrow and dorsally gently curved, not at all keeled ......................... pallide-fusca

_setaria verticillata_ (Linn.) Beauv. Agrost. 51, 1812; FBI. 7: 80; C. 3: 436; Blatt. & McC. 174; Bor, 365; Fl. Delhi, 378; Patel, loc. cit. 327; Fl. Pavagadh, 250.

_Panicum verticillatum_ Linn. Sp. Pl. (ed. 2) 82, 1762.

A much tufted, annual grass. Leaves linear-lanceolate, tapering to the point. Panicles spike-like, cylindrical or oblong; spikelets ellipsoid; bristles of the involucre retrorsely barbed. (Fl. Fr. September - April). DNT. 537, 1046.

Commonly noted on plains and in open forest areas along with grasses.
**Setaria italica** (Linn.) Beauv. Agrost. 51, 1812; FBI. 7: 78; Blatt. & McC. 175; Bor, 362.

**Panicum italicum** Linn. Sp. Pl. 56, 1753.


Cultivated.

**Setaria tomentosa** (Roxb.) Kunth, Rev. Gram. 1: 47, 1829; Bor, 365; Fl. Delhi, 379; Patel, loc. cit. 327; Fl. Pavagadh, 251.

**Setaria intermedia** Roth, R. & S. Syst. 2: 489, 1817; FBI. 7: 79; C. 3: 436; Blatt. & McC. 174.


Commonly noted along forest paths and roadsides.

**Setaria glauca** (Linn.) Beauv. Agrost. 51, 1812; FBI. 7: 78; C. 3: 435; Blatt. & McC. 172; Bor, 360; Patel, loc. cit. 327; Fl. Pavagadh, 251.

**Panicum glaucum** Linn. Sp. Pl. 56, 1753.
A tall, tufted grass with erect or ascending, glabrous culms. Leaves linear, scabrid at the margins. Inflorescence a panicle of cylindric, spike-like racemes; spikelets closely set on rachis. (Fl. Fr. August - December). DNT. 541.

Fairly common on open waste places.

*Setaria pallide-fusca* (Schumach.) Stapf & C. E. Hubb. in KB. 1930; Bor, 363; Patel, *loc. cit.* 327.


A tall, tufted annual. Spike erect, dense; branches reduced to involucral bristles, supporting a solitary, perfect spikelet. (Fl. Fr. July - October). DNT. 98, 898, 1170, 1782.

Commonly noted on plains, along forest paths and river banks.

*Echinochloa* P. Beauv.

Spikelets 3-4 mm. long, densely crowded, unawned; spikes thickened, sometimes incurved, grains not deciduous .......... *frumentacea*

Spikelets upto 5 mm. long (if densely crowded, 3-3.5 mm. long and awned); grains deciduous:
Lower lemma and upper glume equally acute or cuspidate, not awned .......... *colonum*

Lower lemma and upper glume acuminate, cuspidate, the former often produced into considerable awn .............. *crusgalli*

**Echinochloa frumentacea** Link, Hort. Berol. 1: 204, 1827; Bor, 311.

**Panicum frumentaceum** Roxb. Fl. Ind. 1: 307, 1820 (non Salisb. 1796).


Cultivated.

**Echinochloa colonum** (Linn.) Link, Hort. Berol. 2: 209, 1833; Blatt. & McC. 148, t. 94; Bor, 308; Fl. Delhi, 393; Patel, loc. cit. 323; Fl. Delhi, 252.

**Panicum colonum** Linn. Syst. (ed. 10) 870, 1759; FBI. 7: 32; C. 3: 447.

Commonly noted in moist places along roadsides, banks of streams and in cultivated fields.

**Echinochloa crusgalli** (Linn.) P. Beauv. Ess. Agrost. 53: 161, 1812; Blatt. & McC. 150; Bor, 310; Patel, loc. cit. 323.

**Panicum crusgalli** Linn. Sp. Pl. 56, 1753; FBI. 7: 30.

An erect annual grass. Leaves linear, flat, spikelets more or less hispid, lower lemma and upper glumes acuminate, cuspidate. (Fl. Fr. August - October). DNT. 1146.

Noted in marshy places in cultivated fields.

**Oplismenus** Beauv.

**Oplismenus burmannii** (Retz.) Beauv. Agrost. 54, 1812; FBI. 7: 68; C. 3: 443; Blatt. & McC. 154; Bor, 317; Patel, loc. cit. 324; Fl. Pavagadh, 252.


A prostrate or procumbent, slender, annual grass. Leaves ovate or ovate-lanceolate with scattered hairs on both surfaces. Spikes secund, close in short panicles; spikelets 1-2-nate, shortly pedicellate; involucre and lower floral glume awned. (Fl. Fr. August - January). DNT. 1318, 1829.
Very common and abundant, forming a close group in shaded localities along roadsides and on escarpments of hillocks.

**Paspalidium Stapf**

**Paspalidium flavidum** (Retz.) A. Camus, in Lecomte, Fl. Gen. de I' Indo-chine 7: 419, 1922; Blatt. & McC. 141; Bor, 333; Fl. Pavagadh, 252.


A tall, tufted, annual grass. Leaves narrowly linear, acuminate, thinly coriaceous; sheath compressed. Panicles of a few distant spikes, shorter than internodes; spikelets ovate or elliptic. (Fl. Fr. August - December). DNT. 972, 1126 B.

Common on moist, muddy river banks and on the plains along with grasses.

**Paspalum Linn.**

**Paspalum scrobiculatum** Linn. Mant. Pl. 1: 29, 1767; FBI. 7: 10; C. 3: 460; Blatt. & McC. 136; Bor, 340; Patel, loc. cit. 326.

An erect, glabrous, tufted annual. Leaves glabrous or
softly hairy, lanceolate, acuminate. Spikelets in spike, sessile, broadly elliptic or suborbicular. (Fl. Fr. September – December). DNT. 538.

Cultivated for the grains.

**Brachiaria Griseb.**

Spikelets 5-many, turgid ............... *ramosa*

Spikelets 2-4, not turgid ............... *distachya*


**Panicum ramosum** Linn. Mant. 29, 1767; FBI. 7: 36; C. 3: 449.

A perennial grass. Leaves linear, rachis triquetrous. Panicle various; spikelets pedicellate, clustered or pairs. (Fl. Fr. July – October). DNT. 122, 155.

Commonly noted in open clayey soils along river banks and in cultivated fields.


**Panicum distachyon** Linn. Mant. 1: 138, 1767; FBI. 7: 37.
An erect, perennial grass. Leaves narrow. Panicles various; spikelets arranged singly on a flattened or triquetrous rachis, crowded. (Fl. Fr. July - October). DNT. 973, 1025, 1612.

Commonly noted along river banks and on clayey soils in cultivated fields.

**Digitaria** Heist. ex Fabr.

Hairs present on the spikelets and always verrucose ......................... *longiflora*

Hairs on the spikelets, if any, never verrucose:

Spikelets of each pair heteromorphous, sessile spikelets nearly glabrous in front; the pedicelled coated with long hairs often spreading at maturity... *biformis*

Spikelets of each pair not heteromorphous, both spikelets of each pair with the same type of indumentum .................*adscendens*

**Digitaria longiflora** (Retz.) Pers. Syn. Pl. 1: 85, 1805; C. 3: 458; Blatt. & McC. 127; Bor, 302; Patel, loc. cit. 323.
Paspalum longiflorum Retz. Obs. 4: 15, 1786; FBI. 7:17.

An erect, slender, annual grass. Leaves flat, narrow. Spikes 2-5, terminal, very slender; spikelets appressed to the rachis, elliptic, obtuse, pale or purplish. (Fl. Fr. August - October). DNT. 186.

Noted along river banks.

Digitaria biformis Willd. Enum. Pl. Hort. Berol. 92, 1809; Bor, 299; Patel, loc. cit. 323.

An annual grass, culms not thickened at the base. Spikelets of each pair heteromorphous; lower lemma of pedicelled spikelet with hairs and bristles. (Fl. Fr. July - October). DNT. 49.

Noted on open ground and in cultivated fields.

Digitaria adscendens (HBK.) Henr. in Blumea 1: 92, 1934; Bor, 298; Patel, loc. cit. 322; Fl. Pavagadh, 254.


A tall, erect, annual grass. Spikes 2 or more; spikelets bearded with soft spreading hairs. (Fl. Fr. April - August). DNT. 978, 1025, 1762.

Commonly noted on plains along with grasses.
Alloteropsis F.S.Presl ex C.B.Presl


Axonopus cimicinus Beauv. Agrost. 12, 1812; FBI. 7: 64; C. 3: 441.

A perennial grass. Leaves bifarious, acuminate, linear. Spikelets solitary or 2-nate, erect; upper lemma shortly aristate. (Fl. Fr. July - October). DNT. 154.

Observed in waste places along with grasses.

Pennisetum Rich.

Pennisetum typhoides (Burm.) Stapf & Hubbard, in KB. 271, 1933; Bor, 350; Fl. Delhi, 380; Patel, loc. cit. 327; Fl. Pavagadh, 254.

Alopecurus typhoides Burm. Fl. Ind. 27, 1768.


Cultivated.

Cenchrus Linn.

Bristles of involucre retrorsely scabrid, short and hooked ......................... biflorus

Bristles of involucre antrorsely scabrid:

Bristles connate at the base
only, filiform ......................... ciliaris

Bristles connate into a cup, 1-3 mm.
long, not filiform ..................... pennisetiformis

Cenchrus biflorus Roxb. Fl. Ind. 1: 238, 1820; FBI. 7: 89;
C. 3: 433; Blatt. & McC. 185, t. 118; Bor, 287; Fl.
Delhi, 377; Patel, loc. cit. 322.

An erect or ascending grass. Stems tufted, geniculate, branching from the base. Spikes cylindric, solitary; bristles retrorsely scabrid or spiny. (Fl. Fr. September - April).
DNT. 1769.

Commonly noted along river banks and in open waste places.

Cenchrus ciliaris Linn. Mant. Alt. 302, 1771; Raizada, in Ind.
For. 80: 40, 1954; Bor, 287, f. 33; Fl. Delhi, 377;
Patel, loc. cit. 322; Fl. Pavagadh, 255.

An annual, tufted grass. Spikes cylindric, pale purplish; spikelets shortly pedicellate; bristles ciliate on the margin, longer than the spikelets. (Fl. Fr. August – December). DNT. 339, 456.

Observed along forest paths and roadsides.


Pennisetum cenchroides var. echinoides Hook. f. in FBI. 7: 88.


Observed in fallow fields and open waste places.

Key to the genera of Pooideae

1. Shrubs or trees with tall, woody stems; leaves usually with a petiole-like base, articulated with the sheaths .............. Dendrocalamus
1. Herbs or shrubs; leaves usually sessile, not articulated with the sheaths:

2. Spikelets borne in open or contracted or spike-like panicles, less often in racemes or spikes:

3. Spikelets usually with two or more fertile florets; or if with one fertile floret then with sterile reduced floret above it:

4. Inflorescence of panicles; if racemes or spikes the spikelets not secund:

5. Lemma usually entire at apex, obtuse acute, or acuminate or if 2-toothed (Arachne) then glabrous near the margins and along the side nerves:

6. Glumes aristate or aristate-acuminate .....................Dinebra

6. Glumes obtuse, acute or acuminate, not aristate:

7. Spikelets in open, contracted or spike-like panicles, rarely in solitary, secund spikes:
8. Spikelets awned, in dense globose clusters ............... Elytrophorus

8. Spikelets awnless:

9. Inflorescence a panicle, sometimes spike-like ............ Eragrostis

9. Inflorescence a solitary, second spike ............... Eragrostiella

7. Spikelets sessile or shortly pedicelled, loosely to densely imbricate in digitate or racemosely arranged spikes or spike-like racemes, very rarely in solitary spikes:

10. Axis and branches of inflorescence ending in a spikelet:

11. Spikelets falling entire at maturity from the axis of straight spikes; spikes numerous ....................... Desmostachya

11. Spikelets breaking up at maturity; spikes few to several:
12. Spikes digitate or subdigitate; spikelets 3–6-flowered............Eleusine

12. Spikes usually in pseudo-whorls or scattered; spikelets 8–20-flowered ......................Arachne

10. Axis of spikes terminating in a sharp point ..............................................Dactyloctenium

5. Lemma usually emarginate or 2–4-lobed or toothed at the apex; spikelets in terminal solitary secund spikes .................Tripogon

4. Inflorescence of racemes or panicles of racemes, the spikelets secund:

13. Inflorescence terminal, spicate, not of digitate or racemose spikes; lemmas not obovate:


14. Inflorescence a simple spike or spikes of awned spikelets ............Schoenefeldia

13. Inflorescence of digitate spikes or spikes racemose; lemma obovate:
15. Spikelets with one or more fertile florets and one or more imperfect florets above them:

16. Spikes 1-3; fertile florets 2 or more .........................Tetrapogon

16. Spikes 4 or more; fertile florets 1 only .......................Chloris

15. Spikelets with one fertile floret and no imperfect florets; spikelets awnless ....................Cynodon

3. Spikelets with one fertile floret, with or without one or two male or barren florets below it, the latter often much reduced:

17. Glumes minute; fertile lemma and palea very similar .........................Oryza

17. Glumes well-developed; fertile lemma and palea not similar:

18. Spikelets very rarely falling entire and then with firmly membranous to coriaceous, awned or 5-nerved lemmas:

19. Lemmas hyaline or membranous at
maturity, rarely indurated
and then compressed .................Sporobolus

19. Lemmas indurated or rigid at
maturity, terete or dorsally
compressed ..................................Aristida

18. Spikelets falling entire at maturity;
lemma delicate, 1-3-nerved; spikelets
in spike-like purplish-violet racemes..Perotis

2. Spikelets borne in spikes; spikes long,
more or less loose, somewhat dorsally
compressed ..................................Triticum

Dendrocalamus Nees


A tall, deciduous, densely tufted bamboo with strong, erect stem. Leaves broad, rounded, gradually narrow upwards into an acuminate, twisted point. Inflorescence a large branching panicle of dense globular heads. (Fl. Fr. July - February). DNT. 126, 550, 1527.

PLATE No. 74
Dendrocalamus strictus Nees

**Family**: Gramineae
**Genus**: Dendrocalamus
**Species**: strictus Nees

Examined in herbarium:
- **Chiraltiaepa**
- **Obitdoidempe**

Collected on the slopes of the Hillock

PLATE No. 74.
Observed on the slopes of the hillocks at Hampheshwar and Ambadungar.

**Dinebra Jacq.**

*Dinebra retroflexa* (Vahl) Panz. in Denkschr. Acad. Munch. 270, 1814; Blatt. & McC. 264; Bor, 491; Patel, *loc. cit.* 332; Fl. Pavagadh, 255.


*Dinebra arabica* Jacq. Fragm. 77, t. 121, f. 1, 1807; FBI. 7: 297; C. 3: 562.

An annual, tufted, slender grass with ascending stems. Leaves linear, finely acuminate, contracted at the insertion. Inflorescence a panicle of spikes; spikes 3-5 cm. long, sessile, racemously arranged on the axis; spikelets sessile, alternately arranged on flattened branches; involucral glumes lanceolate, hyaline, keeled, with recurved, scaberulous awns. (Fl. Fr. July – October). DNT. 641.

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

**Elytrophorus** Beauv.

*Elytrophorus spicatus* (Willd.) A. Camus, in Lecomte, Fl. Gen.


Observed in moist situation along with grasses in the forest.

Eragrostis P. Beauv.

Spikelets breaking up from above downwards:

Keel of the palea more or less ciliate:

Panicles spiciform, or compact
and dense .................................................ciliaris

Panicles effuse:

Culms and leaves more or less viscous, viscosa

Culms and leaves not viscous ..........tenella

Keel of the palea scabrid or smooth, not ciliate .........................diarrhena
Spikelets breaking up from below upwards:

Spikelets ovate or ovate-oblong; grain obovoid or ellipsoidal, compressed ............unioloides

Spikelets linear or linear-oblong, grain sub-globose .........................tremula

Eragrostis ciliaris (Linn.) R. Br. in Tuckey, Narr. Exp. Congo, Appl 478, 1818; FBI. 7: 314; Blatt. & McC. in JBHNS. 33: 488, 1929; Bor, 506; Patel, loc. cit. 334; Fl. Pavagadh, 256.

Poa ciliaris Linn. Syst. Nat. ed. 10, 2: 875, 1759.

Eragrostis ciliaris var. ciliaris (Linn.) Stapf, in Hook. f. FBI. 7: 314, 1896.


Observed along with grasses on the river banks.

Eragrostis viscosa (Retz.) Trin. in Mem. Acad. Sc. Petersb. (Ser. 6) 1: 397, 1831; Blatt. & McC. 233; Bor, 515; Patel, loc. cit. 334; Fl. Pavagadh, 256.

Poa viscosa Retz. Obs. 4: 20, 1786.

Eragrostis tenella var. viscosa (Retz.) Stapf, in FBI. 7:
A tufted, viscid, erect annual. Stems and rachis more or less viscid. Inflorescence a compound panicle with slender, filiform, spreading branches; spikelets 7-10-flowered. Grains pale brown, ovoid, polished. (Fl. Fr. April - October). DNT. 104, 601, 866.

Commonly noted along roadsides and river banks.

Eragrostis tenella (Linn.) Beauv. ex Roem. & Schult. Syst. Veg. 2: 576, 1817; Bor, 513; Fl. Delhi, 386; Patel, loc. cit. 335; Fl. Pavagadh, 257.

Poa tenella Linn. Sp. Pl. 69, 1753.

Eragrostis tenella var. plumosa (Retz.) Stapf, in Hk. f. FBI. 7: 315, 1896; C. 3: 545.

An erect or ascending, loosely tufted, annual grass. Panicles dense or loose but contracted, axis more or less hairy at nodes. (Fl. Fr. August - November). DNT. 1324, 1379.

Common and abundant along roadsides and near streams.

Eragrostis diarrhena (Schult.) Steud. Syn. Pl. Glum. 1: 266, 1854; Bor, 507; Patel, loc. cit. 334.

Poa diarrhena Schult. Syst. Veg. 2, Mant. 616, 1827.

A tall, glabrous, annual or perennial grass. Leaves narrow, flat. Panicle erect, contracted; spikelets small; usually 6-14-flowered, smooth, often interrupted; rachilla articulate between the flowering glumes. (Fl. Fr. April – November). DNT. 619,860.

Commonly noted in marshy places.

Eragrostis unioloides (Retz.) Nees ex Steud. Syn. Pl. Glum. 1: 264, 1854; Blatt. & McC. 235, t. 156; Bor, 515; Patel, loc. cit. 353; Fl. Pavagadh, 258.


A small, glabrous, annual grass. Panicles not much branched; spikelets compressed, pedicillate, ovate-oblong, green to reddish-purple. (Fl. Fr. September – December). DNT. 614.

Noted along with grasses near river banks and roadsides.

Eragrostis tremula Hochst. ex Steud. Syn. Pl. Glum. 1: 269, 1854; FBI. 7: 320; C. 3: 549; Blatt. & McC. 239; Bor, 514; Patel, loc. cit. 335.

An erect annula, densely tufted. Leaves linear, lanceolate.
Panicles large, ovate; spikelets delicate, long, narrowly flattened and many-flowered; versatile. (Fl. Fr. August - October). DNT. 349, 352.

Observed in moist places along with grasses in the forest.

**Eragrostiella** Bor

_Eragrostiella brachyphylla_ (Stapf) Bor, in Ind. For. 66: 270, 1940; Bor, 494; Fl. Delhi, 383; Patel, loc. cit. 334.


Rare; noted in open places along with grasses at Luni.

**Desmostachya** Stapf

_Desmostachya bipinnata_ (Linn.) Stapf, in Dyer, Fl. Cap. 7: 632, 1900; Blatt. & McC. 244, t. 162; Bor, 491; Patel, loc. cit. 332; Fl. Pavagadh, 258.

_Briza bipinnata_ Linn. Syst. 875, 1759.

_Eragrostis cynosuroides_ (Retz.) Beauv. Agrost. 162, 1812;
A perennial, tall, deep-rooted, tufted, grass. Panicles erect, narrowly pyramidal or cylindrical, purplish or brownish at maturity; spikes many and crowded. (Fl. Fr. July – October). DNT. 315.

Observed on open areas and in cultivated fields.

**Acrachne Wight et Arn.**


Observed in moist places along roadsides.

**Eleusine Gaertn.**

*Eleusine indica* (Linn.) Gaertn. *Fruct.* 1: 8, 1789; Blatt. & McC. 259; FBI. 7: 293; C. 3: 560; Bor, 493; Patel, *loc. cit.* 333; *Fl. Pavagadh*, 259.
Cynosurus indicus Sp. Pl. 72, 1753.

An erect, annual grass. Leaves flat, glabrous. Spikes 2-7, elongate, digitate; spikelets in 2-series, 3-6-flowered, pointing forward at an acute angle. (Fl. Fr. July - November). DNT. 156.

Commonly noted in moist places along roadsides.

Dactyloctenium Willd.

Dactyloctenium aegyptium (Linn.) Beauv. Agrost. Expl. Pl. 72, 1812; Blatt. & McC. 262, t. 176; Sant. 308; Bor, 489; Patel, loc. cit. 332; Fl. Pavagadh, 259.

Cynosurus aegyptius Linn. Sp. Pl. 72, 1753.

Dactyloctenium aegyptiacum Willd. Enum. 1029; Gr. 235; D. & G. 297.


An erect annual with stoloniferous branches. Spikes 2-6, digitately radiating; spikelets 3-5-flowered, spreading at right angles to the rachis. (Fl. Fr. August - December). DNT. 294.

A common weed usually noted along roadside ditches and in cultivated fields.
Tripogon Roem. et Schult.

Leaves and culm glaucous; leaves less than 20 cm. long, involute, filiform; ligule very short but definite, ciliate...jacquemontii

Leaves and culm green, not glaucous; leaves more than 20 cm. long, usually flat, sometimes rolled; ligule obsolete ...lisboae

Tripogon jacquemontii Stapf, in KB. 85, 1892; FBI. 7: 286; C. 3: 559; Blatt. & McC. 267; Bor, 522; Patel, loc. cit. 336.


Commonly noted in shallow soil exposed to sunlight.

Tripogon lisboae Stapf, in KB. 85, 1892; FBI. 7: 289; C. 3: 558; Bor, 522.

A perennial grass. Leaves and culms not glaucous, flat. Spikelets usually densely crowded; glumes coriaceous. (Fl. Fr. July - October). DNT. 1046.

Observed in muddy soils along river banks.
Melanocenchris Nees

Melanocenchris jacquemontii Jaub. et Spach, Ill. Pl. Or. 4: 36, 1851; Bor, 473; Patel, loc. cit. 331; Fl. Pavgadh, 260.

Gracilea royleana Hk. f. FBI. 7: 284; C. 3: 553; Blatt. & McC. 248.

A small, slender, tufted annual. Leaves very narrow, linear. Inflorescence consisting of clusters of cottony spikelets on a flexuous, zigzag rachis. (Fl. Fr. July - October). DNT. 32, 980.

Commonly noted in open areas in shallow soils on rocky substrate.

Schoenefeldia Kunth.

Schoenefeldia gracilis Kunth, Rev. Gram. 1: 283, t. 53, 1830;

Bor, 474.

Chloris pallida (Edgew.) Hook. f. FBI. 7: 289; Blatt. & McC. 252.

A perennial grass. Leaves flat. Inflorescence a simple spike or spikes of awned spikelets in terminal whorls. (Fl. Fr. August - October). DNT. 346.
Rare; noted on plains in the forest along with grasses at Luni.

Tetrapogon Desf.

Tetrapogon tenellus (Roxb.) Chiov. in Ann. Ist. Bot. Roma 8: 352, 1908; Blatt. & McC. 254; Bor. 475; Patel, loc. cit. 332; Fl. Pavagadh, 260.


A slender, annual grass. Leaves linear, ligulate. Spikes solitary, terminal; spikelets 3-awned, distichously arranged; lemmas glabrous. (Fl. Fr. August - November). DNT. 1036.

Rare; noted in moist places on the river banks at Hampeshwar.

Chloris Sw.

Chloris virgata Sw. Fl. Ind. Occ. 1: 203, 1797; FBI. 7: 291; Blatt. & McC. 225, t. 170; Bor, 468; Fl. Delhi, 388; Patel, loc. cit. 331; Fl. Pavagadh, 261.

A tufted, leafy, annual grass. Leaves flaccid, linear-lanceolate. Spikes 6-15, erect, digitate; spikelets 2-rowed.
Fruit trigonous, polished. (Fl. Fr. July - December). DNT. 1057.

Rare; noted along with grasses in cultivated fields at Hampheshwar.

**Cynodon Rich. ex Pers. (nom. cons.)**

*Cynodon dactylon* (Linn.) Pers. Syn. 1: 85, 1805; FBI. 7: 288; C. 3: 554; Blatt. & McC. 250, t. 166; Bor, 469, f. 52; Patel, loc. cit. 331; Fl. Pavagadh, 261.

*Panicum dactylon* Linn. Sp. Pl. 58, 1753.

A perennial, creeping grass with erect or ascending branches. (Fl. Fr. July - January). DNT. 1769.

Common throughout the area in all habitats.

**Oryza Linn.**


Cultivated.
Sporobolus R. Br.

Upper glume distinctly shorter than the lemma; lowest branches not truly whorled.....diander

Upper glume as long as or longer than the lemma; lowest branches whorled or not .....marginatus

Sporobolus diander (Retz.) Beauv. Agrost. 26, 1812; FBI. 7: 247; C. 3: 539; Blatt. & McC. 221; Bor, 629; Patel, loc. cit. 337; Fl. Pavagadh, 263.


An erect, slender, annual or perennial grass. Stems tufted. Panicles narrow, pyramidal; spikelets small, very shortly pedicelled, 1-flowered. (Fl. Fr. April - August). DNT. 853.

Noted along with grasses, along roadsides and near streams.

Sporobolus marginatus Hochst. ex A. Rich. Tent. Fl. Abyss. 2: 397, 1851; Bor, 632; Patel, loc. cit. 338; Fl. Pavagadh, 263.

Sporobolus pallidus Boiss. Fl. Orient. 5: 512, 1884.

A tufted, perennial grass with stoloniferous base. Leaves narrowed to the tip. Panicles pyramidal; slender branches bearing small spikelets at the tips. (Fl. Fr. July - November). DNT. 138, 158.

Very common in open waste places, and along roadsides, in shaded places.

*Aristida* Linn.

Lateral awns much reduced and of a different texture from the third awn, sometimes absent altogether ......................*redacta*

Lateral awns well developed, if shorter then the central awn, of the same texture..........*adscensionis*

*Aristida redacta* Stapf, in KB. 85, 1892; FBI. 7: 227; C. 3: 531; Blatt. & McC. 215; Bor, 412; Patel, *loc. cit.* 329; Fl. Pavagadh, 264.

An annual, tufted grass. Leaves slender. Spikelets on long or short capillary pedicels; awns with a twisted column. (Fl. Fr. August - October). DNT. 1189.

Commonly noted along with grasses in the forest.
Aristida adscensionis Linn. Sp. Pl. 82, 1753; FBI. 7: 224;  
C. 3: 529; Blatt. & McC. 209, t. 138; Bor, 407; Fl. Delhi, 398; Patel, loc. cit. 328.

A slender, erect or ascending grass. Leaves convolute, filiform. Panicles with filiform, hair-like branches; involucral glumes awned; spikelets purplish-violet. (Fl. Fr. July - February). DNT. 48, 977, 1624.

Commonly noted along roadsides and in cultivated fields.

Perotis Ait.

Perotis indica (Linn.) Kuntze, Rev. Gen. 2: 787, 1891; Blatt. & McC. 220, t. 147; Bor, 611; Fl. Delhi, 373; Patel, loc. cit. 337.

Anthoxanthium indicum Linn. Sp. Pl. 28, 1753.


Commonly noted in shaded places as an undergrowth of forest.
Triticum Linn.,

Triticum aestivum Linn. Sp. Pl. 85, 1753; Blatt. & McC. 279; Bor, 679; Patel, loc. cit. 338.

Triticum sativum Lamk. Fl. Franc. 3: 625, 1778; C. 3: 574.


An annual, tall, tufted grass. Spikes long, more or less loose; spikelets borne in spikes. (Fl. Fr. December - April). DNT. 1598.

Cultivated.

PTERIDOPHYTES

Actiniopteris australis (Linn. f.) Link.

Adiantum lunulatum Burm.

Aleuritopteris farinosa Forsk. Fel.

Azolla pinnata R. Br.

Marsilea quadrifida Linn.

Ophioglossum fibrosum Schum.

Selaginella sp.