Chapter 7.

DESCRIPTION OF PLANTS OF REPRESENTING FAMILIES

GYMNOSPERMS

CYCADACEAE

Unbranched or rarely branched shrubs or trees; stem with persistent leaf-scars. Leaves foliage and scale; foliage leaves pinnate compound at the apex of the trunk, sharp pointed. Flowers in separate cones; male cone terminal, with central axis, firm; female cone without central axis (false cone); dioecious.

*Cycas* L., Hort., Cliff. 482. 1737.

Shrubs or small trees, rarely branched, cylindric caudex clothed with woody bases of sheathing leaves. Leaves pinnati-partite; segments linear, involute in venation. Male cones closely imbricated, usually prolonged; female cone is a false cone. Megasporophylls (carpels) densely wooly, numerous, in crowded whorls round the apex of the stem, elongated, flattened, dilated above into pectinate or entire blade. Ovules 1-5 on either side of the megasporophyll stalk.


Evergreen, mall, palm like tree, glabrous. Leaves 1-2 m long; rachis about 45 cm long with a few distant thorns near the base; base more or less sheathing. Male cone about 45 cm by 15 cm.; microsporophylls about $4 \times 2.5$ cm. Megasporophylls 15 cm long, densely tawny silky; blades almost orbicular, 7.5 cm across, cut into
subulate pectinate spiny teeth, terminating in a strong acumen; stalk about as long as 
the blade. *Ovules* 2-3 pairs, glabrous. *Seeds* ovoid, orange or yellowish orange. 
Rarely found in hillocks. Sometimes cultivated as ornamental plant.

Vern. Name: Nag phona (As.), Tel supi (Garo, Rabha)

Uses: Endosperm of matured ovules are taken as medicine for gastric trouble.


**CUPRESSACEAE**

Evergreen *shrubs* or *trees*; branches whorled. *Leaves* small, scale like, closely 
adpressed, opposite, mostly imbricate. *Flowers* monoecious at the ends of the short 
branchlets. *Male catkins* numerous, cylindric, solitary at the tips of the branchlets; 
stamens (microsporophylls) peltate, stipitate, bearing on the lower edge 2-6 globose 
pollen sacs. *Female flowers* in cones; scales decussate, peltate bearing 2-many 

*Thuja* L., Hort., Cliff. 449. 1737.

Evergreen *shrubs*. *Leaves* small, scale like. Monoecious; the female cone dry, 
ovuliferous scales overlap.


Cultivated as ornamental plants in household gardens, parks etc.

**ARAUCAARIACEAE**

Evergreen *trees*. *Leaves* linear or broad, spirally arranged, dimorphic. 
*Microsporophylls* spirally arranged around a central axis in male cones.
Megasporophylls are in female cones bearing ovuliferous scale and bract scales, free or fused. Ovules 1-2 per scale.

Araucaria T. Oshawa, H. Nishida & M. Nishida

Evergreen trees. Leaves linear, spirally arranged. Dioecious; the bract scale and ovuliferous scale are fused basally with tips free forming a ligule. Ovules 1-2.


Cupressus columnaris Forst., Prodr. 67.
Cultivated as ornamental plant in gardens.

GNETACEAE

Trees or shrubs, erect or climbing; stem and branches articulated. Leaves opposite, large and green or reduced to scale like. Flowers unisexual, dioecious, numerous, in axillary and terminal spikes or cones. Male flowers tubular of 2-4 sepals; anthers 2-8. Female flowers: ovule one, erect, with 2-3 integuments of which one is produced into a tube with discoid mouth and functions of a style. Seeds dry or drupaceous.

Gnetum L., Mant. i. 18. n. 1287. 1767.

Climbing shrubs or erect small trees. Leaves decussate, entire, leathery. Flowers usually dioecious, whorl in axils of cup shaped bracts, usually surrounded by jointed hairs. Male flowers: perianth narrowly clavate, entire or valvately 2-fid.
Female flowers: perianth tubular, ovule erect, solitary, integuments 2, inner one projecting and functions as style, often toothed or fimbriate. Fruit drupaceous.


Evergreen shrub or small trees; bark grayish. Leaves 6-24 x 2.5-8.5 cm, elliptic-lanceolate or elliptic-oblong, acuminate-entire, coriaceous, glossy green above, pale beneath with reticulate venation. Male spikes 2.5-3.5 cm long, slender. Female spikes ca 2.5 cm long, often branched. Fruit oblong.

Rarely found in the forests along Indo-Bhutan border, especially near hill streams.

Vern. Name: Thal-jhimura (As.)


Note: Endangered species (Chowdhury *et al.*, 2005). Earlier reported from Nambor, Kaziranga and Manas only; now recorded from area beyond Manas including Bongaigaon district.

**ANGIOSPERMS**

**DICOTYLEDONS**

**RANUNCULACEAE**

*Herbs* or climbing shrubs. Leaves alternate, rarely opposite, usually ex-stipulate, simple or compound, sometimes heterophyllous; petioles sheathing. Flowers generally regular, ebracteate, bisexual. Sepals 4-5 or more, usually caducous, coloured. Petals hypogynous, generally imbricate, 3-5 or more, often
reduced or deformed, sometimes absent. Stamens hypogynous, usually numerous, often in many rows; anthers adnate and dehiscing laterally. Ovary apocarpous, sometimes syncarpous; carpels many to few, free, 1-celled with one or more anatropous, erect or pendulous ovule. Fruit either of achenes or follicles or rarely berry. Seeds small with copious albumen and minute embryo.

Key to the genera:

1a. Plants climbing shrubs; sepals petaloid ........ Naravelia
1b. Plants herbs; sepals and petals both present .... Ramunculus

Naravelia DC., Syst. Nat. 1: 129, 167. 1817

Woody climber. Leaves 5-foliate in seedlings and in mature plants the upper 3 leaflets become modified into tendrils; leaflets usually two, often in unequal pairs, thin, coriaceous; terminating in a tendril. Flowers greenish, pedicels 1-1.4 cm long, pubescent. Sepals 4-5, ovate, densely buff-tomentose outside, caducous. Stamens numerous. Carpels many. Fruit a head of tailed achenes.


Woody spreading climber. Leaves 5-foliate in seedlings but in mature plants the upper 3 leaflets become modified into tendrils; leaflets usually two, often in unequal pairs, thin, coriaceous, 5-nerved, pubescent, ovate-rotundated, base round or
obtuse or cordate, margin entire, sometimes serrate, apex acute or acuminate; terminal tendril up to 12 cm, petiole to 5 cm; petiolule to 2 cm. Panicles terminal or axillary, to 18 cm, pubescent. Flowers greenish, pedicels 1-1.4 cm long, pubescent. Sepals 4-5, ovate, densely buff-tomentose outside, caducous. Petals usually 12, greenish-yellow, linear to spathulate, about 1 cm long. Stamens numerous, filaments ligulate. Carpels many, ovule 1 per cell. Fruit a head of tailed achenes; achene about 15-20 in cluster, spirally twisted, pointed at both ends, brown when mature, tail about 5-8 cm long, finely hairy. Fl.: September–November.

Frt.: December - January.

Found on hill slopes along hill streams. Occurrence: Common.

Coll. No.389 Borah A. Date: 23/10/2005 Locality: Shankarghola

Photo No. 2.1 (Plate 2).


Annual herbs. Leaves simple, lobed or dissected; petiole sheathing; stipules membranous or 0. Flowers panicked or solitary. Sepals 3-5, imbricate in bud, caducous. Petals usually 5, often with a nectary gland at the base. Stamens many. Carpels numerous; styles very short; ovule 1. Fruit generally a head of beaked or apiculate achenes.


Annual herb up to 2 feet high. Stem fleshy, branched, glabrous. Leaves simple, alternate, petiolate, exstipulate, leaf base sheathing, divided into cuneate
segments, multicostate, reticulate. _Flowers_ bracteate, bracteolate, pedicellate, complete, hermaphrodite, actinomorphic, pentamerous, hypogynous, spirocyclic. _Sepals_ 5, free, imbricate, petaloid, reflexed from the base. _Petals_ 5, free, imbricate, yellow, nectarious. _Stamens_ numerous, polyandrous, anthers dithecous, basifixed, extrorse. _Carpels_ many, apocarpous, ovary superior, unilocular, ovule 1 per locule on basal placenta; style reduced, stigma fimbriate. _Fruit_ etaerio of achenes. Fl.: November. Frt.: December

Grows in open damp places like on bank of rivers and near drains.

Uses: Leaf juice is used to treat skin diseases by Muslim communities.

Occurrence: Common in river banks and islands

Coll. No.189 Borah A. Date: 21/11/2002 Locality: Jogighopa

**DILLENIACEAE**

_Trees_ or _climbing shrubs_. _Leaves_ simple, alternate, exstipulate, close and parallel veined generally rough and hard. _Flowers_ solitary, axillary, large, 6-8 cm across, bisexual. _Sepals_ 5, broadly overlapping, persistent. _Petals_ usually 5, rarely 2-4, deciduous. _Stamens_ numerous. _Carpel_ 1 or 5-20, in the latter case generally cohering in the axis; ovary superior, ovules few or many. _Fruit_ follicular or baccate. _Seeds_ arillate, albuminous; embryo minute.

Key to the genera:

1a Climber; carpel 1, fruits dry, 1-seeded .. ... .. .. .. .. .. .. .. .. .. .. .. Tetracera

1b Trees; carpel many, fruits fleshy, many-seeded .. .. .. .. .. .. .. .. Dillenia
**Dillenia** L., Hort. Cliff. 221, 1737; Sp. Pl. 535, 1753.

Trees with reddish gray or brown bark. Leaves large, crowded at the end of the branches, exstipulate, oblanceolate to elliptic, serrate. Flowers large, white or yellow, more or less scented. Sepals 5, persistent, much thickened in the fruit. Petals 5. Stamens many, anthers opening by terminal slits or pores. Fruit of 5-20 carpels cohering in the axis, enclosed in the thickened sepals. Seeds immersed in pulp.

Key to the species:

1a. Flower solitary. Fruit large, enclosed by thickened fleshy sepals ... **D. indica**

1b. Flowers in fascicles. Fruit small, not enclosed by thickened fleshy sepals:

2a. Branchlets with V shaped leaf scars. Fruit of 5 carpels ... **D. pentagyna**

2b. Leaf scars not prominent. Fruit of 5-7 carpels ... **D. scabrella**


Tree, semi-evergreen, often fluted or buttressed at the base, with a large oval crown. Bark reddish grey, peeling off in more or less papery and fragile flakes reddish inside. Leaves 15-30 × 7.5-12 cm, petioled, oblanceolate, narrow elliptic, more or less V shaped in transverse section, glabrous above, pubescent beneath and sharply serrate. Flowers 10-18 cm in across. Sepals 5, fleshy, persistent and thickened. Petals white, very tender. Fruit 7-13 cm in diam. always green, with 16-

Commonly found in the forests, often near swampy area, sometimes gregarious.

Vernacular name: Ou-tenga, Ou, Panchkal (As.), Chalta tenga (Beng.)

Use: Timber is used for ridge, poles and posts for bridges. Fleshy calyx persisted in the fruits are eaten fresh and cooked, also used as pickles; also eaten by Golden Langur (Schedule-1 species)


Photo No. 2.2 (plate 2).


A deciduous tree with branches usually ascending; branchlets marked with V shaped leaf scars. Bark appearing grayish white outside, green underneath the corky layer. Leaves 30-50 cm ×10-20 cm, oblanceolate, very narrow at the base, often stem clasping, serrate, coriaceous and hard, glabrous above, glabrescent beneath, petiole very short. Flowers about 3.5 cm across, in fascicles of 3-8 from short bracteate protuberances, appearing before the leaves; pedicel 2-3 cm long, ebrateate. Sepals broadly ovate, concave, pale green, glabrate, slightly ciliate. Petals about 2.5 cm long, obovate, light grayish yellow. Fruit 1-1.7 cm in diam., of 5 carpels. Flr.: March- May. Frt.: May-June.
Dillenia scabrella Roxb., Pl. Cor. 1: 21, t. 20, 1795; Hook. f., FBI. 1: 58, 1872; Prain, Bengal Plants 1: 195. 1903; Kanjilal et al., FA 1:11. 1934; B.D. Sharma (edt.) Fl. 1: 156. 1993.

A deciduous tree with a fluted trunk and more or less horizontal branches. Bark brown and rough outside. Leaves 18-34 cm x 8-15 cm, flat, oblanceolate to elliptic, cuspidate-serrate, hispid above, harshly pubescent beneath; base acute, petiole winged, dilated at the base to clasp the stem. Flowers 3-5 cm across, appearing shortly before the leaves; pedicels 5-6 cm long, 3-bracteate. Sepals concave, translucent, cohering at the base, nearly glabrous, pale green. Petals 2-2.6 cm x 1-1.3 cm, golden yellow. Fruit globose, about 2 cm across, pale green with 5-7 carpels. Flr.: March - May, Frt.: May - June

Tetracera Schreb., gen. n. 930.

Tetracera sarmentosa (L.) Vahl., Symb. Bot. 3:70. 1794; Roxb., Fl. ind. 449. 1832.
ssp. andamanica (Hoogland) Hoogland in Blumea 9:588. 1959. Delima sarmentosa

A semi-evergreen climber. Stem cinnamon coloured, exfoliating in small
pieces. Leaves elliptic or oblong, 7-12 cm × 5-6 cm, more or less cuneate at base,
scabrid on both surfaces. Petiole 1.5-2 cm long, pillose. Flowers white, in terminal
panicles. Sepals reflexed. Petals obovate, ciliate. Ovary of one carpel only. Follicles

Found in semi-evergreen patches of mixed forests. Occurrence: Rare.

Vernacular name: Ou lota (As.).


MAGNOLIACEAE

Trees, shrubs or climbers, more or less aromatic. Leaves simple, alternate,
usually entire, generally stipulate, stipules conduplicate which leave a transverse scar
on the branchlets. Flowers solitary, hypogynous, floral parts arranged spirally on the
axis, generally showy. Sepals and Petals either undifferentiated or cyclic in 3 or
more series of 6 to 18 parts, polyphyllous. Stamens many. Carpels many, arranged
spirally on the axis which generally elongates as the fruit ripens.
Key to the genera:

1a. Flowers terminal with no interval between stamens and carpels; ovules 2 in each carpel ... Magnolia

1b. Flowers axillary with a distinct interval between stamens and carpels; ovules 2-6 in each carpel ... Michelia

**Magnolia** L., Sp. Pl. 535. 1753

*Trees.* Leaves large, entire; buds enclosed in large convolute stipules which are connate in pairs. Flowers terminal, usually large. *Sepals* 3. *Petals* 6-12, in series of 3. *Stamens* numerous, filaments flat, with little or no interval between them and carpels. *Carpels* many, persistent, ovules 2, the stigmas running down along their ventral suture. *Fruit* an etaerio of follicles with an elongated axis. *Seeds* pendulous with a long cottony cord.


A *tree* with large crown; bark greenish-grey with warts and distant white streaks turning dirty brown. *Leaves* 20- 40 by 10- 17 cm, elliptic or obovate, coriaceous, rusty-tomentose beneath while young, glabrous and shining above; light green when young, pale yellow when old; base cuneate; petiole 2- 5 cm long, flattened with a V- shaped scar; stipules 8-12 cm long, caducaous, adnate by their
edges to the petiole, greenish-white, with a tuft of hairs at the apex. Flowers 12-15 cm across, terminal; buds ovoid, enveloped in a concave, coriaceous, puberulous caducous bract. Sepals 3, 6 by 4.5 cm, very concave, green outside, greenish-white inside. Petals 6, dull-white, very fleshy but with a sharp margin, gradually smaller but scarcely inwards, obovate, emarginate. Stamens numerous with no interval between them and carpel; stamens and carpel together forming a continuous conical mass; anthers long with purple tips. Carpel many, with a recurved terminal wing, stigmas feathery. Fruit an etario of follicles. Flr. & Frt.: April-February.

Occurrence: Rare in the locality. Vern. name: Borhomthuri sopa, Thouthoua (As.)
Coll. No. Borah A 465. Date: 24-8-06 Locality: Chapaguri, Koila-Moila
Photo No.: 2.4 (plate 2).

Michelia L., Sp. Pl. 536. 1753.

Trees. Leaves enveloped by stipules in bud with prominent reticulate veins.

Flowers axillary or terminal, solitary. Sepals and Petals are similar and in whorls of 3. Stamens having filaments flat with a distinct interval above them and below the carpels, anthers introrse. Carpels terete or compressed, whitish or yellow, contiguous in flower but generally distant in fruit owing to elongation of the axis, dehiscing dorsally, each with 2-4 ovules, but mostly one seeded in fruit, styles short.

Tree. Leaves ovate-lanceolate, 9-18 ×3-7 cm, coriaceous, glabrescent, base sub-acute or cuneate, margin entire, apex acuminate; petiole 2-2.5 cm. Flowers axillary, solitary, to 4 cm across; pedicel jointed, to 2.5 cm., very fragrant. Perianth 9, pale yellow, in 3 series, 4 ×1-1.5 cm; outer ones oblong or ovate; inner ones linear. Stamens many; anthers linear, apiculate. Carpels ovoid, striate; ovules 2 or more per cell. Follicle -cluster to 7 cm across; fruitlets warty, to 2cm across, dehiscing by 2 valves; seeds ca. 5, sub-globose, red. Fl.: April- June, Frt.: up to next flowering season.

Commonly found in the forests and household campus, wild as well as cultivated for timber and as ornamental plant. Occurrence: Common Vernacular name: Tita chapa (As.), Champa (Bengali)

Use: Timber is used for all purposes


Photo No.: 2.5 (plate 2).

ANNONACEAE

Trees, shrubs or lianas. Leaves alternate, simple, entire. Flowers terminal or in the axils of fallen leaves, sometimes extra axillary or in clusters, 3-merous, bisexual; brackets and bracteoles often pubescent, sometimes closely enveloping buds. Sepals 3, free or connate below, valvate. Petals 3+3, valvate or imbricate, sometimes scally or 0, free, or slightly connate by edges. Torus convex, conical or flat. Stamens many, spiral on torus; anthers adnate; connectives often produced above concealing anthers or not. Carpels many, sessile or stalked; ovaries superior,
Photo No.: 2.1: *Naravelia zeylanica* (L.) DC.

Photo No.: 2.2: *Dillenia indica* L.

Photo No.: 2.3: *Dilleniapentagyna* Roxb.

Photo No.: 2.4: *Magnoliapterocarpa* Roxb.

Photo No.: 2.5: *Michelia champaca* L.

Photo No.: 2.6: *Stephania japonica* (Thunb.) Miers.
free, pilose or glabrous, each 1-celled; ovules 1 or more on basal or parietal placentae; styles short or 0; stigma oblong, calvate or capitate. Fruit 1 or more, sessile or stalked monocarps, each 1-or more seeded, indehiscent, sometimes connate, into a fleshy syncarp.

Key to the genera:
1a. Small tree or shrub. Carpels connate ...................................................... Annona  
1b. Tall tree. Carpels free ........................................................................ Polyalthia

**Annona** L., Sp. Pl. 536. 1753.

_Trees or shrubs._ Flowers supra-axillary, terminal, often leaf-oposed or extra-axillary, solitary or in clusters. _Sepals_ 3, connate at base. _Petals_ 3+3; outer ones fleshy, concave at base; inner ones subequal, smaller, scaly, sometimes 0. _Torus_ convex-conical. _Stamens_ many; connectives broad, concealing anthers. _Carpels_ many, often connate; ovule 1, erect; styles oblong. _Fruit_ a fleshy syncarp of carpels and receptacle, ovoid-globose; seeds many.


_Shrub or small tree_, deciduous. _Leaves_ elliptic, oblong-lanceolate, 4.5-8 × 2.5-4 cm, thin coriaceous, glabrescent, glaucous beneath, base cuneate, margin entire, apex acute or obtuse; petiole approximately 1.5 cm. _Flowers_ 2-4 in a cluster or solitary; pedicel to 1.5 cm. _Sepals_ 3, triangular, 3mm, pubescent. _Petals_ 3(+3), greenish-yellow; outer ones thick, 2-3 × 2.5-4 cm; inner ones minute or 0. _Stamens_
many. *Carpels* many but much less than stamens. *Fruit* cordate, ovoid or conical, to 7 cm across, glaucous; monocarp, 1-seeded, brownish, 1×0.5 cm.

Leaf- fall: December New foliage: March onwards

Flr.: May. Frt.: November, ripe fruits persist to April.

Commonly cultivated in house hold gardens for its edible fruit; found also as semi-wild.

Vern. Name: Atlas (As.), Ataphal (As., Bengali)

Use: Ripe fruits are eaten fresh. Leaves are used as medicine in diabetes-mellitus.


*Polyalthia* Blume, Fl. Javae Anonac. 68. 1830

*Shrubs or trees. Flowers* axillary, extra-exillary or leaf-opposed or sometimes below the leaves on the young or old wood, solitary or in clusters. *Sepals* 3. *Petals* 3+3, subequal; inner ones slightly larger, concave. *Torus* convex. *Stamens* many, cuneate; connectives truncate, broad, concealing anthers. *Carpels* many, ovoid; ovules one or two per cell, basal or erect. *Monocarps* clustered, stalked, each one seeded.


Evergreen tree with conical crown and dark grayish-brown bark. *Leaves* 8-14×2-4 cm, narrowly lanceolate, membranous, glabrous, shining above, sub-pellucid
-punctate, wavy margin, somewhat aromatic; lateral nerves oblique, base cuneate; petiole 0.5-1.3 cm long. *Flowers* yellowish green, 2-2.3 cm long, in fascicles or short umbels from axils of fallen leaves; pedicels slender, 2-4 cm long with one or two minute bracts. *Sepals* about 0.5 cm long, ovate-triangular, densely pubescent. *Petals* about 2×0.5 cm, tapering from a slightly expanded base, puberulous. Ripe *fruits* black. Seeds smooth, shining.


Tree having pendulous branchlets forming a compact crown. Used as ornamental tree more than the above. Introduced and cultivated in almost all towns and cities of India.

Cultivated as ornamental tree in household gardens, office campus, roadsides etc. Flr: March to May, Frt.: May onwards

**MENISPERMACEÆ**

*Climbers, twinners or lianas. Leaves* alternate, simple, entire or lobed, rarely distantly toothed, usually palmnerved, exstipulate. *Flowers* small, dioecious or polygamous. *Sepals* generally six in two whorls of three, rarely 4-12, outer whorl minute. *Petals* generally six, or 3-5-8. *Male flowers: stamens* usually 6, opposite to petals, free or forming a column on which the anthers are borne. *Female flowers: carpel* three, distinct, rarely 1 or 6 or more, usually single ovuled. *Staminodes* 6 or 0. *Style* terminal in flower, generally lateral or sub-basal in fruit. *Ripe carpels* drupaceous, one seeded. *Seeds* curved.
Key to the genera:

1a. Leaves peltate or sub-peltate. Stamens connate:

   2a. Leaf base obtuse. Petals free ....................................... *Stephania*

   2b. Leaf base cordate. Petals connate .............................. *Cissampelos*

1b. Leaves not peltate; rather fleshy. Stamens free .......................... *Tinospora*

**Cissampelos** L., Sp. Pl. 1031. 1753.


*Climber*, grows annually from perennial root stock. Leaves reniform, orbicular or cordate, 4 - 4.5 x 5-5.5 cm, peltate, chartaceous, 5-7 nerved, pubescent, base cordate or truncate, apex retuse, mucronate, petiole about 4 cm. *Male flower*: *inflorescence* of pendent, sub-corymbose cymes. *Sepals* 4, free, obovate, 2 mm, pilose without. *Petals* 4, greenish, connate, copular, 1.5 mm, puberulous without. *Stamens* 4, connate in a peltate synandrium, to 1 mm. *Female flower*: *inflorescence* in thyrsoid clusters; bracts foliaceous, ovate. *Sepal* 1, broadly obovate, 1.5 mm. *Petal*
1, broadly cuneate or obovate, ca 1mm. Carpel 1.5 mm, pilose; style glabrous; stigma 3-lobed; staminode 0. Fruit a drupe, ovoid, 4mm; style scar sub-basal. Flr: October - December. Frt: March - May

Grows during summer; found commonly in scrub forests and fringe villages.

Occurrence: Common
Vern. name: Tubuki lota / Tukri lewa (As.)

Use: Leaves are applied as paste to patients of high fever.


Fig. 3A (plate 3)

**Stephania** Lour., Fl. Cochinch. 598. 608. 1790.

Glabrous climber or twinner. Leaves peltate, orbicular or deltoid, cordate.

Flowers in axillary umbels. Male flowers: Sepals 6-10, free. Petals 3-5 free, fleshy.

Anthers 6, forming a ring on the top of the column formed of connate filaments.

Female flowers: Sepals and petals 3 each. Carpel solitary, style 3-6 partite. Drupe globose, glabrous.

A climber winding clockwise around the support; branchlets glabrous. Leaves 7-12 cm long, as broad as long or broader, 9-11 nerved, broadly ovate-deltoid, base obtuse or broadly rounded, margin entire, apex acuminate, peltate membranous, vivid green above and pale beneath, petioles 3-9 cm long. Umbels with peduncles 6-8 cm. Flowers yellow. Sepals and petals 3-4, free. Male flower: Stamens 6 or 8, in a peltate synandrium, anthers transversely dehiscing. Female flower: Carpels ovoid, stigma lobed, staminodes 0. Fruit drupe, globose-obovoid, red when ripe. Flr.: March- April. Frt: May- October.

Grows in partially shade areas with sufficient moisture.

Occurrence: Common. Vern. Name: Hemo lewa, Tubuki lota (As.)

Use: Leaves are used in treatment of scabies (S. Sarkar, 2007)

Photo No.: 2.6 (plate 2).


Succulent deciduous climber with corky or papery bark, generally sending down long aerial roots from the branches of the tree on which they spread. Leaves generally cordate, not peltate, rather fleshy. Flowers in axillary or terminal racemes or panicles when the climbers are leafless. Sepals, petals and stamens 6 each, almost free in male flowers. Staminodes 6 in female flowers. Carpels 3. Drupe 1-3. style-scar terminal. Seeds curved.


Large succulent climber, deciduous, with corky bark, young shoots glabrous. Stem green when young, covered with loose, dry, papery bark, flaking off with age. Leaves 4-9 cm long and as broad, chartaceous, 5-7-nerved, with glandular papilllose patches on lower surface in basal nerve axils, orbicular or broadly ovate-cordate, acute or shortly cuspidate-acuminate, glabrous; petiole 3-7 cm long, pulvinate. Male flowers: in pseudo-racemes, axillary or on leafless branchlets. Sepals and petals 6 each, free, green, obovate. Stamens 6, enclosed by petals, free, filaments clavate; anthers longitudinally dehiscent. Female flowers: solitary on longer pedicels, outer sepals lanceolate, inner ones obovate. Petals broadly spathulate. Carpels three; style stout; stigma forked; staminodes 6, subulate. Drupes globose, small, shortly stalked, red and glossy when ripe. Flr.: February - April. Frt.: March- April.

Grows in moist as well as deciduous forests and fringe jungles. The stem can survive without having touch with soil for months; can retrieve growth through aerial roots. Occurrence: Common.

Vern. name: Saguni lota, Tubuki lota (As.)

Use: Aerial roots are used to wrap up to treat bone fracture; also as tonic for animals.


Fig. 3.B (plate 3)
Fig.: A: *Cissampelos pareira* L.  
A (i). A twig.  
A (ii). Male flower.  
A (iii) Female flower

B: *Tinospora cordifolia* (Willd.) Hook. f. & Th.  
B (i) A twig.  
B (ii) Male flower.  
B (iii) Fruit.
NYMPHAEACEAE

Stoloniferous aquatic herbs. Leaves usually floating, peltate, thin, coriaceous, orbicular or reniform, often deeply cordate at base. Flowers solitary, regular, bisexual. Sepals 3-5, adnate to the base of torus. Petals many, gradually diminishing in size and passing into stamens. Receptacle prominent, obconical or hollow, copular. Stamens many; filaments petaloid; anthers linear, basifixed; connectives appendaged or not. Carpels many; ovaries semi-inferior or superior, free or connate, embedded in receptacle; ovules 1 or 2 or more per cell, pendulous or irregularly scattered; stigma peltate or radiating.

Key to genera:

1a. Leaves prickled; sepals persistent; seeds large ................................ Euryale
1b. Leaves not prickled; sepals deciduous; seeds minute ............................ Nymphaea

Euryale Salisb.


A very prickly aquatic herb. Leaves 30-45 cm diameter, orbicular, floating, green and glabrous but bullate and corrugated above, pink or deep purpure beneath, with stout but very porous interlacing ribs; stout, recurved prickles on both surfaces along the ribs; petiole prickly, pink or deep green. Flowers about 5 cm in diameter, violet blue or red. Torus prickly. Sepals 4. Petals in many series passing into the

Mostly in stagnant, deep water bodies covering large areas.

Occurrence: Rare. Vern. name: Makhana / Nikori (As.).

Use: Fruits are eaten fresh or roasted.

Note: Vulnerable species. Chowdhury *et al* (2005) recorded the species as Vulnerable and have been reported from Kachar and Kamrup districts only; this record may be treated as new addition to its range of distribution in Assam.

Photo No.: 4.1 (plate 4).

*Nymphaea* L.

Sp. Pl. 510. 1753 (nom. cons.)

*Herb.* Leaves floating, orbicular; nerves radiating and bifurcating at periphery, margins sharply or obscurely dentate or entire, base cordate with a deep sinus. *Scape* as long as petiole, spongy, sheathing at the base. *Sepals* 4. *Petals* indefinite, arising from the base of torus. *Receptacle* copular. *Stamens* indefinite, slightly free, filaments flattened at the base; anthers linear, connectives appendaged or not. *Carpels* many, connate, sunk in the receptacle forming a many celled ovary; ovules many; stigma sessile.

Key to the species:

1a. Leaf margins sharply dentate; flowers white or rose .................................. *N. nouchali*

1b. Leaf margin sinuate-toothed, dony underneath; flowers red .................................. *N. rubra*
**Nymphaea noitchali** Burm. f., Fl. indica 120. 1768; Subramanyam, Aq. Angiosperm 6. 1962; B.D. Sharma (edt.) Fl. 1: 430. 1993; Chowdhury et al., Ass. Fl. 185. 2005.  


Aquatic, cormous herb. Leaves 20-30 ×18-25 cm, green above, purple and pubescent below, sinuate, margins deeply dentate. Flowers to 15 cm across. Sepals 4, oblong, 4- 4.5 × 2cm, prominently 7-nerved, acute. Petals indefinite, rose to white, 4-4.5 ×1.5-2cm. Stamens many, slightly free from petals, filaments to 1 cm, anthers unappendaged. Stigmatic rays incurved, appendaged. Flr.: August- October. Frt.: September- November.

Commonly grows in stagnant water bodies like beels, ponds etc.

Vern. Name: Boga bhet / Mokuwa (As.).

Uses: Flowers and petioles are eaten as vegetable; ripe seeds are eaten fresh & fried.


Commonly grows in shallow water bodies.
Vern. Name: Ronga bhet / Lal Mokuwa (As.)

Uses: Flowers, petioles and leaves are eaten as vegetable; fruits are also eaten fresh, also dried & fried.


NELUMBONACEAE

Aquatic herb. Leaves rotund, large, flat or somewhat hollowed, radiately nerved, entire; petiole warty, fleshy. Flowers erect. Sepals 4-5; petals many. Receptacle obconical, fleshy. Stamens many, inserted above petals. Carpels many, superior, free, embedded in pits on receptacle. Ovules 1 or 2. Stigma peltate.

(Monotypic family)


Large aquatic herb, with milky opaque juice. Root stocks creeping. Leaves rotund, 30-60 cm across, flat or somewhat hollowed, radiately nerved, waxy, entire; petiole warty, fleshy; young leaves generally raised above the water, old flat, floating, often with weak prickles. Petiole as long as water deep. Flowers erect, about 20 cm across, scape sheathing. Sepals 4-5, greenish white, ovate, 10-20 × 5 cm. Petals rose, elliptic, 4-10 × 1-5 cm, apex obtuse. Receptacle obconical, fleshy.
Stamens many, superior, passing gradually into one another, anthers linear, elongated. Carpels many, 1-celled, superior, free, embedded in pits on receptacle. Ovules 1 or 2. Stigma peltate. Ripe carpels ovoid, loose in the cavities of the enlarged spongy torus; exalbuminous, cotyledons fleshy. Flr.: June-September. Frt.: Up to December.

Found in stagnant water bodies, also cultivated in temple ponds. Occurrence: locally rare. Vern. name: Podum (As.)

Use: Leaves are used to serve on occasionally in holly & religious purposes. Seeds are eaten fresh and fried. Flowers in worship; also eaten cooked.

Photo No. 4.4. (Plate 4).

PAPAVERACEAE

Annual or perennial herbs, rarely shrubs. Entire plant contain a milky juice which are often brightly coloured. Leaves alternate, simple, lobed or deeply divided or compound. Inflorescence solitary. Flowers ebracteate, hypogynous, bisexual. Sepals 2-3, free, caducous. Petals 4-6, crumpled, free in two whorls, usually brightly coloured, falling off very soon after expansion. Stamens numerous in several series, or 4 or 2. Gynoecium polycarpellary. Fruit a capsule, often spiny.


Armed herb with yellow latex. Leaves oblong to obovate, chartaceous, glaucous, margin spinulose- dentate, base sub-amplexicaul, sessile. Flowers

**Argemone mexicana** L., Sp. Pl. 508, 1753; Hook. f., FBI 1:117, 1872; Roxb., Fl. ind. 2:571,1824; Kanjilal et al., FA. 1: 66, 1934; B.D. Sharma (edt.) Fl. 2: 3. 1993; Chowdhury et al., 185. 2005

Erect *herb*; stem branched, herbaceous, woody below, glaucous, with yellow latex. *Leaves* exstipulate, sessile, alternate, simple, margin lobed, spinous. *Flowers* solitary terminal, large, showy; ebracteate, pedicillate; pedicels covered with prickles, complete, actinomorphic, bisexual, hypogynous. *Fruit* a many seeded capsule. Flr. & Frt.: February–April. Occurrence: Common.

It is found along the road side; associated with *Cassia tora, Leucas plukentii, Leonurus sibiricus, Amaranthus spinosus* etc.

Vern. name: Siayal Kanta (As.)


Photo No. 4.5. (Plate 4).

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**BRASSICACEAE**

*Herbs*, often with watery latex. *Leaves* alternate, simple, often pinnatisect or pinnate, lyrate, basal often rosulate. Racemes terminal or axillary. *Flowers* tetramerous, bisexual, regular or not. *Sepals* 4, free; inner 2 larger and saccate at base, imbricate. *Petals* 4, sometimes 0, alternating with sepals, free, often clawed, imbricate. *Disc* with 4 or 6 nectaries, opposite to sepals. *Stamens* 2+4, rarely fewer; outer pair short, inner four long. *Ovary* sessile or stipitate, superior, 2-celled due to
replum or 1-celled; ovules many or 1 or 2 per cell on parietal placentae. *Style* simple. stigma capitate, obscurely 2-lobed. *Fruit* either elongated and pod like *siliqua* with valves opening from the base, deciduous or short and dehiscent or indehiscent. *Seeds* ovoid, ex-albuminous, many or 1 or 2 in 1 or 2 rows.

Key to the genera:

1a. Stout herbs. Sepals saccate at base. Cultivated:

  2a. Tap root tuberous. Petals pinkish-white ... ... ... ... ... *Raphanus*

  2b. Tap root nor tuberous. Petals yellow ... ... ... ... ... ... *Brassica*

1b. Slender herbs. Sepals not saccate. Wild ... ... ... ... ... ... ... ... *Rorippa*

**Brassica** L., Sp. Pl. 666. 1753.


Following species are usually cultivated in the area in commercial and non-commercial basis:

1. *Brassica juncea* (L.) Czern.  (*B. juncea sensu* Hook. f. & Th.)

   Vern. name: Lai / lai-sak (As.)


   Vern. name: Bor lai (As.)
3. *B. napus* L. ssp. *napus* var. *dichotoma* (Roxb.) Prain
   Vern. name: Sarioh (As.)

   Vern. name: Kola sarioh (As.)

5. *B. oleracea* L. var. *botrytis* L.
   Vern. name: Phul-kabi (As.)

6. *B. oleracea* L. var. *capitata* L.
   Vern. name: Bandha-kabi (As.)

7. *B. oleracea* L. var. *gongyloides* L. (B. campestris L.)
   Vern. name: Ol-kabi (As.)

8. *B. rapa* L. ssp. *rapa* L.
   Vern. name: Salgom (As.)

   Vern. name: Sarioh / Behor (As.). Photo No. 4.6. (Plate 4).

*Raphanus* L.

*Sp. Pl. 669. 1753.*


Cultivated tuberous herb, used as top vegetable during winter. Tall, dwarf, red tuber and white tuber varieties are commonly cultivated and sold in the market.
Vern. name: Mula (As., Bodo, Beng.), Radish (Eng.)
PLATE 4

Photo No. 4.1: *Euryle ferox* Salisb.

Photo No. 4.2: *Nymphaea nouchali* Burm. f.

Photo No. 4.3: *Nymphaea rubra* Roxb. ex Andrews

Photo No. 4.4: *Nelumbo nucifera* Gaertn.

Photo No. 4.5: *Argemone mexicana* L.

Photo No. 4.6: *Brassica rapa* ssp. *campestris* Hook. f. & Th.
**Roripa** Scopoli, Fl. Carn. 520. 1760.

Terrestrial or aquatic herbs. Leaves entire, lobed or pinnatified, glabrous or hairy. Flowers racemose, white or yellow. Sepals short, spreading. Petals short, scarcely clawed, sometimes wanting. Stamens 1-3 pairs. Siliquas long or short, cylindrical; septum transparent. Seeds small, usually in two series.


A small annual weed, about 30 cm tall, usually hairy. Stem simple or branching from, near the base. Leaves 4 - 12 cm long, variously lobed or divided, coarsely toothed. Racemes 2- 10 cm long. Flowers small, 5 mm across. Sepals 4. Petals wanting. Stamens 6. Siliqua about 3 cm long, 2 mm in breadth, narrowly oblong, spreading or ascending. Seeds many, small, in 2 series. Flr. & Frt.: March-June

Grows in moist, partially shade areas. Occurrence: Common

Vern. name: Bon sarioh / Bon behor / Ganga mula (As.)

Use: Occasionally as vegetable.

Coll. No. 80 Borah, A. Date: 12/5/ 2001 Locality: Barpara. Fig. 7.1 (plate 5).
Fig. Rorippa indica (L.) Hiern
CAPRARACEAE
(CAPPARIDACEAE)

Herbs, shrubs, trees and climbers. Leaves alternate, simple or compound. Flowers solitary, two or many, bisexual, usually actinomorphic. Sepals 4. Petals 4. Stamens many; androphore and gynophore present. Ovary stalked. Fruit capsule or berry.

Crataeva L., Sp. Pl. 444.1753


Tree to 10-20 m; branchlets grayish brown. Petioles 3-8 cm with distinct glands; leaflets 2-4 mm, stalked, light green above, pale beneath, lateral ones oblique at base; nerves 8-12 pairs. Inflorescence terminal, 5-12 cm long; pedicels 1.5-4 cm long. Sepals green, 6-10 ×2-5 mm. Petals white, yellow when old. Stamens 15. Gynophore ca 5.5 cm long; ovary ca 4 mm. Fruits globose, ca 4 cm across; seeds smooth, brownish. Flr. & Frt.: April – June

Found near wetlands and roadsides. Occurrence: Common.

Vern. Name: Barun (As.)

95
Cleome L., Sp. Pl. 671. 1753

Herbs. Leaves simple or 3-7 foliate; leaflets narrow, membranous; stipules 0. Flowers in terminal racemes. Sepals 4, usually free, valvate, equal. Petals 4, usually longer than sepals, subequal, often clawed. Stamens 6-many; filaments unequal. Ovary sessile on an accrescent gynophore; ovules many on parietal placentae; style very short or 0; stigma capitate or discoid. Capsule oblong to linear, usually on an elongate gynophore, hairy or glabrous, beaked, 2-valved; replum persistent; seeds reniform or orbicular.

Key to the species:

1a. Large herb, flowers pink, stamens borne on elongate androgynophore, well exerted from the petals

   ... ... ... ... ... ... ... ... ... ... ... ... C. gynandra
1b. Small herb, flowers purple or yellow, stamens borne on short receptacle within the flower:

2a. Flowers solitary; stem petioles and nerves underneath with sparse prickle like soft appendages; flowers blue-violet .......... C. rutidosperma

2b. Flowers recemed; stem, petioles and nerves without such appendages;

flowers yellow faded with white .......... C. viscosa


Erect, viscid, foetid, annual sparsely branched *herb* up to 80 cm; stems glandular pubescent. *Leaves* 3-5 foliate, 7.5×6.5 cm; leaflets obovate; middle one is larger than laterals, chartaceous, base cuneate, margin entire, apex acute; petiole 3-17 cm. racemes corymbose, up to 25 cm; pedicel up to 3 cm long. *Flowers* 2.5 cm across. *Sepals* 4, ovate or lanceolate, up to 4 mm. *Petals* 4, pink or faded white, obovate, 1.5×0.5 cm, claw to 1 cm. *Androphore* 1.5-2.5 cm. *Stamens* ca 6; filaments 1.5 – 2 cm. *Gynophore* up to 1 cm. *Ovary* oblong, 1.5 cm; stigma discoid. *Capsule* terete, 7-10 cm, to 4 mm across, striate, glandular, seeds indefinite. *Flr. & Frt:* March to June

Found in waste lands and also bank of rivers and ponds.

*Occurrence:* Common. *Vern name:* Bhut Mula (As.)

Coll. No. Borah A 73. Date: 27/4/2003. Locality: Bageswaripara. Fig. 6.a (plate 6)

Well branched annuals. Leaflets 2-3 × 1-2 cm, ovate to elliptic, acute, base cuneate; petioles 2.5- 4.0 cm long. Flowers blue –violet; pedicels 2-3 cm, sticky glandular hairy, capsules cylindric, ribs and stronger cross ribs yellowish with blackish centre. Flr. & Frt.: Round the year

Usually found in shady places, grows in groups covering the area.

Occurrence: Common

Coll. No. Borah A. 55. Date: 20/6/2004  Locality: Barapara. Fig. 6.b (plate 6).


Annuals, branches glandular, viscid. Leaves 3-5 foliates; leaflets elliptic – obovate, 1.5- 4.0 ×1-2 cm, acute, cuneate at base, petioles 3-5 cm long. Flowers in racemes, yellow faded to white, 1.0–1.5 cm across, pedicels 1-3 cm long. Ovary sessile. Capsules cylindric, glandular hairy, ca 7.0 × 0.5 cm; seeds with prominent transverse ridges and obscure concentric ridges, dark brown. Flr.& Frt: Round the year.

Found grows along road sides and railways. Occurrence: Common

Vern name: Hurhuria (As.)

Coll. No. Borah A. 54. Date: 20/6/2004. Locality: Barpara. Fig. 6.c (plate 6).
Fig. A. *Cleome gynandra* L.  
B. *Cleome rutiosperma* DC.  
C. *Cleome viscosa* L.
BIXACEAE

*Trees* and *shrubs* with mucilaginous sap. *Leaves* simple, alternate, palminerved or palmately lobed; stipules minute, caducous. *Flowers* regular, bisexual. *Sepals* and *petals* 4-5, free, imbricate. *Stamens* many; anthers 2-celled, opening by slits or pores. *Ovary* 1-celled or spuriously 2-5-celled; ovules many, anatropous. *Fruit* a 1-5-celled dry capsule opening by valves. *Seeds* many, sometimes with long hairs; albumen copious; cotyledon foliaceous.

*Bixa* L.

Sp. Pl. 512. 1753.


A small *tree*, much branched. *Bark* brown, smooth; young parts and inflorescence with rust coloured scurfy tomentum. *Leaves* alternate, 6-20 cm × 4-12 cm, broadly ovate to cordate, acuminate, entire or more less sinuate on the margins, chartaceous or sub-coriaceous, glabrous, undersurface usually with minute scurfy dots, nerves prominent beneath; petiole 4-10 cm long; base more or less pulvinate; stipules very short, broad, deciduous, stipular scar almost annulate with a circular gland. *Flowers* white or pinkish, 2-5 cm across, in short terminal panicles; pedicles 0.5-1 cm long, elongating to in fruit, dilated upwards, apex with 5 persistent glands. *Sepals* 5, imbricate, deciduous. *Petals* 5, contorted in bud, oblong-obovate. *Stamens* many, filaments slender; anthers opening by two terminal pores. *Ovary* 1-celled,
covered with soft bristles; style slender, 1 cm long, curved; stigma 2-cleft; ovules many on parietal placenta. Capsule 3-5 cm long, ovoid, densely but softly echinate, spines slender up to 1 cm long, subulate. Seeds many in a farinaceous red pulp. Flr.: July-October & Ft.: October – December.

Grows along forest fringes; common in scrub forests. Occurrence: Common

Vern. name: Joroth, Sendur-gach, Jalandhar, Hatronga (As.)

Use: Annatto dye is obtained from the pulp around seeds. Strong fibre is obtained from bark. Stem is good as firewood.


**FLACOURTIACEAE**

Armed or unarmed trees or shrubs. Leaves alternate, sometimes apically clustered, simple. Racemes simple or branched, axillary or terminal, sometimes flowers in clusters, rarely solitary. Flowers tetra- or pentameric, unisexual or bisexual. Sepals 4 or 5, free or connate below, imbricate, persistent or deciduous. Petals 4 or 5, sometimes 0. Receptacle often depressed in the centre, with an extra staminal disc; often glandular. Stamens 6 or 8 or many, sometimes alternating and connate with staminodes. Ovary superior usually, mono-locular with 3-5 parietal placentae; ovules 2 or α. Styles 3-5 or solitary; stigma simple or lobed. Fruit a fleshy or dry berry or a capsule, sometimes a drupe, 1 – many seeded.

Key to the genera

1a. Unarmed. Fruits capsular .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. . Casearia

1b. Armed. Fruits drupaceous .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. . Flacourtia
Casearia Jacq.

Shrubs or small trees. Leaves distichous, entire or crenate. Flowers yellowish green, regular, bisexual, in axillary clusters; pedicels short, jointed, surrounded by small scales. Calyx deeply 4-5-lobed, persistent. Petals 0. Stamens 6-10, united into a tube, anthers introrse. Ovary 1-locular, ovoid. Capsule succulent, globose or ovoid. Seeds many, with a scarlet aril.

Key to the species:

1a. Leaves oblong-lanceolate to oblanceolate, margin closely serrate to spinulose -dentate. Capsule oval, 0.5- 1 cm long. ................................C. vareca

1b. Leaves broadly elliptic to elliptic-oblong, margin shallowly crenate. Capsule ellipsoid-oblong, 2-2.5 cm long ..................................................C. graveolens

Casearia graveolens Dalz. in Hook., J. Bot. 4:107. 1852; Clarke in FBI 2:592. 1879; B.D. Sharma (edt.), Fl 2:394. 1993; Chowdhury et al., Fl. Ass. 188. 2005.

Shrubs or small deciduous trees. Leaves broadly elliptic to elliptic-oblong, 8.5- 20 × 4.5-12.5 cm, usually rounded at base, rarely cuneate, sub-truncate or subcordate at base, obtuse or short acuminate at apex, shallowly crenate along margins, coriaceous, membranous when young, often conspicuously pellucid striated, glabrous; stipules lanceolate-subulate, less than 1 cm, caducous. Flowers 5-6 mm across, greenish, foetid, usually in dense clusters from leafless axils; pedicels ca 2 mm long, elongating in fruit, hairy below articulation, glabrous. Calyx ovate-oblong, ca 3 mm long. Stamens 8-10, filaments glabrous, alternating with villous like disc scales; staminodes oblong, about 1 mm long. Ovary ovoid, ca 3 mm long, glabrous;
style short; stigma capitate. *Capsules* elliptic-oblong, 2-2.5 cm long, orange-yellow when ripe. Flr.: March- April. Frt.: April- July.

Occurrence: Rare.


*Shrubs or small trees. Leaves* oblong-lanceolate to oblanceolate, 6-14 × 2-5 cm, closely serrate to spinulose-dentate at margins, lateral nerves 7-12 pairs. *Flowers* clustered, in lax axillary fascicles, greenish gray, ca 3 mm across. *Calyx* bowled shaped, lobes broad ovate to suborbicular, ca 2 mm long. *Staminal* tube elongated; filaments usually 8, rarely 10, shorter than anthers, alternating with staminodes. *Carpels* ovoid. *Fruit* oval, 0.5-1 cm long, smooth, bright orange-yellow.


Found in scrub forests and forest edges. Occurrence: Common.

Vern. Name: Chagladuri, Sikraguti (As.).

Coll. No.: 666 Borah, A. Date: 13-5-2007 Locality: Shankarghola

*Flacourtia* Commerson ex L. Heritier de Brutelle

Strip. Nov. 59. 1786

*Armed shrubs or trees. Leaves* alternate, often clustered at apices. *Racemes* simple or branched, interrupted. *Flowers* unisexual. *Sepals* 4 or 5, basally connate, persistent, imbricate in bud. *Petals* 0. *Male flower: Disc* extra staminal, dividing into
glands. *Stamens* many, free; anthers versatile to dorsifixed; *pistillode* 0. *Femalelowerv:* Disc crenulate, eglandular. *Ovary* incompletely 3 – 5 celled; ovules two on
exile placentae; styles as many as cells, free, stigma notched or shortly 2-lobed.

*Drupe* globose; seeds obovoid.


A small evergreen tree with compound spines on the trunk up to middle edge, bark cinnamon brown, young shoots almost pubescent; branchlets often with raised round lenticellular dots. *Leaves* 5- 12 × 2.5- 5 cm, ovate or ovate-lanceolate, long acuminate, crenate, thinly chartaceous, glabrous. *Flowers* small, in lax racemes which are axillary extremities of short lateral shoots, unisexual. Male flower: buds globose, opened flower 0.2 cm- 0.3 cm in diameter; pedicels 1- 1.4 cm long, slender, glabrous. *Sepals* orbicular, ciliate. *Stamens* many, filaments filiform, anthers minute.

*Female flowerv:* pedicels shorter than male flowers, stouter; style conical, very short; stigmas 4-6, spreading. *Fruit* 1.2- 1.6 cm in across, globose, dark purple when fully ripe, crowned by persistent stigmas. *Seeds* stony, 10-14. *Flr.:* March- April, *Frt.:* November - January

Common in foot hills and road sides also. Occurrence: Common

Vernacular name: Poniol / Phinel (As.)

Use: Fruit is eaten; wood sometimes used to make agricultural implements.

CARYOPHYLLACEAE


Key to the genera:

1a. Leaves oblong or ovate; blades penninerved; stipules 0. Sepals glandular, tomentose. Stamens more than 5. ... ... ... ... ... ... ... ... ... ... Stellaria

1b. Leaves ovate, sub-orbicular, or cordate; blades palminerved; stipules setaceous. Sepals glabrous. Stamens less than 3. ... ... ... ... ... ... ... ... Drymaria

**Drymaria** Willd. ex J.A. Schultes


Diffuse herb with striate branchlets, glabrous, often rooting at lower nodes. Leaves decussate ovate, sub-orbicular, or cordate, 1.5 × 1.5 cm, chartaceous, glabrous, 3-5 palminerved, base cordate, obtuse or sub-truncate, margin entire, apex apiculate, sub-sessile; stipules interpetiolar, up to 1 mm. Cymes axillary or terminal, app. 3 cm, lax.; Flowers 4 mm across. Sepals 5, oblong, to 4 mm, connate at the base, 3-nerved, keeled in the middle. Petals 5, white, 2 mm, 2-partite. Disc annular. Stamens 2 or 3; filaments 1.5 mm. Ovary 3-gonous-ovoid, 2 mm, one celled; ovules 5 or 6; styles 3-fid, 1.5 mm; stigma simple. Capsule oblong, tri-gonous, 3-valved. Seeds orbicular or reniform, red. Flr. & Frt.: Almost round the year

Found as weed of household gardens, drainages and roadsides especially in moist shady places. Occurrence: Common

Vern. name: Lai-jabori, Thunthuni (As.)

Use: As medicine in sinus trouble, old wound of domesticated animals and man.


Stellaria L.
Sp. Pl. 421. 1753.

Herbs. Leaves other than linear, chartaceous, glabrous, base obtuse, petiole length varies from upper to lower leaves; stipules either absent or setaceous. Sepals glabrous. Petals two partite. Stamens less than three. Flowers 5-sepalous, 5-petalous. Stamens 5-10. Ovary ovoid, styles tri-fid.

Diffuse or ascending herb with striate branchlets, tomentose. *Leaves* decussate, oblong or ovate, 1.0× 0.5 cm, chartaceous, glabrous, base obtuse, margin entire, apex acute; lower leaves long petioled, up to 2 cm, upper leaves sub-sessile. *Cymes* terminal and axillary, dichasial, peduncle 5 cm; pedicel 1 cm. flowers 5 mm across. *Sepals* 5, lanceolate, 4 mm, glandular, membranous at margins. *Petals* 5, white, linear, 2mm, scarious, deeply 2-partite. *Disc* annual, glandular. *Stamens* 5-10; filaments 1.5 mm; anthers globose. *Ovary* ovoid, 3 mm, 1-celled; ovules many; styles 3-fid, to 1 mm, tubercelled; stigma simple. *Capsule* globose, to 4 mm, 6-valved; seeds 1mm wide, compressed, tubercelled.

Fir. & Frt.: Almost round the year

Usually grows in moist shady places, along with *Drymaria cordata*. Occurrence: Common. Vernacular name: Morolia, Menmeni (As.)

Use: As medicine in sinus trouble, old wound of domesticated animals and man.


**PORTULACACEAE**

*Herbs*, often succulent. *Leaves* alternate or decussate, simple, entire, in terminal clusters on the receptacle, surrounded by a whorl of involucral leaves, or in corymbose cymes, rarely solitary, bracteate or not; 4-5-merous, bisexual. *Sepals* 2, imbricate, keeled or not, deciduous, base connate, confluent with petals and stamens,
partly overlapping ovary. Petals 4 or 5, variously coloured, free or united at the base, imbricate. Receptacle sometimes infundibular. Stamens 8 many. Ovary semi-inferior or superior, 1-celled; ovules many on free central placentae; style apically 3-5-fid. Capsule globose, seeds many, subreniform or globose, minutely tubercled or smooth.

**Portulaca** L.


*Herbs* with glabrous branchlets; sometimes nodes with axillary hairs and scarious appendages. Leaves alternate or (sub)opposite, flat or terete, the uppermost clustered into foliar involucres. Flowers usually in terminal clusters, sometimes solitary. Sepals 2, connate at the base and adnate to ovary, deciduous. Petals 4-6, free or sub-connate at the base, inserted on the rim of calyx. Stamens 8-many, connate at the base, inserted on the calyx and adnate to petals. Ovary semi-inferior, 1-celled; ovules many on free palcentae; styles terminal, apically 4-5-fid; stigma radiating. Capsule thin walled, with a circumssible operculum near the middle; seeds many, sub-reniform, tubercled.

Key to the species:

1a. Prostrate herb. Petals obovate, yellow ... ... ... ... ... ... ... ... P. oleracea

1b. Prostrate to semi-erect herb. Petals broadly obovate, colour varies; cultivated.

... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... 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Introduced ornamental plant usually cultivate in gardens.


Prostrate *herb*; *branchlets* glabrous, usually purplish. *Leaves* alternate to sub-opposite, obovate to spatulate, 0.7-2 × 0.4- 1.5 cm, fleshy, glabrous, base attenuate, margin entire, apex obtuse or truncate; axillary hairs minute. *Flowers* to 1 cm across, in terminal clusters, sometimes solitary; foliar involucres 2-6; bracteoles 3-6 mm. calyx 2.5 mm. *Sepals* 2, lanceolate, to 3 mm. *Petals* 5, yellow, obovate to 7 mm, basally subconnate, retuse, mucronate. *Stamens* ca. 12; filaments unequal, 1-2 mm, pubescent at base. *Ovary* obovoid, 1.5 mm, half enclosed by the calyx, 1-celled; style to 3.5 mm, 4 or 5-fid. *Capsule* ovoid, 6-8 mm, operculate, glabrous; seeds many, 0.8 mm, tubercled. Flr. & Frt.: Almost round the year

Common in damp clay soil e.g. wayside, household gardens etc.

Vernacular name: Malbhog sak (As.)  
Occurrence: Common

Use: As vegetable mixed with other; as medicine in jaundice and liver trouble.

Date: 21-11-2001.  
Locality: Barpara
TAMARICACEAE

Shrubs or trees. Leaves minute, alternate, simple, glandular-punctate, scaly, amplexicaul to sheathing; stipules 0. Spikes terminal and / or axillary, often panicled. Flowers 5-merous, bisexual. Sepals 5, connate at base, imbricate. Petals 5, inserted below the disc, slightly connate below, imbricate, disc annular, crenate, 10-glandular. Stamens as many as petals, inserted on disc. Ovary superior, 1-celled; ovules 2 or more, on basal placentae; style apically 3-fid. Capsule loculicidal, with as many valves as styles; seeds many, apically long pilose.

Tamarix L.
Sp. Pl. 270. 1753.

Spreading shrubs with slender branches. Leaves usually minute, scale like, adpressed on the branchlets. Flowers regular, bi- or unisexual, in simple panicled spikes or racemes. Sepals and Petals 5 each, imbricate, free or connate below. Stamens usually as many as or twice as many of the petals. Style 2-5 with free or connate stigmas.

Tamarix dioica Roxb., Fl. ind. 2: 274. 1832; Prain, Bengal Plants 1:242. 1908; Kanjilal et al., FA. 1:99. 1934; Chowdhury et al., Ass. Fl. 190. 2005.

Gregarious shrub with spreading branches; leaf scars concentric. Leaves about 1.5 mm, tubular and clasping the stem, acuminate, margin whitish. Flowers pink, minute, numerous in compact panicles usually panicled spikes, generally dioecious; bracts as long as flowers, triangular, acuminate, keeled. Sepals 5, about half as long as petals. Male flower: petals 5, oblong. Stamens 5, inserted between the
notches of a 5-lobed disc; filaments ligulate, anthers purple. **Female flower:** petals 5, broader than the males. **Staminodes** shorter than the petals, anther sagittate, sometimes absent. Ovary 1-celled, 3-lobed; styles 3, as long as or longer than the petals. **Capsule** conical, 1-celled, 3-valved. Seeds minute, plumose, numerous, compressed. **Ft.:** July-September, **Fr.:** October-December

Common along bank of the river Brahmaputra and its tributaries.

**Vernacular name:** Jhao bon (As.)

**Use:** Commonly as fire wood, sometimes for decorative purposes and as housing material for temporary hut.

**Coll. No.** Borah. A. 142. **Date:** 02-11-2002. **Locality:** Jogighopa

**HYPERICACEAE**


**Hypericum L.**

*Sp. Pl.* 783. 1753.

A small diffusely branched annual herb; branchlets glabrous. Leaves decussate, elliptic-ovate or lanceolate, 3-nerved, gland dotted, base cordate, margin entire, apex acute, sessile. Cymes terminal, dichasial or monochasial; peduncle to 1cm, pedicel to 7 mm. Sepals five, lanceolate, imbricate, 4mm. Petals five, yellow, oblanceolate, 6 mm. Stamens ca. 20; filaments subconnate, upto 3 mm. Ovary indefinite on three parietal placentae; styles three. Capsule ovoid, 3-valved, seeds oblong. Flr. & Frt.: November - May

Grows on moist shady places associated with Drymaria cordata, Merremia sp. Commelina benghalensis etc. Occurrence: Common


**CLUSIACEAE**

Trees with mostly yellowish latex, evergreen. Leaves opposite-decussate, coriaceous, entire; extipulate. Inflorescence axillary, in racemes or umbellate clusters. Flowers polygamous, dioecious, regular. Sepals 4-5, imbricate. Petals 4 or 5, imbricate. Male flower: Stamens many, connate on a central column or in 4 to 5 bundles. Female flower: Staminodes many, often connate. Ovary superior, 1-3 celled; ovule 1 per cell on axile or basal placentae; style short or elongate; stigma peltate or lobed. Fruit a berry or drupe.
Key to genera:

1a. Leaves leathery. Flowers in umbellate clusters. Style short or 0; stigma large. Ripe fruit pulpy. 
   
   Garcinia

1b. Leaves not leathery. Flowers solitary. Style long, slender; stigma small.
   Ripe fruit dry or firmly fleshy. 
   
   Mesua

Garcinia L.

Sp. Pl. 443.1753.

Trees or rarely shrubs exuding yellowish or greenish gum-resin; branches usually opposite, horizontal or pendulous, evergreen. Flowers polygamous, solitary or in cymes. Sepals and petals 4 or 5 each, imbricate. Male flower: Stamens numerous, free or collected into a 4 or 5 lobed mass round a pistillode; anthers 2-celled, rarely 4-celled. Female flower: Staminodes 8 or many. Ovary 2-12-celled; stigma sessile or so, often large and spreading; ovule 1 in each cell attached to the inner angle of the cell. Bisexual flowers: Stamens 8 or many. Ovary 2-12-celled; ovule 1 in each cell. Fruit pulpy when ripe; seeds often arillate, embryo a homogenous oily mass.

Key to the genera:

1a. Flowers 4-merous. Leaves large, oblong-lanceolate with an intra-marginal nerve. 
   
   G. xanthochymus

1b. Flowers 5-merous. Leaves of other type:

2a. Flowers terminal or axillary. Anthers 2 or more celled:

3a. Fruit over 1.5 inch across, obliquely obtuse at the top. Seeds 4, slightly compressed 
   
   G. cowa
3b. Fruit 3- 4.5 in. in dia., globose. Seeds 8-10, reniform . . . *G. pedunculata*

2b. Flowers from axils of the fallen leaves. Anthers 1-celled. Fruit
about 0.7 inch long , globose or slightly elongated... . . . . . . *G. morella*

*Garcinia cowa* Roxb. Fl.ind. 2: 442.1832; Prain, D. Bengal Plants 1:247. 1903

A middle sized tree, branchlets terete or slightly 4-gonous, bark brown grayish outside and reddish in side, gum yellow. *Leaves* dark green, 5- 17 cm × 2.5-8 cm, broadly elliptical lanceolate, gradually or abruptly acuminate, cuneate at the base, somewhat fleshy when green, red to reddish brown when young. *Flowers* dioecious, 4-merous, yellow. *Male flower*: 0.5 – 1.5 cm across in dense terminal or axillary clusters. *Sepals* 0.3- 0.5 cm, ovate or sub-orbicular, thick, pale yellow, unequal. *Petals* as long twice as sepals. oblong.; *Stamens* brownished, anthers 4-gonous and 4-celled, sub-sessile, collected in a fleshy mass. *Pistillode* minute.

*Female flower*: larger than male flowers, terminal, solitary or in 3-5 flowered clusters, shortly pedicelled. *Staminodes* forming an interrupted ring consisting of 5-10 connate filaments round the ovary. Stigma 6-8 lobed. *Fruit* globose, about 5 cm in dia. slightly tapering and somewhat oblique towards the apex; dull red outside and orange inside when ripe, 4-8 seeded, crowned by a persistent stigma.

Flr.: March to April. Frt.: June to October.

Occurrence: Rare, found few plants in scrub forests

Vernacular name: Kau-thekera (As.)

Use: Fruit is eaten and sliced fruit is dried under the sun which are then used to
treat dysentery. Sliced fruits are also used as pickles. Preserved fruit is considered medicinal in intoxication.

Coll. No. Borah A. 411. Date: 02/7/2004 Locality: Ulubari (Bijni)

Photo No. 7.1 (plate 7).


A small *tree* with dark grayish brown bark which creamy inside in old plants, mottled with dark brown dots, exuding yellow gum. *Leaves* 10-15 cm × 5-8 cm, elliptic to ovate lanceolate, obtusely acuminate, coriaceous, lateral nerves oblique, irregular, base cuneate, petiole short, ligulate at the base. *Male flowers*: generally three together, in axils of fallen leaves, very shortly pedicelled. *Sepals* and *Petals* orbicular, petals slightly larger. *Stamens* on a 4-angled fleshy mass; anthers orbicular, shortly stalked, flattened. *Female flower*: larger than male, solitary, subsessile. *Staminodes* about 12, the filaments forming a ring around the ovary. *Ovary* globose; stigma sessile, 4-lobed, tubercled. *Fruit* about 2cm in diam. globose to slightly elongate, crowned by the 4-lobed persistent stigma, yellow when ripe. Seeds 4, slightly compressed. Flr.: December - February. Frt.: May- June.

Occurrence: Rare, found few plants in scrub forests

Vernacular name: Kuji-thekera (*As.*)

Use: As in *Garcinia cowa*.


A large tree with a fluted trunk and short spreading branches. Bark thick, dark gray outside and pale brown inside with fine red lines, gum little. Leaves 12-24 cm × 7-11 cm, ovate or oblanceolate, rigid, midrib stout, base cuneate, petiole 2-2.5 long. Male flower: pale green in few flowered terminal panicles and on stiff pedicel 5-7 cm long, each with a pair of bracts a little above the base. Sepals 0.7 cm across, orbicular, fleshy. Petals slightly longer than the sepals but narrower. Stamens numerous in a 4-cornered mass; anthers two celled but 4-angled. Female flower: solitary, larger than the male, terminal on a thick 4-angled peduncle of 1.5-3.0 cm long. Staminodes 20-30 in 4 bundles, connate below. Stigma peltate, spreading about 10 lobed. Fruit globose, 7.5-11 cm in diam., fleshy. Seeds 8-10, reniform, enclosed by fleshy aril. Fl. September to April. Frt. February to December.

Found cultivated here and there in the house hold gardens, reportedly were in the forests rarely.

Vernacular name: Bor-thekera (As.)

Use: Acid fruit is eaten raw or cooked; sliced fruit is used to worship cow in “Garu Bihu” in Assamese culture; other uses as in former species.


Garcinia xanthochymus Hook. f. & Th. in FBI 1: 269. 1874; Prain, Bengal Plants 1: 247. 1903; Kanjilal et al., FA 1: 104. 1934; Chowdhury et al., Ass. Fl. 228. 2005.

A small tree with deep narrow crown; branchlets square and usually sulcate; bark dark brown, white or slightly pinkish inside, exuding pale green gum. Leaves dark green, 20-40 cm × 5-8 cm, narrowly oblong or oblong lanceolate, coriaceous, shinning on both surfaces, lateral nerves irregular, base cuneate, petiole ligulate.
**Flowers** pentamerous, dull white in 4-8 flowered fascicles from axils of the fallen leaves on fleshy pedicels. **Male flowers:** Sepals 5, orbicular, fleshy. Petals 5, double size of the sepals, orbicular, thin. **Stamens** in 5 fleshy bundles of 3-5, alternating with 5 fleshy glands; anthers 2-celled. **Bisexual flowers:** Sepals as in male flowers; petals ciliate; stamens as in males. Ovary usually 5-celled with a neck. **Stigma** 5-6 lobed, spreading. **Fruit** 2.5-7.0 cm in diam., pointed, crowned by the persistent stigmatic lobes, green, golden yellow when ripe; seeds oblong.


Occurrence: Rare, found cultivated, also a few in forests

Vernacular name: Tepor tenga/ Tepol (As.)

Use: Fruit is very sour tasty, eaten and sliced fruit is dried under the sun which are then preserved for off season use.


Photo No. 7.2 (plate 7).

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**Mesua L.**

Sp. Pl. 515. 1753.

*Trees,* evergreen with conical crown. **Leaves** opposite, decussate, lanceolate to elliptic-oblong, acuminate. **Flowers** solitary, generally terminal, sometimes axillary, usually fragrant. Sepals 4 in 2 pairs, imbricate. Petals 4, usually white, obovate or obcordate. **Stamens** many, free. Ovary ovoid, usually 2-celled, style long. **Fruit** capsule, ovoid, seeds various, oily.


A middle sized evergreen tree with a dense conical canopy, bark gray exude aromatic oleo-resin. Leaves opposite, decussate, variable, 6.5-18 cm × 1.5-5 cm, lanceolate or narrowly elliptic-oblong, long acuminate, rounded or acute at base in, coriaceous, glabrous, shining above, generally covered with a wax like white powder underneath, red when tender. Flowers solitary, terminal or axillary, 4-7 cm across, very fragrant; peduncles rust tomentose, 0.7-1.4 cm long. Sepals 1.2-1.5 cm long, 4 in 2 pairs, imbricate, valvaty puberulous outside, persistent. Petals 4, pure white, much exceeding the sepals, cuneate, obovate to obcordate, curled and erose at the margins. Stamens many, forming a globose yellow mass in the centre of the flower; filaments very slender, anthers golden yellow, linear, 0.25-0.3 cm long. Ovary ovoid, 2-celled, with 2 ovules in each cell; style long, stigma peltate. Fruit 3-4 cm across, ovoid, pointed, 1-celled, 1-4-seeded, with persistent sepals. Seeds variously facettted according to their number in each capsule, with dark brown shining testa; cotyledons fleshy, oily, pale yellow. New leaves: February to March. Fl.: March to April, occasionally September - November. Frt.: June to October.

Cultivated. Vernacular name: Nahor/ Nageswar (As.).

Use: As ornamental plant in gardens, roadsides, parks etc; timber valuable; seeds are source of an aromatic oil- they are used to strung with thin bamboo sticks and used as candle during “Kati Bihu” in Assamese culture.


Photo No. 7.3 (plate 7).
PLATE 7

Photo No. 7.1: *Garcinia cowa* Roxb. ex DC.

Photo No. 7.2: *Garcinia xanthochymus* Hook. f.

Photo No. 7.3: *Mesua ferrea* L.

Photo No. 7.4: *Camellia sinensis* (L.) O. Kuntze var. *assamica* (Mast.) Kitamura

Photo No. 7.5: *Schima wallichii* (DC.) Kuntze

Photo No. 7.6: *Shorea robusta* Gaertn.
THEACEAE (TERNSTROEMIACEAE)

Shrub, lianas or small trees. Leaves alternate, simple, exstipulate, coriaceous.

*Flowers* regular, showy, usually subtended by a pair of scale like bracts. *Sepals* and *petals* 5 each, rarely fewer or more, imbricate, petals connate at the base. *Stamens* numerous, free or connate at the base, often epipetalous. *Ovary* 3-5-celled, styles as many as ovary cells; ovules 2-6 or many in each cell. *Fruit* capsular or baccate.

Key to genera:

1a. Large or medium sized tree; seeds winged ..........................................

1b. Shrub or small tree; seeds not winged ............................................

*Camellia* L.

Sp. Pl. 698. 1753.


Small tree but usually pruned to a bushy shrub in cultivation. Leaves alternate, simple, shining, slightly serrate, acuminate. Flowers white.

The commercial tea plant, cultivated in large quantity in gardens.

Photo No. 7.4 (plate 7).

**Schima** Reinh.ex Bl.

Evergreen trees. Leaves thinly coriaceous. Flowers 2-bracteate; peduncles single flowered, axillary or upper ones in raceme. Sepals and petals 5 each, petals larger, connate at base, unequal. Stamens many, epipetalous. Ovary 5-celled; style lobed at apex with spreading stigma, ovules 2-6 in each cell. Capsule woody.


**Schima mollis** Dyer in FBI 1:288. 1874.

A large tree with deeply longitudinally cracked barks upon maturity. Leaves 7.5-22 cm by 3-8 cm, oblong or elliptic-lanceolate, acute or acuminate, entire, thinly coriaceous, glabrous, and shining above. Flowers white, scented, axillary, solitary. Sepals 5, imbricate, sub equal, orbicular or rounded, broader than long, margins ciliate. Petals 5, connate and silky pubescent out side towards the base. Stamens many, epipetalous, anthers yellow. Ovary hairy towards the bottom. Fruit a 5-celled loculicidal capsule, globose. Flr.: May-June, Frt.: December – February.
Generally common in the deciduous tracts of forests. Occurrence: Rare.

Vern. name: Naga-bhe (As.), Kamsuri, Gugra (Bodo).

Photo No. 7.5 (plate 7). Photo date: 25-5-2006. Locality: Chapaguri

Uses: As timber yielding plant

**DIPTEROCARPACEAE**

*Trees* and *shrubs*. *Stem* with resin ducts and mucilage cells very characteristic. *Leaves* simple, stipulate, stipule simple, sometimes surrounding the internode. *Inflorescence* few flowered raceme or panicles. *Flowers* actinomorphic, bisexual, pentamemomous, sweet scented; floral axis broad saucer-shaped or concave. *Sepals* 5, free, persistent and wing like in fruit. *Petals* 5, twisted, free or fused at base. *Stamens* many or 5-15, free in one or several whors; connective prolonged. *Carpels* 3-5, *ovary* superior, 2 ovules in each locule, axile placentation. *Fruit* one seeded nut usually enclosed in persistent calyx of which 2 or all 5 sepals form a wing aiding in dispersal.

*Shorea* Roxb.

Fl. ind. 2: 440. 1832

Large *tree*, resinous. *Leaves* alternate, entire or repand, coriaceous; stipules small, caducous. *Flowers* in axillary and terminal lax cyme-bearing panicles; bracts and bracteoles caducous. *Calyx* tube short, adnate, accrescent in fruit. *Petals* imbricate, hairy outside. *Stamens* many, connective prolonged as appendage. *Ovary* 3-celled, 2 ovule per cell; style subulate. *Fruit* fleshy, usually 1-seeded, tightly
embraced by the bases of the enlarged sepals which develop into erect wings of unequal lengths; usually 3 long and 2 short.


Large deciduous tree with spreading crown; bark with longitudinal cracks, dark grey, rough, thick and resinous. *Leaves* at first red or pinkish, afterwards pale-green, mature dark-green, old pale-yellow; 8-30 cm by 4-17 cm, ovate-oblong, shortly acuminate, thinly coriaceous but tough, glabrous and shining when mature or more or less puberulous. *Flowers* 1-2 cm long, subsessile, unilateral on racemes arranged in axillary or terminal panicles; bracts caducous, bracteoles minute or wanting. *Calyx-tube* short, adnate to the torus, segments about 0.25 cm long, ovate, imbricate, all accrescent in fruit. *Petals* creamy-white or yellowish, tapering upwards, longitudinally 10-12-nerved. *Stamens* many, up to 50, much shorter than the petals. *Ovary* globose, pubescent, style subulate. *Fruit* about 1.5 cm long, ovoid, acute, indehiscent, densely canescent; wings 5, 3 large, 8 cm by 2 cm, and 2 small, 3 cm by 0.6 cm, spatulate, 10-12-nerved, pubescent.

New foliage and Fl.: March-April Frt.: May-June.

Vern.name: Sal goch (As.). Occurrence: very common

Uses: Very good timber yielding tree; leaves are used in making plates which are usually used to serve food in gathering like marriage ceremony. The resin is used to prepare incense. A brown dye is obtained from bark. It is also used to plant in road sides, hill slopes etc. as economic and ornamental tree.
MALVACEAE

_Herbs_ or _shrubs_, often mucilaginous and with stellate hairs on young parts. _Leaves_ alternate, simple or palmately lobed or partite, usually palminerved, often with nectariferous glands on nerves below; stipules are free lateral type, linear, lanceolate. _Flowers_ axillary, solitary or in terminal raceme or panicles, 5 merous, bisexual, regular. _Epicalyx_ with free or connate segments, persistent; calyx campanulate. _Sepals_ 5, valvate. _Petals_ 5, contorted, asymmetric, generally twisted adnate at base to staminal column. _Stamens_ indefinite, monodelphous, always with a distinct staminal column, anther one lobed. _Ovary_ superior, 3-5 or more celled; ovules one or more per cell on axile placentae; style 1 or branched into arms as many or twice as many as locules; stigmas capitate or discoid. _Fruit_ schizocarpic with one or more seeded mericarps.

Key to the genera:

1a. Epicalyx absent. Anthers clustered at the ends of staminal column:

2a. Leaves cordate. Ovules 1 or 2 or more per cell .. .. .. .. .. _Abutilon_

2b. Leaves ovate, lanceolate or oblong. Ovule 1 per cell .. .. .. .. .. .. .. _Sida_

1b. Epicalyx present:

3a. Staminal column truncate and antheriferous at the apex only. .. .. .. _Kydia_

3b. Staminal column dentate at apex, antheriferous throughout:

4a. Style un-branched. Calyx entire or minutely 5-toothed .. .. _Gossypium_
4b. Style branched at the apex. Calyx distinctly lobed:

5a. Calyx spatheceous. .................. Abelmoschus

5b. Calyx campanulate:


6b. Petals not auricled. Flowers in raceme or solitary. Wild.

7a. Staminal column antheriferous in upper half only. .......... Urena

7b. Staminal column antheriferous throughout. ................ Hibiscus

**Abelmoschus Medicus**

Malvenfam. 45. 1787.

_Herbs or subshrubs_; branchlets stellately hairy or prickly. _Leaves_ palmately lobed or partite. _Flowers_ axillary, solitary or in racemes; pedicels not jointed, _Epicalyx_ segments free. _Calyx_ spatheceous, splitting on one side, apically 5 toothed, falling with corolla. _Petals_ 5. _Staminal column_ shorter than petals, antheriferous throughout. _Ovary_ 5 celled; ovules indefinite per cell, style distally 5 branched; stigmas discoid. _Capsule_ ovoid, loculicidally dehiscent.


_Subshrubs_ up to 2 m high; branchlets glabrous or hispid, stellate pubescent. _Leaves_ ovate, cordate at base, usually 3-7 lobed; lobes triangular, ovate –lanceolate
or linear spathulate, glabrous, dentate to serrate; stipules filiform. Racemes terminal app. 10 cm, basal flowers axillary solitary; pedicel in flower 1-3 cm, in fruit 3-5 cm. *Epicalyx* segments 4-6, free, ovate-oblong. *Calyx* tubular. *Petals* obovate. *Capsule* oblong-ovoid, 3-5 × 2-2.5 cm. Flr. & Frt.: October - February.

Occurrence: Rare, found in hill slopes. Vern. name: Kasturi bhendi (As.)


Photo No. 9.1 (plate 9).

*Abutilon* P. Miller


_Herbs_ or _under)shrubs_; branchlets simple or stellete tomentose. _Leaves_ entire, sometimes shortly lobed, palmately 7-9 nerved, cordate at base. _Flowers_ solitary or in terminal raceme; pedicel jointed above middle. _Epicalyx_ absent. *Calyx* campanulate, 5 lobed. *Petals* 5, rotate. *Staminal* column shorter than petals, glabrous or stellate hairy, antherferous at the apex. *Ovary* 5 or more celled, ovules 1, 2 or α per cell, styles as many as cells, shortly connate at base, stigmas capitates.


_Shrubs_; branchlets cinereous by minutely short stellate pubescent and simple hairs. _Leaves_ cordate, chartaceous, 7-9 nerved, minutely stellate hairy above, glaucous below, base cordate, margin crenate-dentate, apex acute-acuminate; petiole 2-8 cm; stipules filiform. _Flowers_ solitary, to 3cm across; pedicel to 5 cm.
Calyx tube 4 mm; lobes 5, ovate, 4 mm, apex acuminate. Petals 5, yellow, obovate, 1 \times 1 cm. Staminal column 6 mm, stellate hairy at base, glabrous above; filaments 3 mm. Fruit schizocarp, globose, flat topped, 1.5 \times 2 cm, black when ripe. Flr.: November - January. Frt.: Through out the year

Found in plains as colony, especially in waste lands. Occurrence: Rare

Vern. name: Jopa (As.)


**Gossypium L.**

*Sp. Pl.* 693. 1753.

Shrubs or trees. Leaves palmately lobed. Inflorescence axillary. Bracteoles three, large, cordate, leafy spatheceous, sprinkled with glandular dots. Calyx 5 toothed or 5 fid. Petals 5, adnate at the base with staminal tube. Staminal tube antheriferous, anthers reniform, 1-celled. Ovary 5 celled; styles usually 5, connate below, spreading above. Fruit capsular, capsule ovoid, 3-5 celled with 5-7 seeds per cell. Seeds are covered with intricate wooly hairs, which is the cotton of commerce.


Shrub. Leaves 3-5 lobed, nearly glabrous; stipules ovate or lanceolate. Bracteoles as long as the capsules and much exceeding the truncate calyx. Flowers yellow, generally with a purple centre. Capsule ovoid, 3-5 celled with 5-7 seeds in each cell, pendulous when open, presenting a striking appearance with the hanging balls of white cotton. Flr.: August - October. Frt.: November- December.
Cultivated by the natives, also grow as wild near the households.

Vern. name: Kopah / Kopahi (As.)

Use: As source of cotton.


**Hibiscus L.**

Sp. Pl. 693. 1753. (nom. con.)

Herbs, shrubs or trees; branchlets stellate or simple tomentose. Leaves palmately lobed, sometimes entire, often with nectariferous glands; stipules ovate-lanceolate. Flowers axillary, solitary, often in raceme or panicles. Epicalyx with 3-10 segments, usually free. Calyx tube campanulate, 5 lobed, distinctly nerved, often with nectarines. Petals 5 showy. Staminal column dentate at apex, antheriferous throughout or at apex. Ovary usually 5-10 celled, ovules 3 or more per cell. Style 1, distally 5 branched; stigmas discoid or capitate. Capsule globose or ovoid, loculicidal, seeds hairy.

Following two species of Hibiscus are found cultivated as well as escape to the nature:


Shrubs, sometimes attaining a height of 12 feet in gardens. Leaves entire or variously lobed, shining. Flowers solitary, with prominent epicalyx. Calyx and
*corolla* segments usually 5 each but the number of petals may be more due to modification of some stamens into petals. *Stamens* many, epipetalous, filaments form a tube around the carpels. *Carpels* five, united, stigmas free.

Vern. name: Joba Phul (As.)

Use: Usually cultivates in the gardens for ornamental purpose. Flowers are used in worshiping, to wash hair, which are considered good for hair health.


Glabrous *shrub*, 1-2 m; branchlets purplish. *Leaves* palmately 3-5 lobed, 6.5-10 cm long, lower leaves un-lobed; lobes oblong- lanceolate, 2- 4 ×1-2.5 cm, glandular on midrib below, margin serrate, apex acute; petiole up to 4 cm; stipules linear, to 1 cm. *Epicalyx* segments 10, lanceolate, adnate to base of calyx. *Calyx* fleshy. *Petals* 5, pink with dark centre. *Capsule* ovoid, to 2.5 ×1.8 cm, pubescent, beaked. *Flr.: November- February. Frt.: February- March*

Cultivated in households, also found to grow as wild near human habitat.

Vernacular name: Tenga mora / Mesta tenga (As.)

Use: Leaves are used as vegetable, sour. Fruits are also eaten with curry, sometimes fresh as salad; jelly is prepared from ripe fruits. Leaves and fruits are considered good for dysentery of human as well as domesticated animals, also in treatment of high blood pressure.

Kydia Roxb.

Pl. Coromandel 3: 11.1811 (“1819”)

Tree with stellate pubescence and mucillagenous bark. Leaves palmetely nerved, lobed or angled; 1-3 of the innermost nerves with a large oblong gland near the base. Flowers small, numerous, polygamous in terminal panicles; bracteoles 4-6, connate at the base, accrescent and spreading in fruit. Sepals 5, valvate, connate at the base. Petals 5, obcordate, adnate to the staminal tube. Staminal tube split half way down into 5 segments each bearing at the apex 3-5 sessile anthers, which are imperfect in the female flowers. Ovary 2-3 celled; style 3-cleft; stigmas three, imperfect in the male flowers; ovules two in each cell, ascending. Capsule depressed globose, 3-valved; seeds reniform, furrowed.


A moderate sized fast growing, gregarious tree; branchlets and young parts covered with grey stellate hairs. Leaves entire or palmately 3-lobed, ovate- orbicular, coriaceous, 5- nerved at base, 6.5-10 × 6 -11cm, stellate tomentose above, rusty-valvate beloow, base cordate- truncate, margin obscurely crenate-dentate, apex round-obtuse; petiole 3-9 cm, woolly; stipules foliaceous, narrow. Inflorescence panicle, axillary or terminal, densely tomentose, rusty; pedicel jointed. Flowers 1.5 cm across, polygamous, generally dioecious. Epicalyx segments 4-6, connate, spathulate, 7×3 mm. Calyx tube campanulate, base cuneate, 2 mm; lobes 5, ovate, 3
Petals 5, white, membranous, obovate, 6x3 mm, emerginate, fimbriate, clawed. 

Staminal column shorter than petals, apically truncate, with 5 slender branches and 
with 3 sub-sessile anthers; pistillode 0. Ovary 2 or 3 celled; ovules 1 or 2 per cell; 
styles 3. Fruits capsules, globose, winged. 

Flr.: September- November Frt.: November- February

Deciduous tree found in forests.

Vernacular name: Kukuha / Pichola / Bon kapahi (As.)


*Malvaviscus* P.C. Fabricus

Enum. 155. 1759.


Planted as hedge, to 1.5 m. Flowers pendulus; petals red, never opening fully.

Flr.: Peak during spring Frt.: Not seen

Vernacular name: Tikoni joba / Pahimuja Joba (As.)

Use: As ornamental plant and fence shrub

*Sida* L.

Sp. Pl. 683. 1753.

(Sub)shrubs; branchlets stellate tomentose or simple hairy, sometimes glandular. Leaves simple, chartaceous, penni- or palminerved. Flowers axillary,
solitary, sometimes clustered into lax racemes; pedicel at or above middle. *Epicalyx*

0. *Calyx*-tube campanulate, angular; lobes 5, triangular or ovate. *Petals* rotate, yellow. *Staminal column* shorter than petals, apically truncate and antheriferous. *Ovary* ovoid, 5-14 celled; ovule one per cell; styles as many as cells; stigmas on stylar branches. *Schizocarp* exceeding calyx or not; mericarps 3-gonous or 4 hedral, as many as ovaries, often prominently reticulate, wrinkled or rugulose, beaked or awned above, apically dehiscent; seeds not released from mericarps, smooth, ovoid.

Key to the species:

1a. Leaves palm-nerved. Stem prostrate. Mericarps 5. ... ... ... ... *S. cordata*

1b. Leaves penn-nerved. Stem prostrate or erect. Mericarps 6-10:

2a. Leaf base cuneate; basally 3 nerved. Mericarps beaked ... ... *S. rhombofolia*

2b. Leaf base other than cuneate; basally 3-5 or 7 nerved. Mericarps awned:

3a. Stipules of each pair unequal. Leaves lanceolate ... ... ... ... *S. acuta*

3b. Stipules of each pair equal. Leaves ovate - cordate ... ... *S. cordifolia*


*Undershrub* up to 1m; branches minutely stellate pubescent. *Leaves* oblong-lanceolate or elliptic, inequilateral; chartaceous, basally 3-5 nerved, glabrescent, base obtuse, margin serrate, apex acuminate; stipules of each pair different, linear to lanceolate. *Flowers* 1.5 cm across, solitary, sometimes in a cluster. *Calyx* tube 4 mm; lobes 5, triangular, 4 mm, acuminate. *Petals* 5, pale yellow, obliquely ovate, 8×5
mm, emerginate, ciliate at base. **Staminal** column 3 mm, hispid. **Ovary** ovoid, 1 mm, 6 celled; stylar branches 2 mm. Fruit a schizocarp, base rounded, margins at apex toothed mericarps tetrahedral, glabrous. **Flr. & Frt.:** Throughout the year

Found at roadsides, especially at the fringe of forests and waste lands.

Vernacular name: Sonborial (As.)


**Subshrub** up to 65 cm; branchlets prostrate to ascending, with indumentum of sparsely stellate-tomentose hairs. Basal **leaves** suborbicular; upper ones cordate-ovate, chartaceous, palminerved, margin crenate-serrate, apex acuminate; stipules subulate. **Flowers** 1 cm across, single or sometimes in lax racemes. **Calyx** tube up to 3 mm, shortly stellate hairy and long slender hairy; lobes 5, triangular, 2 mm. **Petals** 5, yellow, oblique-obovate, 6 × 5 mm. **Staminal** column about 3 mm, hairy. **Ovary** 5-celled. Schizocarp 4 mm, mericarps tetrahedral, sparsely hairy at apex, beak short, 2-dentate. **Flr. & Frt.:** Throughout the year

Common by the way side, wastelands; locally abundant in degraded forest areas. Vernacular name: Sonborial (As.)

Fig. A. *Sida cordifolia* L.  
B. *Sida rhombifolia* L.  
B (i) A twig.  B (ii). L. S. of flower

*Subshrub* up to 65 cm; branchlets densely stellate tomentose, intermingled with long simple hairs. *Leaves* cordate or ovate, 1.5- 4 × 1- 3 cm, chartaceous, tomentose, base subcordate or rounded, margin serrate- crenate, apex acute-obtuse; petiole 0.5-3 cm; stipules to 7 mm. *Flowers* 1 cm across, single or sometimes in lax racemes. *Calyx* tube up to 5 mm, tomentose; lobes 5, ovate, 2 mm. *Petals* 5, yellow with a pink throat, oblique-rhomboid, 1 ×0.7 cm. ciliate at base. *Staminal* column about 4 mm, tomentose. *Ovary* spherical 10-celled. *Schizocarp* 4 mm, mericarps 8-10, trigonous, awns 2, linear. *Fir. & Frt.:* Throughout the year

Gregarious, common by the hill slope, wastelands; locally abundant in degraded forest areas. Vernacular name: Sonborial (As.)


Fig. 8.b (plate 8).


*Subshrub* up to 75 cm; branchlets stellate tomentose. *Leaves* variable, ovate-elliptic or rhomboid, 1.5-4 × 0.4 -3.6 cm chartaceous, basally 3-nerved, sparsely stellate hairy above, wooly below, base cuneate, margin proximately entire, distally bidentate - biserrate, apex obtuse or truncate; petiole 2-5 mm. Stipules filiform. *Flowers* 2 cm across, solitary or in cymose clusters. *Calyx* tube 4 mm, nerves
prominent shortly stellate - pubescent, liobes 5, triangular. Petals 5, yellow to orange, oblique- rhomboid, 1 0.8 dm, emerginate. Staminal column to 4 m, hairy. Ovary spherical, 10 celled, styrar branches to 4 mm, hairy. Schizocarp 4 mm, not exceeding calyx prominently rugulose, mericarps 7-10, tomentose st apex

Common by the way side, wastelands; locally abundant in degraded forest areas

Flr. & Frts.: Throughout the year.

Vernacular name: Sonborial (As.)


Fig. 8.8 (plate 8).

Urena L.
Sp. Pl. 692. 1753.

Shrubs with stellite hairy branches. Leaves variable in shape and size, ovate to orbicular, lobed, or entire, cordate, coarsely serrate, hispid above, pubescent beneath, 3-7 nerved at the base; stipules lanceolate to obovate. Flowers axillary, solitary or in cluster of 2-3. Epicalyx shortly adnate to calyx at the base. Corolla pink, with a darker centre; petals tomentose outside, ovary 5-loculed with one ovule in each locule.

Under shrubs; branchlets stellate tomentose, intermingled with simple hairs. Lower leaves orbicular, shallowly lobed; upper ones angled, ovate or elliptic, with linear nectarines, stellate tomentose above, woolly below, chartaceous, base cordate- cuneate, margin crenate- dentate, 2-serate or serrulate, apex obtuse-acute; stipules lanceolate, scarious. Flowers axillary, 2-3 in a cluster or solitary; pedicel not jointed. Epicalyx segments 4, connate at base, triangular, equal to sepal, copular in fruit. Sepals 5, ovate. Petals 5, obovate, rose, stellate pubescent on outer surface, truncate, irregularly toothed or entire. Staminal column as long as petals, dentate at apex, antheriferous at upper half. Ovary 5-celled, stiff hirsute; ovule one per cell; style branched above the middle; stigmas capitate. Schizocarp globose; mericarps 5, 3-gonus; seeds reniform, angular, glabrescent.

Flr. & Frt.: November - January.

Growing in the moist foot hills along with Sida sp.


BOMBACACEAE

Deciduous trees sometimes armed with prickles. Leaves alternate, digitate, 5-9 foliate. Flowers clustered at the end of the branchlets, sometimes paired or solitary, 5-merous, bisexual. Calyx persistent or accrescent, irregularly 3-5 lobed, valvate. Petals 5, adnate to the base of staminal tube, contorted. Receptacle glandular. Stamens 5 or many, connate; anthers 1- celled, anfractuous, usually longitudinally dehiscent. Ovary superior, 5-celled; ovules many per cell on axile placentae; style
simple, stigma 5-lobulate. Capsule loculicidally dehiscent, 5-valvular, sometimes tardily dehiscing or indehiscent, valves with long, silky fibres; seeds many, glabrous.

Key to the genera:

1a. Armed; bark grey; branches not tiered. Flowers blood red, more than 10 cm across. Stamens many. Capsules scarce. Wild ... ... ... ... ... ... Bombax

1b. Unarmed; bark green; branches tiered. Flowers white, 3 or less than 3 cm across. Stamens 5. Capsules copious, green, clustered, pendulous. Introduced.

... ... ... ... ... Ceiba

**Bombax** L.
Sp. Pl. 511. 1753.

Large deciduous tree with prickles on stem, sometimes only young parts are armed with prickles in case of old aged plants; branches whorled, horizontal. Leaves 5-7-foliate, leaflets elliptic-lanceolate or oblong. Flowers large, 10-15 cm across, red, on leafless branches, solitary or paired or in clusters. Calyx leathery, calyx tube copular to campanulate, 2-5 lobed. Petals 5, obovate or oblong, adnate to the base of staminal tube. Stamens numerous in several whorls, basaly connate. Ovary ovoid, sericeous, 5 celled; ovules α per cell. Capsule oblong, loculicidal, valvular.

1824; Wight & Arn., Prodr. fl. Ind. orient. 61. 1834; Hook. f., FBI 1:349. 1874; Kanjilal et al., FA. 1: 147.1934.

Deciduous, majestic tree; branches horizontal, whorled, sharply prickled, branchlets warty, puberulous, and glabresent. Leaves 5-7-foliate, 12-15 cm; leaflets elliptic, lanceolate or oblong, terminal one large, basal one smaller, 5.5-12 × 1.5-4.5 cm, thin coriaceous, glabrous, 10-12 nerved; base cuneate, subacute, margin entire, apex acuminate, caudate, or acute; petiole 7.5-17 cm. Flowers 6-8 cm long, 10-15 cm across on leafless branches, solitary or paired or in clusters. Calyx tube copular or campanulate, to 1.5 cm, glabrescent, sericeous within; lobes 3-5, broadly ovate. Petals 5, blood red, oblong orobovate, 7-8 × 2.5-3.5 cm, adnate to the base of the staminal tube, stellate pubescent without, puberulous within, rotund – obtuse. Receptacle 1.5 mm, glandular. Stamens 14 whorls; two outer whorls 5-fascicled, with ca. 30 and 20 stamens; inner whorl longest, with 10 stamens; innermost with 5 stamens; filaments 4.5-6 cm, basally connate; anthers hippocretiform. Ovary ovoid, to 1×0.5 cm, 5 celled; ovules many per cell; style to 6 cm, glabrescent; stigma 5-lobulate. Capsule oblong, loculicidal, 5-valvular. Leaf fall: February – March. Flr.: March – May Frt.: April onwards

Wild and cultivated. Vern. Name: Simalu/ Simul (As.)

Uses: Cotton fibres are obtained from fruits, timber yielding, wood used for matches and other household purposes. Exudates from bark (after injury) are considered medicinal for diabetes, jaundice etc. locally.


Photo No. 9.2 (plate 9).
**Ceiba** P. Miller

Deciduous tree unarmed, bark almost green, branches whorled, horizontal. Leaves 5-9 foliate, leaflets elliptic, oblanceolate or oblong. Flowers in clusters at end of branches. Calyx tube campanulate, 4-5 lobed. Petals 5, white, obovate. Stamens 5. Ovary 5 celled; ovules α per cell. Capsule ellipsoid to fusiform, narrow.


**Tree**, deciduous, branches horizontal in whorls of three, clearly tiered. Leaves 5-9 foliate, 6-20 cm; leaflets usually oblanceolate, elliptic, or oblong, 4.5-15 ×1-5 cm, thin coriaceous, 12-15 nervled, prominent, base obtuse-cuneate, margin entire, apex subacute, acuminate; petiole 6-20 cm. Flowers clustered at the end of the branchlets; pedicel to 4.5 cm. Calyx tube campanulate, to 1 cm, glabrous without, softly sericeous within; lobes 4 or 5, triangular, 2.5. Petals 5, white, obovate. Staminal tube short. Stamens 5; anthers anfractuous. Ovary 5 celled; ovules α per cell. Capsule ellipsoid to fusiform, 12× 4 cm, narrow at the ends, indehiscent; valves with
silky fibres; seeds many, subglobose, 7×3 mm, glabrous. Fl.: January- April. Frt.: March onwards.

Introduced plant, cultivated in some pockets.

Vern. Name: Boga simalu/ Boga simul (As.)


**STERCULIACEAE**

*Trees* or *shrubs*, rarely *climbers*; branchlets usually stellate tomentose. *Leaves* alternate, simple or digitate. *Inflorescence* terminal and / or axillary of panicles, racemes or cymes, sometimes flowers solitary. *Flowers* bisexual or unisexual, regular, 5- merous. *Calyx* usually gamosepalous, segments 5, valvate, mostly persistent. *Petals* 5 or 0, adnate to staminal column at the base, valvate. Receptacle flat often raised into gynandrophone. *Stamens* 5 – α on the staminal column, often adnate to the gyanandrophone, rarely free; anthers two celled, divergent or parallel; staminodes 5 or 10, coordinate with stamens or 0. *Ovary* superior, usually 5-celled; ovules 2 or more per cell on axile placentae; style terminal, free or connate; stigma capitate or lobed; pistillodes present or 0. *Fruit* a loculicidal or septicidal capsule or follicle.

Key to the genera:


2a. Ovules 2 per cell. Follicles thin walled .. .. .. .. .. .. .. . *Firmiana*

2b. Ovules many per cell. Follicles woody .. .. .. .. .. .. .. .. . . .. *Sterculia*

1b. Shrubs or trees. Flowers bisexual. Carpels combined. Petals present.
3a. Shrubs. Seeds not winged. Leaves palmately lobed or angled

4a. Staminodes 5. Capsule cylindric. ........................................... Abroma

4b. Staminodes minute or 0. Capsule globose ................................ Melochia

3b. Trees. Seeds winged. Leaves not lobed. ..................................... Pterospermum

**Abroma** Jacq.
Hort. Vind. 3 t. 1. 1776.

Shrubs with velvety branches and fibres. Leaves ovate to lanceolate, more or less cordate or lobed. Inflorescence is pedunculate cyme. Petals imbricate, clawed. Staminal tube short, staminodes 5, alternating petals. Carpel 5 styled, ovary 5 lobed, ovules many in each cell. Capsule 5 angled, dehiscing septicidally and at the top.


Shrub up-to 8-12 ft. height, with horizontal branches and velvety branchlets.

Leaves 8-22 × 5-14 cm, ovate or lanceolate, more or less cordate, finely acuminate, membranous, entire or repand denticulate, sometimes lobed, glabrescent above, softly pubescent, or glabrescent beneath, 5-7 nerved at the base; petioles up to 10 cm, stipules 0.4 - 1 cm long, linear, lanceolate, deciduous. Flowers bisexual, purple, in pedunculate few flowered cymes. Sepals 10 cm, lanceolate, persistent. Petals imbricate caduceus with a concave claw. Staminal tube short, staminodes 5, alternating with shorter fertile stamens opposite to the petals. Ovary sessile, 5 lobed, pyramidal; ovules many in each cell; stles 5. Capsule 3-6 cm long, obpyramidal,
finely pubescent or ultimately glabrescent, truncate at the apex, membranous, 5 angled, dehiscing septicidally at the top, valves vilous at the edges forming a triangular wing behind each carpel. Seeds numerous. Flr. June-September. Frt. August-December.

Occurrence: Rare, found few plants in scrub forests

Vern. name: Gorokhia koroi / Bon kapahi (As.)

Use: The bark contains strong silky fibres which are used in various purposes; seeds are used in preparation of medicines for kidney disorders.


Photo No. 9.3 (plate 9).

Note: Vulnerable species. Reported from Nambor (Golaghat dist.), Baharjonai (Lakhimpur dist.), Garbhanga, Narakasur, Jalukbari (Kamrup dist.) and Mothanguri (Manas N.P.). Now, it is a new addition of occurrence recorded from the locality beyond Manas National Park from Lower Assam.

*Firmiana* Marsili


**Firmiana colorata** (Roxb.) R. Br., In Bennet et al., Pl. jav. rar. 235. 1844; Blatter et al., Beautiful Ind. Trees (ed.2) 79, 1954; Matthew, Fl. Tam. Car. 1: 142. 1983; Chowdhury et al., Ass. Fl. 194. 2005. **Sterculia colorata** Roxb., Fl. ind. 3:146. 1832; Hook. f., FBI 1:359. 1876; Prain, Bengal Plants 1: 274. 1903; Kanjilal et al., FA 1:151. 1934.

*Tree* with stellate-tomentose branches, deciduous, leaf scars persistent. *Leaves* apical on the branches, alternate, 3-5-lobed on saplings and slightly lobed or not on mature plants; stipules caducous, lanceolate. *Panicles* terminal, woolly. *Flowers* polygamous, about 2 cm long, densely covered with orange-red tomentum. *Calyx-tube* funnel-shaped, lobes short, acute or obtuse, tube about 1.5 cm long, tomentose without, woolly at base within. *Petals* absent. *Hermaphrodite flowers*: anthers 20-30, sessile on a long gynandrophyre. *Pistillodes* 5, free, concealed by anthers. *Ovary* oblong, 5-lobed, 5-celled; ovules 2 per cell; style short, recurved; stigma 5. *Male flowers*: staminal column about 0.5 cm long. *Follicles* 5, stipitate, oblong, thin-walled, pink outside, green inside, 5-8 cm long. *Seeds* 2-3 in each follicle, ovoid, compressed, light green.

Leaf less: December-March. Flr.: February-March. Frt.: March-May

Vern. name: Bohag odal / Jari odal / Kath-odla (As.), Odla-jela (Bodo)

Occurrence: A a large area is occupied by this species in Kalamati (Part of Manas Biosphere) along Indo-Bhutan border.

Coll. No.: Borah A. 502. Date: 8-3-2005. Locality: Bhairabchura PRF

Photo No. 9.4 (plate 9).
Melochia L.
Sp. Pl. 674. 1753.


Subshrub with branchlets stellate-tomentose. Leaves ovate-lanceolate, obscurely 3-lobed; 1.5-5×0.5-2.5 cm, chartaceous, basally acute; petiole 0.5-2.0 cm. Cymes terminal, capitate, subsessile; bracts and bracteoles linear, 2mm. Flowers bisexual, to 1cm across. Calyx tube copular, 2 mm; anthers parallel. Staminodes minute or absent. Ovary sessile, ovoid-oblong, pubescent, 5-celled; ovules 2 per cell on axile placentae; styles 5, united at the base, 1.5 mm. Capsule subglobose, loculicidally 5-valved; seed 1 per cell, ovoid, angular, 2mm. Flr.: August- November Frt.: Throughout the year.

Grows on moist plains, near rivers, ponds etc.

Vern. Name: Bon Morapat (As.)

**Pterospermum** Schreber

Gen. 2: 461. 1791 (nom. cons.)


An evergreen *tree* with broad crown and stellate-tomentose young parts. *Leaves* 16-30 ×12-24 cm, vary variable in size and shape, somewhat obliquely obovate or orbicular, often lobed, entire or remotely toothed, deeply cordate or peltate, coriaceous, glabrous and deep green above, grey or brownish tomentose beneath, palmately 8-10 nerved, petiole 8-24 cm, striate; stipules multifid. *Flowers* solitary or in 2-3 flowered cymes, 10-12 cm across, fragrant; peduncles 1 cm, bracteoles multifid, deciduous. *Calyx* segments 8-10 × 0.6-1 cm, linear, very fleshy, brown tomentose outside, tufted villous along the middle, stellate downy on the edges within. *Petals* a little shorter than the sepals, linear, white, and thin. *Filaments* 15, 2-3 cm long, filiform, glabrous, with a staminode, all forming a tube about 2 cm
long; anthers 1 cm. Ovary oblong, obscurely 5 angled; style simple, stigma club shaped, stillate tomentose towards the base. Capsule 8-12 × 4-7 cm, 5-celled, 5-angled, woody, brown tomentose. Seeds in two rows of 8-10 in each cell, rhomboid, compressed with a straight, oblong, thin, shining wing. Flr.: April- June Frt.: December- March.

Vern name: Hatipola/ Mota-morulia/ Bon-morla/ Larubandha/ Moragach (As.)

Photo No. 9.5 (plate 9).

**Sterculia L.**

Sp. Pl. 1007. 1753.

*Trees.* Leaves crowded apically on branchlets, alternate, simple, digitate or lobed, palmi- or penninerved. Penicles terminal or axillary. Flowers unisexual or polygamous, regular. Calyx-tube campanulate or copular; lobes 5. Petals 0. Receptacle elongate and terminating as gynandrophiore. Male flower: stamens 10 or more, sessile, clustered in the staminal column; anthers parallel; pistilodes obscure. Bisexual flowers: gynandrophiore distinct, shorter in male flower. Stamens 10. Ovary globose, 5-celled, distinct; ovules α per cell; styles connate at the base, often stellate-tomentose; stigma radiating. Follicles 5, woody; seeds smooth.


A moderate sized deciduous tree with a spreading crown; branchlets thick with large heart shaped scars of fallen leaves, more or less whorled on young trees. Bark grey outside, light red inside, fibrous. Young parts, petiole, inflorescence brown tomentose with stellate and spreading hairs intermixed. Leaves crowded at the
Photo No. 9.1: *Abelmoschus manihot* (L.) Medicus
ssp. *tetraphyllus* (Roxb. ex Horn.) Borss.

Photo No. 9.2: *Bombax ceiba* L.

Photo No. 9.3: *Abroma augusta* (L.) L. f.

Photo No. 9.4: *Firmiana colorata* (Roxb.) R. Br.

Photo No. 9.5: *Pterospermum acerifolium* (L.) Wild.

Photo No. 9.6: *Sterculia villosa* Roxb.
apex of the branchlets, simple, deeply 5-7 lobed, cordate, large, tender leaves light red; lobes oblong or ovate acuminate, with entire distantly toothed or lobed margins, glabrescent or covered with scattered stellate hairs, tomentose beneath; petiole long, minutely tomentose; stipules lanceolate, acuminate, caducous. Flowers dun-yellow, 0.5 cm across, in crowded drooping panicles from the end of the shoots; male flowers more than females. Calyx campanulate, membranous, stellate-pubescent outside, lobes short, acute, erect. Male flowers: staminal column with 10 anthers. Female flowers: about 0.4 cm long, ovary globose, stellately hairy, stamnodes in a ring beneath the ovary. Follicles 2-5, sessile, 4-7×2-3 cm, reddish brown and tomentose outside, scarlet and shining inside. Seeds 0.6×0.5 cm, oblong, oily, with a shining black aril. Leafless: December – April. New foliage: April onwards. Flr.: March-April. Frt.: April-June. Common in forests.

Vern name: Odal / Odala (As.), Odala-jela (Bodo)


Photo No. 9.6 (plate 9).

TILIACEAE

Trees, shrubs or herbs; usually with mucilaginous and fibres; branchlets with stellate or simple hairs. Leaves alternate, simple or lobed, stipules free, caducous. Inflorescence axillary, leaf-opposed, of cymes or racemes. Flowers pentamerous, bisexual. Calyx-tube campanulate, 5-lobed, valvate. Petals 5, inserted at the base of torus, often callose or glandular at base. Torus elongate or much condensed, often with tufted indumentum at the ends; androgynophore rarely present. Stamens 10 or
more, free, inserted at the torus. Ovary superior, 3-5 celled; ovules one, two or more per cell on axile placentae; style single, stigma capitate. Fruits drupes or capsules, loculicidal or indehiscent and separating into cocci; seeds one, 2 or many per cell.

Key to the genera:
1a. Trees or shrubs; fruit drupaceous ............................................ Grewia
1b. Herbs or undershrubs; fruit capsular:
   2a. Petals glandular at base; capsules prickly or bristly ............... Triumfetta
   2b. Petals not glandular; capsules unarmed ................................ Corchorus

Corchorus L.
Sp. Pl. 529. 1753.

Subshrubs or herbs; branchlets stellate pubescent. Leaves simple, serrate, lower pair of teeth appendaged. Cymes leaf-opposed or axillary, 2-5 flowered. Sepals 5, oblong, with a distinct mucro. Petals 5, yellow, eglandular. Stamens 10 to a per cell on axile placentae, style short; stigma capitate. Capsule oblong, ribbed or angled, rarely winged, with an entire or 3-fid beak, loculicidally 2-5 valved; seeds many, pendulous or horizontal.

Two cultivated species found in the study area-

1. Capsules globose, muricate and ridged, not beaked;
   cells not transversely septate ........................................ C. capsularis

2. Capsules elongate or narrow oblong, glabrous, 10 ribbed beaked; cells transversely septate ........................................ C. olitorius

Herbs, branchlets glabrous. Leaves lanceolate, chartaceous, glabrous or pubescent along nerves, base round, margin serrate, basal serrature appendaged, apex acuminate; stipules setaceous. Flowers ca. 8 mm across. Capsule subglobose, to 1 cm, not beaked, ridged, 5-valved; seeds smooth, ovoid, to 2 mm.

Cultivated during summer by most of the villagers either small or large quantity for fibres. Leaves bitter and used as tonic; dried leaves, called “Sokota”, are kept in households for medicinal purpose and as vegetable.

Vern. name: Mora pat (As.), Pata (Beng., As.)


Undershrubs, branchlets glabrous. Leaves oblong, ovate or lanceolate, base obtuse, margin serrulate, basal serrature appendaged, apex acuminate; stipules linear. Cymes leaf-opposed, 2-3 flowered; bracts and bracteoles filiform. Flowers ca. 5 mm across. Sepals 5, oblong. Petals 5, yellow, oblong, spatulate. Stamens many. Ovary 4-6-loculed. Capsule glabrous, terete, to 6 cm, beaked, 10 ribbed, septate between seeds; seeds 3-gonous; to 1.5 mm. Flr. & Frt.: Summer-Autmn.

Cultivated during summer.
Cultivated by most of the villagers for fibres, either small or large quantity. Leaves are mucilaginous, sweetish and are used as spinach.

Vern. name: Mora pat (As.), Pata (Beng., As.)

**Grewia** L.
Sp. Pl. 964. 1753.

*Shrubs or trees;* branchlets with stellate indumentum. *Leaves* usually simple, rarely lobed, coriaceous, stipules caducous, equal to or shorter than petiole. *Cymes* axillary, leaf-opposed or terminal, sometimes umbellate. *Flowers* usually bisexual, rarely polygamous. *Sepals* 5. *Petals* 5, apex emerginate or obtuse, rarely 2-lobed, base calllose and glandular, with dense tufts of hairs around. Torus often with discoid gland at base. Androgynophore rarely distinct. *Stamens* 5, free. *Ovary* 2-4-celled, densely wooly; ovules one or two per cell on axile placentae. *Fruit* a drupe, globose, usually 2-4 lobed, rarely entire.

Key to species:

1a. Undershrub with a thick underground root-stock and annual shoots; leaves broad, 5-nerved at the base; flowers yellow .................................. *G. sapida*

1b. Shrub; leaves narrow, 3-nerved at base; flowers white .................................. *G. multiflora*


Bushy shrub; dark brown out side, whitish inside, thin. *Leaves* variable in size and shape, irregularly distichous, 4- 10 cm × 1.5- 4 cm in size, elliptic-
lanceolate, acuminate, rounded or subacute at the base, glandular, serrate, chartaceous, glabrescent; petiole short; stipules 2.5-5 cm in length, subulate. Peduncles 1.5-2.0 cm long, 3-flowered. Flowers white, small; buds obovoid, ribbed. Sepals 1.2-1.5 cm long, linear-oblong. Petals half of the length of the sepals, entire. Filaments short. Gynophore glabrous with a fringe of hairs at the top. Drupe 1-4 lobed, 0.5 cm in across, globose, black or purplish, fleshy, glabrescent. Flr. & Frt.: August - September. Occurrence: Rare, found in hill slopes. Vern. name: Kukur-sita/ Kukur-suta (As.) Coll. No. Borah. A. 59. Date: 14/8/2002 Locality: Bhairabsura hill Use: As fodder for cattle.

Grewia sapida Roxb., Fl ind. 2: 432. 1832; Prain, Bengal plants 1: 284. 1903; Kanjilal et al., FA 1:164. 1934; Chowdhury et al., Ass. Fl. 196. 2005.

A prostrate undershrub with a woody perennial root-stock from which new shoots, leaves and flowers arise after the older one with associated grasses are burnt. Leaves 5-10×3-7 cm, ovate, obovate, obovate-oblong or orbicular, usually doubly serrate, sometimes lobed, apex rounded or broadly acute, pilose or scabrid above, softly pubescent beneath; base usually 5-nerved, oblique, petiole grey-shaggy, stipules subulate. Flowers 1-1.4 cm across, yellow, 2-5 on each peduncle; peduncle 2-5 in each leaf-axil, hairy. Sepals reddish brown inside, oblong or oblongate. Petals yellow, elliptic, entire, often emarginate at the apex. Drupe obscurely lobed, hirsute.

Common in open and dry up forest fringes especially near Manas Biosphere Reserve. Occurrence: Common
Vern. name: Phuhura / Phubura (As.)

Uses: A good fodder plant; ripe fruits are eaten.


_Triumfetta_ L.
Sp. Pl. 444. 1753.

_Subshrubs_; branchlets often stellate-tomentose. _Leaves_ simple or lobed, irregularly toothed; stipules linear, filiform. _Flowers_ axillary or leaf-opposed, in cymes or racemes. _Sepals_ 5, oblong, concave, apiculate. _Petals_ 5, yellow, glandular, thickened at base. _Torus_ short, lobed. _Stamens_ 5-15, free. _Ovary_ 5-celled; ovules 2 per cell on axile placentae; style filiform; stigma 2-5 dentate. _Capsule_ globose, with glabrous or pubescent, apically nerved prickles, indehiscent or separating into 5 cocci; seed(s) 1-2 per coccus, pendulous.

Key to the species:
1a. Leaves lobed; branchlets stellate-pubescent .......................... _T. rhomboidea_
1b. Leaves not lobed; branchlets densely hispid .............................. _T. pilosa_


_Subshrubs_; branchlets densely hispid and wooly. Lower leaves lobed, upper ones oblong, ovate or lanceolate, 6.5- 10.5 × 2.5-5 cm, basally 3-5 nerved, thin-coriaceous, stellate-tomentose above, wooly below, base obtuse or subcordate,
margin irregularly serrate, apex acuminate; petiole to 5 cm; stipules filiform. Cymes leaf-opposed, umbellate, ca. 5-flowered; bract subulate. *Flowers* 4 mm across. *Sepals* 5, oblong, 1.2 × 0.1 cm, beaked, stellate-pubescent. *Petals* 5, yellow, oblong or obovate, 8 × 3.5 mm, notched at apex, retuse, ciliate. *Stamens* ca. 10; filaments unequal. *Ovary* spherical, 4- or 5-celled; style to 1 cm; stigma 3-5-dentate. *Capsule* globose, 8 mm across; prickles to 7 mm, hispid. Flr. & Frt.: September - December.

Occurrence: Common, found in hill slopes

Vernacular name: Chota-Agara (As.)


*Undershrub; branchlets* stellate-pubescent. Lower *leaves* palmately lobed, upper ones rhomboid or narrow-lanceolate or elliptic, chartaceous, stellate-pubescent, base cuneate or truncate, margin 2-serrate, apex acuminate or acute; petiole to 5 cm, stipulate. *Cymes* leaf-opposed, bract linear. *Flower* 4 mm across. *Sepals* 5, oblong. *Petals* 5, yellow, obovate-oblong. *Stamens* 10-15, to 4 mm. *Ovary* spherical, 4-celled; stigma 2-4-fid. *Capsule* 3 mm across, stellate-tomentose; seed 1 per cell. Flr.: September - November. Frt: throughout the year.

Generally grows on plain areas like roadsides.

Vern. Namer: Choto agra (As.) Occurrence: Common

ELAEOCARPACEAE

Shrubs or trees. Leaves alternate, simple, sometimes purpled. Flowers in axillary racemes or in pairs, 5-merous, bisexual. Sepals 5, valvate, free. Petals 5, valvate, lacinate or entire, inserted outside the disc. Disc annular, sometimes cushion like, pilose. Stamens many, inserted on the disc; filaments free; anthers oblong or ovoid, sometimes bearded, often dehiscing by apical valves. Ovary superior, sometimes semi inferior, 3-5-celled; ovules two or more per cell on axile placentae; style columnar or 0. Fruit a 1-seeded drupe or many seeded berry.

Elaeocarpus L.

Sp. Pl. 515. 1753.

Trees. Leaves usually crenate or serrate and generally deep red when old. Flowers sometimes polygamous. Sepals 4-5, distinct, generally keeled within along the middle. Petals 4-5, disc glandular. Anthers dehiscing by a transverse slit at the apex. Ovules two in each cell of the ovary, pendulous. Drupe with a single horny tuberculate stone divided into 1-5 1-seeded cells. Seeds with hard testa.

Key to the species:

1a. Leaves oblong-lanceolate to elliptic, minutely crenate serrate, petioles continuous. Drupe globose . . . . . . . . . . . . . . . . . . . E. sphaericus

1b. Leaves ovate-elliptic; coarsely repand-serrate, petioles geniculate and swollen at apex. Drupe elongated . E. floribundus

Elaeocarpus floribundus Bl., Bijdr. Fl. Ned. Ind. 120. 1827; Prain, Bengal plants 1:287.1903; Kanjilal et al., FA 1:173. 1934; Chowdhury et al., 196.2005.
Tree with branchlets glabrous, buds silky. Leaves 7-15 cm × 3-6 cm, ovate-elliptic, bluntly acuminate, acute or cuneate, often rounded at base, coarsely repand-serrate, subcoriaceous, glabrous, blistered on both surfaces when dry, turning bright red before falling; petiole 2-5 cm long, glabrous, geniculate and with a pair of small glands at the apex. Racemes 11-15 cm long, from axills of fallen leaves, 20-30 flowered; rachis minutely puberulous-glabrescent. Flowers white, 0.7 cm across. Sepals 5, 0.5 cm long, lanceolate, blistered outside when dry, scarcely keeled inside, thickened and tomentose at the margins. Petals 5, as long as the sepals, triangular-cuneate, irregularly lacinate to varying depths into about 20-40 filiform processes, margins finely ciliate. Stamens 20-25, filaments very slender, about 0.1 cm long, anthers slender, slightly longer than the filaments. Disk, Ovary and base of the style silky villous. Fruit drupe, about 5 cm × 2.5 cm, oblong, smooth, flesh slightly acidic; stone 3-celled or by suppression of 2-ceeled, terete, tapering towards both ends, with fine furrows. Seeds about 2 cm long, spindle shaped.

Wild as well as cultivated for fruits throughout the area. Cultivated ones are with narrower leaves but with more fleshy fruits; wild ones with broader leaves and less fleshy fruit, harder than the former. Fl.: May - August Frt.: November - December.

Vernacular name: Jalphai (As.)

Use: Fruit is eaten fresh and use to prepare pickle, jelly etc.

Coll. No. Borah A 110. Date: 02/7/2002 Locality: Deuripara, Bongaigaon

Elaeocarpus sphaericus (Gaertn.) K. Schum. in Pfamilien. 3(6):5. 1890; Prain, Bengal plants; Comer in GBS 10: 326. 1939; Merrill in JAA 32:196.1951.

*Tree,* generally buttressed at the base, young parts silky puberulous, bark of the trunk grayish brown with white blotches. *Leaves* 7-14 × 2.5-5 cm, oblong-lanceolate or sometimes elliptic, acute or acuminate, minutely crenate serrate, almost glabrous, base acute; petiole 1cm-1.4 cm long. *Inflorescence* racemes, app. 7cm long, often drooping, from axils of fallen leaves. *Flowers* white, nodding, 0.7-1.3 cm across, pedicel 0.7-1cm long, silky. *Sepals* 0.5-0.6 cm long, linear-lanceolate, acuminate, silky canescent outside. *Petals* about 0.7 cm long, cuneate-oblong, pubescent along the margins near the base, laciniate one-third to half way down into 10-15 processes. *Stamens* many, filaments very short, one anther lobe is slightly larger than the other and bear fine white bristles at the apex, torus pubescent, wrinkled. *Ovary* normally 5-celled, silky villous. *Fruit* a drupe, 1.3-2.5 cm across, globose, deep blue and outside succulent when fully ripe; stone normally 5-celled, strongly tubercled and marked with longitudinal furrows and ridges. Fl.: May- June, Frt.: November - December.

Found cultivated in household campus, reportedly occurring in the forests.

Occurrence: Rare. Vernacular name: Rudrakhsha (As.)

Use: Nuts are used in worshiping the Lord Shiva, believed to have special merits

as per the number of cells in the nut.

Planted at Birjhora herbal garden at Birjhora College, Bongaigaon.
GERANIACEAE

Herbs, sometimes suffrutescent. Leaves simple and palmately lobed or dissected, or pinnate, opposite or alternate. Inflorescence usually cymose or sometimes umbellate. Flowers pentamerous, bracteate, bracteolate, bisexual, hypogynous. Sepals 5, free or rarely united, imbricate. Petals 5, free, alternate with sepals, imbricate, often alternating with nectariferous glands. Stamens 5-15, filaments united at base, anthers versatile. Gynoecium pentacarpellary, syncarpous. Ovary superior, 5-chambered with 1-2 ovules in each locule. Fruit capsular dehiscing into 1 to 2 seeded 3 to 5 mericarps.

Biophytum DC.
Prodr. 1:689, 1824.

Small un-branched herbs, without bulb. Leaves even pinnate, somewhat sensitive to touch; leaflets opposite, overlapping, inequilateral; petiole swollen and joint at the base. Flowers in terminal umbels, with involucrate bracts. Sepals free. Petals contorted. Stamens 10, with a short tube below. Ovary 5 lobed, 5 celled. Capsule loculicidal, 2-4 seeds per cell, ridged, arillate.


Small herbs; stem un-branched, erect, 5-10 cm high. Leaf rachis 2.5-4.0 cm long; leaflets usually bigger towards apices, obovate-oblong, upto 1.0×0.6 cm,
shortly apiculate, rounded and sub-sessile at base, inequilateral, glabrous, umbels 5-10 flowered; peduncles 3-6 cm. Flowers ca 6 mm across, yellow.

Flr. & Frt.: Almost round the year.

Growing on moist shady places associated with Adiantum caudatum, peperomia pellucida etc. Occurrence: Common


Photo No.: 10.1 (plate 10).

OXALIDACEAE

Small herb, often stemless and bulbous, usually prostrate, unbranched stem. Leaves pinnate; leaflets subcordate, sessile. Flowers small, pentamerous, bisexual, regular in axillary and/or terminal (pseudo) umbels. Sepals 5 free. Petals 5, connate at base. Stamens 5+5, outer ones short, opposite the petals; inner ones long, opposite the sepals; filaments fused at base. Ovary superior, 5 celled; ovule indefinite per cell; stigmas capitate. Fruit a capsule, oblong or ovoid, loculicidal. Seeds usually arillate.

Oxalis L.

Sp. Pl. 433, 1753.

Herbs, sometimes bulbous. Leaves digitate, radical or cauline; stipules membranous, adnate to the petiole. Flowers in pseudo umbels, usually 3-morphic, heterostylous. Sepals and petals 5 each, contorted. Stamens 5+5; outer ones short, opposite the petals; inner ones long, opposite the sepals; filaments fused at base.
Ovary superior, 5 celled; ovule indefinite per cell on axile placentas. Styles 5, distinct. Capsules with persistent valves.

Key to the species:

1a. Diffuse herbs with stems; without bulb. Flowers yellow. Leaves cauline, obcordate. ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ...
Gregarious weed of shady places. *Bulb* conical. *Leaves* digitately tri-foliate, leaflets obcordate, 3-4×2.5-3 cm, chartaceous, pilose, base cuneate, margin entire, apex emerginate; petiole up to 21 cm. *Flowers* rose, striate. *Frt.*: peak in January to April. *Frt.*: Throughout the year.

Occurrence: Common. **Vern. Name:** Bor tengesi sak (As)

**Use:** Used locally as vegetable along with other vegetables or with small fish and as medicine for common dysentery and in reducing high blood pressure.

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**AVERRHOACEAE**

*Trees.* *Leaves* alternate, odd-pinnate. *Panicles* axillary or directly on stems and branches. *Flowers* 5-merous; bisexual. *Sepals* 5, free. *Petals* 5, imbricate. *Stemans* 10; outer 5 short; inner long, sometimes only 5 fertile; filaments shortly connate at base. *Ovary* superior, 5-lobed, 5-celled; ovules indefinite per cell on axile placentae. *Berry* oblong with acute or obtuse ridges; seeds arillate or not.
**Averrhoa** L.
Sp. Pl. 428. 1753.

*Trees.* Leaflets sub opposite, 4-17 pairs, oblique, inequilateral; *stipules* 0. *Flowers* 5 merous, regular. *Stamens* 10, sometimes only 5 fertile. *Disc* 0. *Ovary* 5-celled; ovules indefinite per cell. *Berry* oblong.


*Tree*, branches downy pubescent. *Leaves* 12-17 cm; leaflets 4-5 pairs, sub-opposite, ovate or lanceolate, basal pairs smaller; upper ones abruptly larger; terminal pair largest, glabrous above, glaucous and pubescent on nerves below, base sub-acute or cuneate, margin entire, apex acuminate or caudate; petiole 1.5-2.0 cm. *Panicles* axillary, 4-12 cm. *Sepals* 5, oblong or ovate. *Petals* 5, dark purple, to 8 mm. *Stamens* 10, often 5-antheriferous, alternating with 5- stamnodes. *Ovary* oblong, to 5.5 mm; *styles* to 1.5 mm; *berry* oblong, with acute ridges.

*Flr.* – peak during February. *Frt.*- March onwards. Flowering and fruiting are found throughout the year in some individuals of this species.

Common in household gardens though also found as wild near fringe villages of forests, sometimes planted in social forest areas.

*Vern.* Name: Kordoi (As.)

Use: Used as medicine for Jaundice, urinary problems and high blood pressure; fruits edible, juices and pickles are prepared from this fruit.
BALSAMINACEAE

*Herbs* (rarely sub-shrubs) with succulent branchlets swollen at the nodes. *Leaves* simple, spiral, opposite or verticillate, extipulate. *Flowers* showy, irregular, resupinate. *Sepals* 3 to 5, imbricate; lower one large and spurred. *Petals* 5, upper dorsal free, often smaller; other four fused in lateral pairs. *Stamens* 5; filaments fused; anthers coherent and adnate to the ovary. *Ovary* superior, 5 or 4 celled; ovules a few to many per cell on axile placentae. *Capsule* fusiform, linear to clavate, loculicidally 5-valved, exploding when ripe; *seeds* tubercled.

*Impatiens* L.

Sp. Pl. 973.1753.

*Herbs*, rarely subshrubs. *Leaves* chartaceous; petiole often glanduliferous. *Inflorescence* usually a lateral raceme, sometimes umbellate or flowers in axillary clusters, sometimes solitary. *Sepals* 3-5; lateral green and small, lower one petaloid with a curved or straight spur. *Dorsal petal erect; lateral petals* united in pairs, each petal entire to 2-lobed. *Stamens* 5. *Ovary* 5-celled; ovules many per cell on axile placentae; stigma sessile, 5-toothed.

Succulent herb up to 80 cm; branchlets glabrescent. Leaves alternate, linear-lanceolate or elliptic, 4.5-7 × 1-3 cm, chartaceous, sparsely pubescent, base attenuate, margin serrate, apex acuminate; petiole about 5 mm; pedicel 1-2 cm. Sepals in two rows- lateral oblong or lanceolate, 3 mm; lower sepal 9×6 m; spur 3 cm, curved. Petals rose; dorsal one 1.5×1 cm; lateral united petals 1.5-2×1-1.5 c. Stamens 5; filaments 3 mm; anthers 1 mm. Ovary 2.5 mm, 5-celled; style 1 mm. capsule oblong or ellipsoid, 1 × 0.5 cm, tomentose; seeds ovoid, 2 mm, tubercled. 

Flr. & Frt.: More or less round the year but peak during October to January. 

Grows on damp, sunny or shady places; size varies much with places. Found at waysides, hill slopes wastelands etc. Occurrence: Common

Vernacular name: Kundol phul / Keru phul (As.). Use: Ornamental


RUTACEAE

Trees, shrubs, lianas, often armed. Leaves alternate compound, often dotted with oil glands; ex-stipulate. Inflorescence axillary or / and terminal racemes or cymes. Flowers tetra- or penta-merous, bi- or unisexual. Calyx short, 4 or 5-lobed. Sepals imbricate. Petals 4 or 5, free, sometimes basally connate, imbricate. Disc copular or annular, lobed or not, sometimes columnar or elongated, rarely obscure. Stamens as many as or twice as petals, sometimes inserted around disc; filaments free or sometimes connate. Ovary superior, 3-5 -celled, rarely more; ovules 1 or 2 or more per cell, collateral to superposed; stigma capitate or lobed. Fruit a berry, drupe, capsule or 1-4 capsular cocci; seeds compressed or not, sometimes winged.
Key to genera:

1a. Plants shrubs; unarmed

2a. Flowers in corymbose cymes. Ovary 2-celled

3a. Petals imbricate; cotyledons fleshy

Murraya

3b. Petals valvate; cotyledons leafy

Micromelum

2b. Flowers in panicles. Ovary 5-celled

Glycosmis

1b. Plants trees; usually armed

4a. Leaves 1-foliolate. Petioles winged. Fruit hesperidium

Citrus

4b. Leaves 3 or more-foliolate. Petioles not winged.

Aegle

Aegle Correa

Trans. Linn. Soc. London 5:222. 1800 (nom. cons.)


Armed deciduous tree; branchlets pubescent; spines axillary, straight, single or paired. Leaves 3-5 foliate; leaflets elliptic, lanceolate or oblong – obovate; terminal ones 4.5 × 2.5 cm, lateral ones 2.5 × 1 cm, chartaceous, glabrous, base cuneate or rounded, margin subcrenulate, apex obtuse, sometimes acuminate, retuse;
petiole about 2.5 cm. panicles axillary; peduncle to 1 cm; pedicel 2 mm, pubescent.

Flowers pentamerous, bisexual, 2.5 cm across. Calyx-tube copular, to 5mm; lobes 4 or 5, triangular. Petals 5, white, oblong, subequal, 0.6-1 cm, fleshy, spreading. Disc obscure. Stamens α, ca. 50; filaments to 3mm, basally subconnate.; anthers oblong, to 4 mm. Ovary ovoid, 10-15 celled; ovules α per cell; stigma subsessile, oblong.

Berry ovoid, 8 ×6 cm, woody; seeds α, oblong, embedded in a strong clear mucus mass of sweet aromatic mealy pulp.


Fl.: March to May Frt. Persistent, ripening by March next year.

Vernacular name: Bel (As.) the Bael tree (Eng.)

Use: The pulp of the ripe fruit is laxative; use as medicine, tonic etc.; unripe fruit either boiled or roasted is used as specific for diarrhea and dysentery. Leaves are febrifuge, used as heart strengthener traditionally, also as cattle fodder. Unripe fruits are sliced or roasted and dried and then are used to prepare “Bel-tea”. The plat is very important in Hindu worship.

Occurrence: Common in house hold, temple campus and in wild.


Citrus L.

Sp. Pl. 782. 1753.

Shrubs or small trees generally with sharp axillary spines. Leaves alternate, 1-foliate, coriaceous, pellucid, punctuate, aromatic; petiole often winged. Flowers fairly large, axillary, white or pinkish, sweet scented, solitary or in small cymes or
racemes; sometimes unisexual. *Calyx* cup shaped, 3-5 toothed. *Petals* 4-5, sometimes more, fleshy, gland dotted, imbricate in bud. *Disc* fleshy, annular or cup shaped. *Stamens* 20-60; filaments flattened at the base, usually united into several bundles. *Ovary* many celled; style stout, deciduous; ovules in two series in each cell. *Hesperidium* globose or oblong, fleshy, rind leathery, many celled with membranous septa, filled with transverse fusiform vescicles containing acid or sweet juice. *Seeds* few in each cell; testa leathery.


A bushy shrub with glabrous, somewhat angled young parts. *Spines* straight. *Leaves* 7-12 × 5-6 cm, elliptic-ovate, oblong-lanceolate or obovate rounded or with an obtuse apex, narrowed or cuneate at the base, crenulate-serrate, with translucent dots at the sinuses, chartaceous, aromatic, covered with translucent dots. Petiole 0.5-1 cm long, naked or very narrowly winged. *Flowers* white, tinged with light red, sweet scented, solitary or in a raceme. *Calyx* truncate or shallowly toothed. *Petals* linear-oblanceolate, gland dotted. *Stamens* 20-40, filaments reddish, pubescent. *Fruit* hesperidium, 6-12 × 4-8 cm, obovoid-oblong, often mamillate at the apex, very aromatic, yellow when ripe. Flr. & Frt.: Round the year.

Occurrence: Common along degraded forest streams. Also cultivated in the homesteads.

Vern. name: Jora tenga, Bakol-khowa tenga (As.)

Use: Fruit juice acidic, mesocarp white, sweet; sourness varies with habitat. The
fruit is eaten fresh or as pickle.

Coll. No.: Borah A. 241. Date: 16-8-2003. Locality: Kakoijana RF.

Some species of *Citrus* have been cultivated in some household gardens in villages for edible fruit. These are -


Young parts pubescent, bark grayish or greenish brown. *Leaflets* 5-15 × 2.5-6 cm, oblong or ovate-oblong, crenate, shining above, pubescent along the midrib beneath; petiole broadly winged, obovate or oblanceolate in shape. *Flowers* white, sweet scented. *Stamens* about 25; style short short, stigma capitate. *Fruit* 15-20 cm in diameter, globose or broadly pyriform, yellow when ripe; vescicles of pulp large, loose, fluid sour, rind thick, spongy, white inside.

Vern. name: Rabab tenga, Jamboora tenga (As.)

Use: fruit pulps eaten fresh.


*Small tree* with dark and dense foliage, *leaflets* smaller and narrower than *Citrus medica*; petiolar wing very narrow or absent. *Flowers* white, much smaller than *C. medica*. *Fruit* depressed globose, oblate, not mamillate, bright orange; pulp whitish, sour.

Vern name: Sumthira tenga (As.)

Use: Fruit pulp sometimes eaten, unpleasantly sour.

Vern.: Kaji nemu (As.)


Vern.: Tulia tenga / Gol nemu (As.)

C. reticulata Blanco, Fl. Filip. 610. 1837.

Vern.: Kamala (As.)

Glycosmis Correa


Trees or shrubs, unarmed, non aromatic. Leaves alternate or rarely opposite, imparipinate with up to 15 leaflets but usually 1-5 leaflets, entire or nearly so, rarely crenulate-subdenticulate, somewhat obscurely glandular-punctate; petioles usually joined. Inflorescence axillary or pseudo terminal, racemose or cymose. Flowers tetra- or pentamorous. Sepals and petals imbricate. Stamens 8 or 10; filaments unequal. Ovary ovoid to subconical or bottle shaped, 2-5 celled; ovules 1 or 2 per cell; style very short, persistent; stigma discoid-truncate, angular or slightly lobed. Gynophore usually evident. Fruit globose to ellipsoid, 1-2 seeded, a berry with glandular pericarp and thin flesh.

Evergreen bushy shrubs. Leaflets usually 5, petioles 0.5 cm, petiolules about 8 mm, oblong, lanceolate, crenate or serrulate, pale green below. Inflorescence axillary, elongated, dense. Flowers 5 mm long, pentamerous. Sepals ovate-rotund, margins ciliate. Petals obovate-elliptic, glandular. Stamens glabrous; 3 -4 mm, usually with a dorsal gland at the connective. Ovary 2-2.5 mm, 5-celled, style indistinct, stigma flat. Berries sub-globose, whitish, 1- seeded.


Vern name: Hengena poka (As.)


Photo No. 10.5 (plate 10).

**Micromelum** Bl.

Bijdr. 137. 1825, nom. cons.

*Shrubs or small trees. Leaflets 7-19, variable, usually obliquely ovate-lanceolate, acuminate, undulate-crenate, glabrous above, pubescent beneath. Flowers white, shortly pedicillate. Fruit dry berry.*


*Shrub or small tree* with thin rough bark. Leaves compound, 20-50 cm long, rachis terete, pubescent; leaflets 7-15, alternate, 4-15 cm × 3-6 cm, obliquely ovate-lanceolate, thinly coriaceous, glabrous above, tomentose or pubescent beneath along
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PLATE 10.

Photo No. 10.1: *Biophytum sensitivum* (L.) DC.
Photo No. 10.2: *Oxalis corniculata* L.

Photo No. 10.3: *Oxalis debilis* H.B.K.
Photo No. 10.4: *Averrhoa carambola* L.

Photo No. 10.5: *Glycosmis arborea* (Roxb.) Corr.
Photo No. 10.6: *Micromelum minutum* (Forst. f.) Wight & Arn.

A deciduous aromatic shrub with branchlets finely puberulent but glabrate. Leaves pinnate, up to 30 cm long, leaflets 15-25, oblique, oblong-lanceolate, 4 × 1.5 cm, often smaller. Inflorescence paniculate corymbose, dense, many flowered. Flowers small, white, fragrant. Sepals small, acute. Petals 5, white, 7-8 × 1.5-1.7 mm. Stamens 10, of which 5 longer, anthers short, oblong. Ovary glabrous, 1 mm long, style 4 mm, stigma discoid-capitate. Ovary 2-celled, seeds 1 per cell. Fruit subglobose, purplish-black when ripe. Leaf fall: December. New foliage: March. Flr.: Two seasons- Mar.-May and July – Aug. Frt.: April- May.

Grows on sun exposed slopes of foot hills also in plains.

Vern. Name: Narasingha (As.), Kari pata (Beng.)

Use: Leaves are used to flavour curry, considered digestive.


Handsome shrub. Leaf rachis glabrate; leaflets few, ovate to elliptic lanceolate, bluntly acuminate with notched tip, symmetrical, dark green, shining above. Flower few per inflorescence, milky white, sweet scented. Fruit berries, deep orange when ripe.
Commonly cultivates in the household gardens.

Vern name: Kamini, Kamini kanchan, Kamini kusum (as.)

**MELIACEAE**

Evergreen trees or shrubs. Leaves extipulate, alternate, pinnately compound, 3- or more foliate; leaflets opposite or alternate. Inflorescence axillary or terminal panicles, cymose. Flowers 4- or 5- merous, bisexual, actinomorphic, hypogynous. Calyx 4- or 5-lobed, often pubescent without, imbricate. Petals 3 – 5, usually free, valvate or imbricate. Disc annular, often prominent. Staminal tube copular, apically lobed; lobes 2-fid or shortly toothed. Stamens 5 – 10, anthers opposite or alternating with lobes. Ovary superior, 2 – 5-celled, ovules 2 or more per cell; style simple, sometimes absent; stigma often capitate. Fruit a berry, capsule or drupe; seeds sometimes winged.

Key to genera:

1a. Ovules many per cell; seeds winged:

   2a. Filaments connate into a cylindrical tube; disc absent .. .. **Chukrassia**

   2b. Filaments free; disc conspicuous .. .. .. .. .. .. .. .. .. **Toona**

1b. Ovules 1-2 per cell; seeds not winged:

   3a. Fruit drupaceous; leaflets serrated:

      4a. Leaves pinnate .. .. .. .. .. .. .. .. .. **Azadirechta**

      4b. Leaves 2-3 pinnate.. .. .. .. .. .. .. .. .. **Melia**

   3b. Fruit capsular; leaflets entire or nearly so .. .. .. .. .. .. **Dysoxylum**
Azadirachta A. H. L. Jussieu

Tree. Leaves pinnate, leaflets sub-opposite, serrate. Flowers 5-merous, bisexual, white. Fruit drupaceous. Seed one, ellipsoid.


Semi-evergreen Tree. Leaves odd- or even pinnate; leaflets 5- 7 pairs, subopposite, oblong-lanceolate, falcate, inequilateral, 4.5 – 7.5 x 1.5 – 2.5 cm, subcoriaceous, base oblique, cuneate, margin serrate, apex acuminate; petiole up to 5 cm, petiolule 2 mm. panicles axillary, bracteole scaly. Flowers 5-merous, bisexual, 8- 9 mm across. Calyx-lobes 5, ovate, connate at base. Petals 5, white, free, oblong-ovate, 5 x 1.5 mm, attenuate at base, tomentose, imbricate. Disc 0. Staminal tube 4 mm, glabrous, apically 10-lobed. Stamens 10, anthers slightly exserted, opposite to lobes. Ovary 3-celled; ovules 2 per cell, collateral; style to 3 mm; stigma terete, 3-lobed. Drupe oblong-ovoid, 1.5 x 0.5 cm; seed one, ellipsoid.


Cultivated as well as running wild. Occurrence: Common.

Vern. name : Maha Neem (As., Beng.)

Uses: Leaves and bark are used in treatment of skin diseases, stomach disorder, measles & poxes and to remove worms. Also uses in treatment of skin
diseases and wounds of domesticated animals. Leaves are kept hanged at
doors where measles infected persons dwell and believes to help in
prohibiting the disease from further spread.


**Chukrasia** A.H.L. Jussieu


*Trees. Leaves* even-pinnate; leaflets sub-opposite, margin entire, apex
acuminate. *Flowers* 4- or 5- merous, bisexual, cream. *Staminal tube* terete. *Ovary* 4-
celled, ovules many per cell. *Capsule* globose; seeds many.

Prodr., fl. Ind. orient. 123. 1834; Wight, III. Ind. Bot. t. 56. 1840; Hook. f., FBI. 1:
568. 1875; Gamble, Fl. Madras 1:186 (133). 1915; Matthew, Mat. Fl. Tam. Car. 1:
FA 1: 241. 1934.

Semi-evergreen tree with an extensive crown; branchlets lenticellate.

*Leaves* even-pinnate, 25 × 15 cm; leaflets 5-pairs, sub-opposite, ovate-lanceolate, 6-
11 × 4- 6 cm, coriaceous, glabrous above, rusty below, base oblique, obtuse, margin
entire, apex acuminate. *Petiole* to 5 cm, *petiolule* to 1 cm. *Panicles* terminal.
*Flowers* 4- or 5-merous, bisexual, 1.5 – 2 cm across. *Calyx* lobes 5, ovate, pubescent.
*Petals* 5, cream, oblong, obovate or spathulate, pubescent, contorted. *Disc* obscure.
*Staminal tube* terete, with short crenate lobes. *Stamens* 10; anthers exserted, linear, to
2 mm. *Ovary* stipitate, ovoid, 4-celled, pubescent, ovules many per cell, 2-seriate;
**stigma** capitate. **Capsule** globose, $5 \times 4$ cm, septifragal; seeds many, thin, broadly winged at base. Flr. & Frt.: April –June, again during September.

Occurrence: Rare. Vern. Name: Bogi poma (As.)

Uses: Wood is used as housing material.

Coll No. Borah, A. 121. Date: 11-3-2005. Locality: Shankarghola

**Dysoxylum** BL


*Trees* with a garlic like scent. *Leaves* pinnate; leaflets opposite, or alternate, entire, acuminate, more or less oblique at the base. *Flowers* hermaphrodite, in panicles of cymes. *Calyx* 4-5-fid, open. *Petals* 4-5, oblong, spreading. *Staminal column* cylindrical, toothed at the mouth. *Disc* tubular, surrounding the ovary. *Ovary* hairy, free, 3-4-celled, with 2 ovules per cell. *Capsule* pear shaped or globose, loculicidally 3-4-celled.

**Dysoxylum binectariferum** (Roxb.) Hook. f., 1: 546. 1875; Prain, Bengal Plants 1:315. 1903; Kanjilal et al., FA 1:232. 1934; Chowdhury et al., Ass. Fl. 201. 2005.

*Tree*, young parts pubescent. *Leaves* 30-45cm long, leaflets 6-8, alternate, 7-20 cm by 3.5-9 cm, obliquely ovate-oblong, sharply acuminate, entire or distantly toothed, glabrous, dark green. *Flowers* in panicles, pale-white, small, tetramerous. *Calyx* cup shaped. *Petals* valvate outside. *Disc* much exceeding the ovary. *Ovary* hairy. *Capsule* 5-7 cm long, globose, base narrow, smooth, pale-yellow at first but turning deep orange, 4-celled, 40seeded; *seeds* shining purple with a large yellow hilum; aril white. Fl.: April-May. Frt.: ripen in Winter
Occurrence: Found throughout the district, but not frequently.

Vern. name: Bandardima, Gendheli-Poma (As.)


**Melia L.**

Sp. Pl. 384. 1753


Deciduous tree. *Leaves* 2- or 3- pinnate, to 30 × 20 cm, with 3-5 secondary rachis; leaflets 1- 5 pairs, opposite, ovate-ovate or lanceolate, 4-6 × 1-4 cm, chartaceous, tomentose, base oblique, cuneate, margin serrate, apex acuminate; petiole to 14 cm; petiolule 1 cm. *Panicles* axillary. *Flowers* 1 cm across. *Calyx-lobes* 5, ovate, 1.5 mm, glabrescent. *Petals* 5, lilac, lanceolate – obovate, 8×3 mm, glabrescent, white tinged with purple. *Staminal tube* purple, 7 mm, puberulous, striate, 10-toothed. *Stamens* 10–12; anthers not exserted. *Ovary* ovoid, 1 mm, 5-celled; ovules 2 per cell; style attenuate. *Drupe* oblong, 2×1 cm, seed 1.
Fir.: January – March  Frt.: Ripening by August.

Found cultivated as well as wild. Occurrence: Common

Vern. name: Ghora neem (As.)

Uses: Leaves and barks are used in treatment of skin diseases, measles and pox, to kill worms. Leaves are good fodder for cow and goat but considered dangerous for pregnants.


**Toona** (Endlicher) M. J. Roemer


Large deciduous tree with a spreading crown; branchlets tomentose. **Leaves** even-pinnate, to 25 ×12 cm, leaflets 6 – 9 pairs, subopposite, oblong lanceolate, 7-10 × 2-3 cm, thin coriaceous, glabrous, base oblique, cuneate, margin antire-subundulate, apex acuminate. **Panicles** terminal or axillary. **Flowers** 5-merous, bisexual, 7-8 mm across. **Calyx**-lobes 5, ovate, 1 mm, ciliate. **Petals** 5, white, oblong, 5×3 mm, base attenuate, ciliate, imbricate. **Disc** thick, 5-lobed, pubescent. **Stamens** 5, free, inserted on top of the disc; filaments subulate, anthers oblong, versatile.
Ovary ovoid, pubescent, 5-celled; ovules 8 – 12 per cell, 2-seriate, pendulous; style short, stigma discoid. Capsule 3×1.5 cm, 5-valved; seeds 25-30, oblong, thin, winged at both ends. Leaf fall: December. New foliage: January – February. Flr.: February – March. Frt.: Ripening by August.

Found at hill slopes and plains also.


Vern. name: Poma / Lal poma (As.)

Use: Good quality timber is found from matured plants, use in all types of wooden work.

RHAMNACEAE

Trees, straggling shrubs or lianas, often armed. Leaves alternate to sub-opposite, simple, coriaceous, 3-5 nerved from the base; stipules small, subulate, or 0, sometimes modified into spines; spine usually solitary, recurved. Inflorescence usually in axillary cymes, sometimes in panicked spikes. Flowers pentamers, bisexual. Calyx-tube campanulate or turbinate; lobes 5, triangular-ovate, keeled within, valvate, persistent. Petals 5, rarely 0, free, obovate or spatulate, sessile or clawed, not exceeding calyx. Disc thin, copular, filling or lining the calyx, crenulate or entire. Stamens five, enclosed by petals. Ovary superior, immersed in disc, 1 – 4-celled; ovule usually 1 per cell; style simple, or 2-4-fid, stigma capitate. Drupe globose, rarely pyriform, crustaceous or woody, 2-4 celled; seeds 1-3.
**Zizyphus** P. Miller


Armed (except *Z. glabrata*) trees or shrubs. Leaves alternate, 3-5 nerved, coriaceous; pines stipular, recurved. Cymes axillary, usually in clusters. Calyx tube obconical; lobes 5, ovate-triangular, spreading, keeled within. Petals 5, rarely 0, obovate or spathulate. Disc 5-10-lobed, flat or pitted. Stamens 5, enclosed by petals. Ovary immersed and confluent with disc at base, 2-4-celled; ovule 1 per cell, erect; styles 2 or 3, connate to middle or free; stigma small. Drupe globose, 1-4 celled, crustaceous or woody, often rugose; seed 1-3.


Middle sized tree, stipular thorns erect or recurved. Leaves orbicular - rotund, 3- 6 × 2- 4 cm, basally 3-nerved, convergent, grey and glabrous above, rusty-tomentose below, base oblique, subcordate, margin glandular-denticulate, apex round, retuse; petiole 8-10 mm. Cymes axillary, in dense fascicles; peduncle much reduced. Flowers 5mm in across. Calyx-tube woolly, lobes ovate. Petals ovate, greenish, 1mm. Disc 10-lobed, grooved. Stamens 5, 1mm. Ovary embedded in disc, 2-celled; ovule 1; styles 2, connate to middle; stigma 2-fid. Drupe oblong-globose, 1-2.5 × 0.5-2 cm, rugose. Flr: July – November; Frt: October- December (sometimes lasts till April next.)
Common in plains, especially along the river banks, also cultivated.


Vern. name: Bogori (As.)

Uses: Ripe fruits are eaten fresh or make pickles.

**VITACEAE**

Tendril bearing *vines* to *lianas*, branches nodose. *Leaves* alternate, simple, angular-lobed, digitate or pedate, sometimes pinnate, often palmately nerved; stipules 2, usually deciduous. *Inflorescence* panicled or corymbose or umbellate cymes, peduncle sometimes tendril bearing. *Flowers* 4- or 5-merous, *bisexual* or *polygamo-monoecious* to *dioecious*. *Calyx*-tube copular; lobes 4-5, persistent. *Petals* 4 or 5, free or connate, valvate, caducous. *Disc* intrastaminal, annular or expanded. *Stamens* 4 or 5, opposite to petals, filaments subulate. *Ovary* superior, usually immersed in the disc. *Berry* indehiscent, seeds 1-4, rugulose.

Key to genera:

1a. Leaves simple, angular to lobed. Berries 1-seeded...

1b. Leaves 3-7-foliate. Berries 2-4-seeded

   2a. Stipules prominent. Seeds with deep pits...

   2b. Stipules obscure. Seeds with deep furrows...

Cissus

Cayratia

Tetrastigma
**Cayratia** A. L. Jussieu

Dict. Sci. Nat. 10 :103. 1818 (nom. cons)

Vines or lianas. Leaves pedately 3-7-foliate; stipules 2, distinct; tendrils leaf-opposed. Cymes axillary, corymbose, divaricate. Flowers 4-merous, bisexual. Calyx-tube copular, obscurely lobed. Petals 4, valvate, corniculate, cucullate within. Disc angular, thin, sometimes 4-lobed, adnate to ovary. Stamens 4, inserted around disc. Ovary 2-celled, ovules 2 per cell. Berry 2-4-seeded; seeds pitted, pyriform or oblong, angular.


A climber with soft stem become flattened at age; young parts pubescent, shots striate. Tendrils usually branched. Leaves usually 3-foliate, sometimes 2- or 1-foliate by reduction; petiole 2-10 cm long, stipules scarious. Leaflets 5- 14 by 2- 10 cm long, terminal being largest, lateral smaller, usually oblique, sometimes lobed, ovate-elliptic, acute, base cuneate or rounded, coarsely toothed. Inflorescence leaf-opposed or axillary, long peduncled, compound. Flowers small, bisexual, tetramerous, greenish. Calyx subtruncate. Petals free, hooded at the tips, white. Berry obovoid or globose, apex depressed. Seeds trigonous.

Flr.: September – November Frt.: January- February

Commonly grows near water bodies, climb over bushes, trees etc.

Vern. name: Nal tenga (As.). Occurrence: Common

Uses: Tender shoots and young leaves are eaten as vegetable by Bodos.

*Cissus* L.

Sp. Pl. 117. 1753.

*Vines.* Leaves simple, rarely angular or lobed or 3-foliate; stipules caduceus; tendrils leaf-opposed, umbellate. *Flowers* 4-merous, bisexual. Calyx-tube copular, entire or 4-lobed. Petals 4, ovate, valvate, calyptrate at first, afterwards separating. Disc 4-lobed, basally enveloping ovary. Stamens 4. Ovary 2-celled; ovules 2 per cell; style subulate, stigma small. Berry fleshy, globose to pyriform; seed solitary.


Rambling shrub; stem 4-angular, glabrous, winged or margined, contracted at the nodes. Leaves simple, early-caducous, ovate-suborbicular or subreniform, 3 × 3 cm, thick coriaceous, apex and base round, margin serrate; tendrils stout. Cymes umbellate; to 4 cm, peduncle ca. 4-branched; bracts and bracteoles round, to 1 mm. *Flowers* 7 mm across. Calyx-tube obscurely 4-lobed. Petals 4, greenish-yellow, red-tipped, ovate. Disc 4-lobed. Stamens 4; filaments 2mm. Ovary 2-celled; ovules 2 per cell, style short. Berry globose, small, seed smooth.

Fir. & Frts.: Throughout the year.
Found wild in scrub forests as well as cultivated in household gardens.

Vern. name: Harjora (As.)

Uses: The stems are used in treatment of bone fracture for human and domestic animals. The plant is also cultivated for ornamental purposes.


*Tetrastigma* (Miq.) Planch.
in Alph. de Candolle et A.C. de Candolle
Monogr. Phan. 5: 320, 423. 1887.


A slender vine with reddish, woody stem. Leaves 3-foliate; common petiole slightly swollen at the base. *Leaflets* 5-12 by 3-6 cm, ovate or ovate-lanceolate, lateral somewhat oblique, acute or acuminate, distantly cuspidate or serrate, thinly coriaceous, glabrous, main lateral nerves 5-10 on either side. *Inflorescence* axillary, upto 10 cm long, panicled. *Flowers* tetramerous, dioecious, whitish, very small on filiform pedicels. *Petals* distinct. *Stigma* 4-lobed. *Berry* small, globose black when ripe. *Seeds* more or less horizontally wrinkled.
Flr.: September – November. Frt.: January- February

Commonly grows near water bodies, climb over bushes, trees etc.

Vern. name: Nal tenga (As.)

Uses: Tender shoots and young leaves are eaten as vegetable by Bodos and Mishings.


LEEACEAE

Shrubs. Leaves alternate, often 2-3-pinnate; leaflets odd-pinnate; petiole dilated at base; stipules sheathing, adnate to petiole, amplexicaul. Cymes leaf-opposed, corymbose, divaricate. Flowers 5-merous, bisexual, regular. Calyx-tube campanulate; lobes 5, valvate. Petals 5, base shortly connate, valvate. Staminal-tube 5-lobed. Stamens 5; filaments inserted between lobes. Ovary superior, inserted on the disc, 3-6-celled; ovule 1 per cell; style subulate, stigma capitate. Berry depressed, globose, 3-6-seeded.

Leea D. van Royen ex L.

Syst. Nat. ed. 12. 2: 627. 1767;
Mant. 17, 124. 1767 (nom. cons.)

Shrubs or subshrubs or lianas or stragglers. Leaves pinnate, leaflets 2-5 paired or odd-pinnate, opposite, oblong to lanceolate, margin dentate or serrate. Inflorescence lateral cymes, corymbose. Calyx-tube 5-lobed. Petals 5, spreading. Stamens 5, filaments short. Ovary 5-6-celled. Fruit a berry.
Key to species:

1a. Stem, branches, peduncles and petioles with crisped wings.. . . . L. asiatica

1b. Plants not with crisped wings:

2a. Leaves 1-pinnate; leaflets sessile...... L. alata

2b. Leaves 2-3-pinate.............. L. indica


A large undershrub, ca 1 m tall. Leaves simple imparipinnate; rachis margined; petiole winged; leaflets 5-7, sessile, oblong or oblong-lanceolate, 15-20×2.5-3.5 cm, more or less rounded at base, acute at apex, sharply serrate at margins. Peduncle ca 10 cm long. Flowers red, many. Fruits red, turning bluish purple when ripening. Flr. & Frt.: June-October.

Commonly grows in grass lands and open areas, prefers sandy soil with pebbles.

Vern. name: Kath-thegiya, Bon Ou (As.), Asora jola (Bodo)

Coll. No. Borah A. 470. Date: 23/3/05 Locality: Chapaguri

Fig. 11.a (plate 11)

herbacea Ham. in Trans Linn Soc. 220: 36. 1846; Brandis, Indian Trees 180. 1906.

Annual, gregarious under-shrubs or stragglers, 1-2 mtr high, grows from a perennial rootstock. Stem and leaf rachis with crisped wings, young parts pubescent. Leaves compound, leaflets 5, 10-15 × 3.5-8.0 cm, oblong-lanceolate, apex acuminate, margin dentate-serrate, base rounded. Inflorescence corymbose, 3-5 cm long, axillary. Calyx 5-sepalous, free. Petals 5, pale yellow, imbricate or valvate, free. Stamens 5, anthers distinct. Fruit small, glabrous, steel-grey when ripe, 5-6-seeded. New shoot & foliage: February- March. Flr.: July- August.

Frt.: October- December

Grows on grasslands, open areas like bank of rivers etc.

Vern. Name: Ou lota (As.)
Coll. No.: Borah A.528 Date: 26-3-2006 Locality: Kalamati (Manas)
Fig. 11.b (plate 11)


Sub-shrub with branchlets puberulous. Leaves bi- or tri-pinnate, pinnae 3-paired; leaflets odd-pinnate, 2-5 paired, opposite, oblong-lanceolate, sometimes
Fig. A. *Leea acuminata* Wall. ex Cl.  

Fig. B. *Leea asiatica* (L.) Ridsale
ovate; 5-15 × 3-5 cm, thin- coriaceous, mid nerve prominent below, glabrous above, base obtuse-subacute, margin dentate-serrate, apex acuminate; petiole 4-10 cm; stipule amplexicaul, adnate to petiole, deciduous. Cymes lateral or leaf-opposed, corymbose, divaricate; bracts deciduous. Flowers about 6cm across. Calyx-tube campanulate, pubescent without; lobes 5, triangular. Petals 5, greenish-white, ovate, about 2.5 mm, spreading. Staminal tube 5-lobed, retuse. Stamens 5; filaments 0.3-0.5 mm. Ovary 6-celled; ovule 1 per cell, erect; style short, stigma capitate. Berry globose, depressed; pyrenes 5 or 6, small, 1-seeded.

Common along hill slopes, emerge from a shrubby massive base.

Flr: peak during April- May and October- November. Frt.: throughout the year

Vern. name: Kukura-thengiya (As.)


SAPINDACEAE

Shrubs, trees or climbers. Leaves alternate, even-pinnate, rarely simple or 2-ternate; leaflets (sub) opposite, coriaceous usually; exstipulate. Inflorescence in axillary or terminal corymbose racemes or panicles. Flowers 4- or 5-merous, polygamo-dioecious. Sepals 4 or 5, generally connate at base, imbricate or rarely valvate. Petals 4 or 5, rarely 0, sometimes biseriate, imbricate, equal or unequal, clawed, inside often with basal scales or with hairy tufts. Disc pubescent, glabrous or glandular, lobed, wavy. Stamens 8-10, usually arising from inside the disc or behind it in irregular flowers; filaments pilose or glabrous, equal or unequal, free, sometimes basally connate; pistilode present in male flowers. Ovary superior, 2-3-celled, ovules
1 or 2 per cell on axile placentae; style terminal; stigma 1-3-lobed or with stigmatic lines. Fruit a loculicidal capsule, rarely winged, sometimes indehiscent schizocarp or drupe; seeds arillate or not.

Key to genera:
1. Vine. Leaves 2-ternate. Fruit a capsule ........................................... Cardiospermum
2. Tree. Leaves even-pinnate. Fruit a drupe. ................................................ Sapindus

Cardiospermum L.
Sp. Pl. 366. 1753.

Herbaceous vine; branchlets pubescent. Leaves 2-ternate; leaflets ovate-lanceolate, pubescent or glabrous. Flowers in axillary, corymbose racemes, irregular; basal branches tendriled. Sepals 2+2, concave; outer pair small, inner one large. Petals 2+2; upper pair with supra-basal scale; lower pair with crested or 2-fid, hairy appendage. Disc unilateral with 2 glands, opposite to lower petals. Stamens 8, excentric; filaments unequal, pilose, basally connate. Ovary 3-celled; ovule 1 per cell; style short; stigma 3-lobed. Capsule globose, 3-lobed; seeds 3, globose.


Branchlets sparsely puberulous. Leaves 5.5-8 cm; leaflets ovate-lanceolate, 2.5-3.5 × 1-2 cm, membranous, almost glabrous, base obtuse, slightly decurrent, margin incised, apex acuminata, apiculate; petiole to 3 cm; petiolule to 2 mm. racemes
axillary, to 2 cm; peduncle about 8 cm. Male flower: outer sepals sub-orbicular, to 1 mm; inner ones oblong-obovalate, 2.5 m. Petals 2+2, white; upper ones oblong, to 3.5 mm, basal scale to 2 mm; lower ones oblong, 2.5 mm, basal scale to 1 mm, apical crests puberulous. Stamens 8; filaments 1.5-2 mm, pilose. Bisexual flower: stamens 8; filaments 1-1.5 m, densely pilose. Ovary oblong, 2.5 mm, 3-celled, pubescent; ovule per cell; stigma shortly 3-fid, sessile. Capsule sharply 3-lobed, not bloated, 1.5×2 cm, winged at angles, pubescent.

Flr. & Frt.: Peak during November – March.

Found near Railways, drains etc. in the plain areas.

Vern. name: Kopal Phuta Bon (As.)

Coll. No. Borah A. 136. Date: 03-03-2001 Locality: Chaprakata

Photo No. 12.1 (plate 12).

\textit{Sapindus L.}

Sp. Pl. 367. 1753.


A tall deciduous tree with a crown at the apex. Leaves paripinnate, 30-50 cm long, common petiole very narrowly bordered. Leaflets 10-20, alternate, even opposite or sub-opposite, 8-15 cm x 2-5 cm, gradually smaller towards the apex of the rachis, lanceolate or oblong, entire, acuminate. Inflorescence a compound terminal panicle, 30 cm or more in length, branched. Flowers small, polygamous. Calyx lobes 4-5, unequal, ciliate. Petals 5, with a wooly scale. Stamens 8, inserted at the centre of the annular disc, filaments wooly. Ovary 3-cornered, 3-celled, ovule solitary. Fruit a globose fleshy one seeded drupe; pericarp and endocarp saponaceous, wrinkled and somewhat translucent when dry; seed globose, black, testa crustaceous. Flr.: May-June; Frt.: October-January

A cultivated plant but also as escape in the forest fringes.

Vern.name: Ritha, Manisal (As.)

Uses: The fruit cover is used as substitute for soap and especially used to wash golden ornaments and hair.

In addition to the above species, following two are also found in cultivated in the study area:


A small tree with much branch. Leaves even pinnate, leaflets long, opposite, glaucous above. Panicles terminal; flowers small, creamy-white. Fruit drupe, almost globose, arillate, aril thin.
Vern. name: Kath lisu / Naga lisu (As.)

Use: Aril of the ripe fruits are eaten fresh.

Photo No. 12.2 (Plate 12)


The commercial litchi plant.

Vern.: Lesu / lisu (As.). Photo No. 12.3 (plate 12)

**HIPPOCASTANACEAE**


*Aesculus* L.

Syst. ed. II. 22. 1740.

Shrub or trees. Leaves digitately pinnate or palmate; leaflets 3-5 or more. Flowers irregular in panicles or cymes, terminal. Calyx tubular. Petals usually 5, clawed. Stamens 5-7, free or joint. Disc uni- or multilateral. Ovary superior, 3-celled. Fruit a capsule.

A. punduana Wall. Kanjilal et al., FA 1: 313. 1934.

A small or middle-sized semi-evergreen tree with spreading branches and scaly buds. Leaves opposite, exstipulate, digitate; common petiole 16- 30 cm long, terete, glabrescent. Leaflets 5-7, gradually smaller from the terminal, 12- 35× 5- 12 cm, oblanceolate, acuminate, finely serrulate, subcoriaceous, glabrous; base acute; petiolules flattened above. Flowers irregular, white, in large thyrsoid panicles of peduncled cymes. Panicles up to 60 cm long, dun-pubescent when young; pedicels gradually shorter upward. Calyx tubular, lobes 5, imbricate. Petals 4, white, unequal, clawed, externally pubescent, often with a yellow spot at the base. Stamens usually 7, free, much exserted. Disc unilateral. Ovary 3-celled, brown, ovoid or obovoid. Capsule 5-8 cm long, loculicidal, valves 2-3 in each cell. Seed long, one in each cell.

Flr.: January- March Frt.: April- July

Common along streams in evergreen or semi-evergreen patches of deciduous forests.

Vern.name: Raman bih/ Ai-kuhiah (As.), Khankher khola (Bodo)

Uses: Barks are used in fish poisoning


Photo No.12.4 (plate 12)

ANACARDIACEAE

Trees or shrubs. Leaves exstipulate, alternate, simple, 3-foliate or pinnately compound. Panicles or racemes terminal and/ or axillary, rarely pendulous; bracts
and bracteoles caducous; pedicels rarely jointed. *Flowers* 4- or 5-merous, unisexual (male) or bisexual (polygamodioecious or monoecious). *Calyx* lobes 4 or 5, imbricate, caduceus or persistent. *Petals* 4 or 5, imbricate or valvate, reflexed. *Disc* thick, annular or copular, rarely crenate, often lobed. *Stamens* as many or twice as many as petals, filaments usually free; anthers dorsi- or basifixed. *Ovary* superior, connate with disc, 1-5-celled, or rarely carpels free, usually only one fertile; ovule one per cell, pendulous, on sub-basal funicle; styles 1-5, terminal. Lateral or excentric, free; stigma simple, minute or capitate; pistillode distinct or rudimentary. *Drupe* indehiscent, sometimes attached to fleshy hypocarp.

Key to genera:

1a. Stone 1-celled, 1-seeded, compressed:
   2a. Leaves simple:
       3a. Receptacle of fruit enlarged and fleshy .......... *Semecarpus*
       3b. Receptacle of fruit not enlarged .......... *Mangifera*
   2b. Leaves compound, imparipinnate .......... *Lannea*

1b. Stone 1-5-celled, not compressed:
   4a. Leaflets broad, abruptly acuminate, always entire with a strong intramarginal nerve .......... *Spondias*
   4b. Leaflets narrow, tapering acuminate, serrate at young stage with no intramarginal nerve .......... *Choerospondias*

*Choerospondias* Desr. Ampl

10-lobed. *Ovary* 5-celled. *Drupe* oblong, stone horny, shallow-pitted all over with 5 prominent depressions at the top, 5-celled.


Tree with greenish-brown, shiny bark having warts on young plants and with reticulate fissured and splitting in thin long strips on old stems. *Leaves* 24-40 cm long, leaflets 7-17, opposite, 5-10 by 1.5-3 cm, ovate-lanceolate or oblong-lanceolate, caudate or acuminate, base cuneate to rounded, oblique on the leaflets, serrate on young plants. Main lateral nerves are jointed by intramarginal tertiary nerves. *Flowers* polygamous pentamerous, greenish white. Male flowers: on axillary or extra axillary panicles, branches slender. *Calyx* cup shaped, ciliate. *Calyx* subulate, short; pistilode absent. *Hermaphrodite* flower: solitary on stout peduncles; *Stamens* 10, disk annular, 10-lobed. *Ovary* 5 celled with 5 ovules. *Drupe* 2.5-3 × 2 cm, yellow when ripe, acidic taste. Flr.: February-March. Frt.: July-December.

Occurrence: Locally rare. Vern. name: Hamoi tenga / Mith-amara (As.)

Uses: The fruit is eaten fresh and make pickles; sometimes the bark is also chews as substitute of areca nut.

Coll. No.: Borah A. 311. Date: 7-11-2004 Locality: Bijni
Lannea A. Richard in J.B.A. Guillemin et al.

Fl. Seneg. Tent. 153. 1831 (nom. cons.).

Deciduous Tree. Leaves odd-pinnate; leaflets opposite. Racemes terminal.

Flowers unisexual or bisexual. Stamens 8. Ovary 1-celled. Fruit Drupe.


Deciduous Tree with stellate-tomentose apical branchlets. Leaves odd-pinnate, 20- 40 cm; leaflets opposite, 5 pairs, oblong-lanceolate, 5- 10 cm × 3-4 cm, chartaceous, unequal, base obtuse, oblique, margin entire, apex attenuate. Racemes terminal, pendulous. Flowers unisexual or bisexual. Male flower: about 4 cm across. Calyx-lobes 4, 1 mm, imbricate, persistent. Petals 4, lanceolate, imbricate, reflexed. Disc annular, 8-lobed. Stamens 8, fertile, inserted below disc; filaments free; pistillode 4-lobed, with 4 styles and minute ovary. Bisexual flower: about 8 mm across. Stamens 8, anthers ovoid, sterile. Ovary 1-celled, 4 mm; styles 4, distant; stigma peltate. Drupe ovoid or obovoid, to 1 cm. Leaf- fall: January- March. Flr.: On leafless branchlets - March- April. Frt.: April onwards. Common in plains and hill-slopes.

Vern. name: Jia / Jia poma (As.)

Uses: Timber for housing material and furnitures. Leaves are good fodder for cow, buffalo and elephant.

*Mangifera* L.


Flr.: January to March Frt.: Ripening by June-July

Cultivated in the household campus but often found to grow in wild on road sides, sacred groves etc. Occurrence: Common.
Vern. name: Aam (As.)

Uses: Fruits are eaten fresh; also pickles are prepared from it. The leaves are used in decorating doors, windows etc. during holly festivals and marriage ceremony. The wood has been using in “Hom Jagya” in Hindu religious activities. Leaves are god fodder for cattle. The acrid juice from the tender fruits is used to kill worms attacking domesticated animals.


Semecarpus L.

Suppl. 25, 182. 1781.


Deciduous trees with milky latex. Leaves simple, elliptic-oblong or ovate, sub-acute or rounded at both ends, 20-50×10-32 cm, scabrid or glabrate above, tomentose and whitish beneath; petioles stout, 2.5-5.0 cm long. Panicles terminal. Flowers unisexual, sometimes bisexual. Male flower: 6-8 mm across. Calyx-lobes 5, valvate. Petals 5, greenish, 3 mm, imbricate. Disc annular, lobed. Stamens 10, fertile, free. Pistillode hairy. Bisexual flower: Ovary 1-celled, styles 3, free. Drupe globose-ovoid, reniform, 2-3 ×2.5-3 cm, hypocop fleshy. Flr: July-September Frt.: Ripening black by March

Common along hill slopes and scrub forests.
Vem. name: Borbhela / Bhela (As)

Uses: Rabha people use to worship the plant when they suffer from skin diseases for long duration.

Coll. No. Borah. A. 69. Date: 12/03/2001 Locality: Shankarghola

Photo No. 12.5 (plate 12).

**Spondias L.**

Sp.Pl. 371. 1753.

Trees. Leaves imparipinnate, usually crowded at the ends of the branches; leaflets opposite or sub-opposite. Flowers small, polygamous, generally in large terminal panicles. Calyx 4-5-fid. Petals 4-6, sub-valvate, spreading. Disc cup shaped. Stamens 8-10, inferior. Ovary superior, 4-6-celled, single ovuled. Drupe large, fleshy.


Deciduous Tree. Leaves odd-pinnate, 15-20 cm; leaflets opposite, 3-6 pairs, oblong-ovate, coriaceous, base obtuse-subacute, margin entire, apex acuminate. Inflorescence terminal or rarely axillary panicles. Flowers bisexual or unisexual. Male flower: 5 mm across. Calyx lobes 5, caduceus. Petals 5, yellow, ovate, valvate, 2 mm. disc copular, 10-crenate. Stamens 10, inserted below disc, filaments 1mm,
PLATE 12

Photo No. 12.1: Cardiospermum halicacabum L.

Photo No. 12.3: Litchi chinensis Sonner.

Photo No. 12.5: Semecarpus anacardium L.

Photo No. 12.6: Spondias pinnata (L.f.) Kurz.

Photo No. 12.2: Dimocarpus longan Lour.

Photo No. 12.4: Aesculus assamica Griff.
free; pisillode with 5-fid styles. Bisexual: ovary 5-celed; styles 5, connivent. Drupe oblong-ovoid.

Leaf fall: January. New foliage: March - April.

Fir: February - March, Frt.: maturing by June onwards

Cultivated and wild along road sides, scrub forests etc.

Vern. name: Amara (As).

Uses: Fruits are eaten fresh as well as prickles are prepared.

Photo No. 12.6 (plate 12).

MORINGACEAE


Moringa Adanson

Fam. 2: 318. 1763.

elongate, terete, torulose, angled, beaked, loculicidally 3-valved; seeds a, 3-angled, 3-winged.


A middle sized deciduous _tree_ with whitish, rough bark. _Leaves_ 3-pinnate; 30- 50 cm long, petiole sheathing at the base; pinnae 4-6 pairs, opposite; pinnule 6-9 pairs, opposite; the uppermost pair 1-foliolate; a hairy gland is present between each pair of pinnae and pinnule. _Leaflets_ 0.5- 2 cm long, ovate or elliptic, entire, apically rotund, nerves obscure. _Flowers_ 2.5 cm across, scented. _Sepals_ petaloid, linear, lanceolate, reflexed. _Petals_ linear, spathulate, white with yellow dots near base. _Filaments_ villous. _Ovary_ hairy. Fruit capsule, long, 3-gonous, longitudinally ribbed. _Seeds_ winged along the corners. Leaf fall: December. New leaves: by April.

Flr.: January – February. Frt.: February- April

Cultivated for the fruit; sometimes found grow wild at homestead forests, picnic spots etc.

Vern. name: Sojina (As.), Sojona (Beng.)

Use: young capsules are eaten fried. Sometimes leaves are also eaten as curry.

PAPILIONACÉEAE

*Herbs, sub-shrubs, shrubs, stragglers or lianas* and trees. Leaves alternate, generally compound, often odd pinnate, or 1-3-foliate, rarely simple, usually stipulate, pulvinous. *Inflorescence* terminal or axillary racemes, panicles, umbels, spikes or few flowered clusters. *Flowers* zygomorphic, bisexual. *Calyx* tube usually campanulate; lobes 5, unequal, imbricate or valvate. *Corolla* pailionaceous; *petals* 5, imbricate; the upper exterior forming the standard (vaxillum), the lateral wings, lower two connate to form a keel (carina). *Disc* rare. *Stamens* 10, rarely 9, monadelphous or diadelphous, rarely free. *Ovary* superior, single celled; ovules many, sometimes 1 or 2; style straight or curved. *Pod* dehiscent by 2 or 1 suture(s) or indehiscent, sometimes jointed and breaking into 1-seeded segments; seeds sometimes arillate.

Key to the wild genera:

1a. Leaves even-pinnate. Pods not breaking into articles. ... ... ... ... ... *Sesbania*

1b. Leaves odd-pinnate Pods with articles or not:

   2a. Bracts dimorphic. Pods jointed ... ... ... ... ... ... ... ... *Desmodium*

   2b. Bracts unimorphic. Pods other than jointed:

      3a. Pods with oblique or transverse lines between seeds. ... ... ... ... *Atylosia*

      3b. Pods neither obliquely nor transversely lined.

   4a. Trees:

      5a. Armed trees or shrubs. Pods falcate ... ... ... ... ... *Erythrina*

      5b. Unarmed trees.

   6a. Pods samaroid or with wing like structures.
7a. Leaves 3-foliate. Pods with a wing-like base ........... Butea

7b. Leaves many foliate. Pods not winged at base ...... Dalbergia

6b. Pods neither samaroid nor winged. Valves woody ... Pongamia

4b. Herbs or shrubs, erect or climbing:

8a. Stamens monadelphous. Pods compressed:

9a. Pods ovoid-orbicular. Calyx obscurely lobed ....... Derris

9b. Pods globose or oblong. Calyx prominently lobed ... Crotalaria

9c. Pods twisted up inside the calyx......................... Uraria

8b. Stamens diadelphous. Pods angular, globose or compressed:

10a. Leaves 1-3 foliate:

11a. Leaves 1-foliate. Shrubs................................. Flemingia

11b. Leaves 3-foliate. Climbers:

12a. Pods with bristly hairs.................................. Mucuna

12b. Pods without bristly hairs.............................. Clitoria

10b. Leaves many foliate:

13a. Pods breaking into 1-seeded segments.............. Aeschynomene

13b. Pods not breaking into 1-seeded segments ......... Tephrosia

_Aeschynomene L._

Sp. Pl. 713. 1753.

Subshrubs. Leaves odd pinnate; leaflets many, alternate or opposite, oblong, chartaceous, petiolule absent; stipules basally auricled, setaceous or not. Racemes axillary, lax; bracts stipule like, bracteoles addressed to calyx. Calyx tube 2-lipped;
upper lip 2-fid; lower 3-fid. *Corolla* yellow; petals clawed; standard orbicular, shortly clawed; wings obliquely obovate; keels oblong or falcate. *Stamens* 5+5; anthers uniform. *Ovary* stipitate; ovules usually many; styles incurved. *Pod* linear, oblong, compressed, jointed, echinate or smooth; seeds reniform.

**Key to species:**

1a. Stem slender; leaflets 15-25 pairs; peduncle and calyx glabrous; pods straight or nearly so, smooth .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. 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Uses: The white soft, light wood is used to make decorative materials, toys etc.

Coll. No. Borah A. 22. Date: 10-5-01. Locality: Noya chara beel


*Subshrub* upto 3 ft. high; branchlets glabrous, finely striate. *Leaves* 7-15 cm long, stipules auricled, deciduous. *Leaflets* 15-25 pairs, 2.5-6.5 mm ×1-1.5 mm, oblong, base obtuse, oblique, margin entire, apex obtuse. *Racemes* up to 2 cm, sometimes flowers solitary, peduncles glabrous. *Flowers* 6 mm across. *Calyx* tube glabrous, upper lobes 4 mm, lower one 5 mm. *Corolla* yellow to flame coloured, standard 6 ×6 mm; wings 6 ×3 mm; keels 7×3 mm. *Staminal* sheath 4 mm, anthers ovoid. *Ovary* 6 mm; ovule indefinite; style 3mm. pod 3.5-4.5 cm long; articles 4-10, glabrous, smooth over seeds, upper margin entire, lower margin indented.

Flr.: August-October Frt.: October-December

Usually grows on low-lying marshy areas and wet grasslands.

Vern.name: Kuhila (As.) Sola (Beng.)

Coll. No.: Borah A. 23. Date: 10-5-01. Locality: Noya chara beel

*Atylosia* R. Wight et Arnott

Prodr. 257. 1834

*Vines. Leaves* 3-foliate; leaflets with resinous glands below; terminal one larger; basally 3-nerved; stipules lanceolate. *Inflorescence* racemose, sometimes
flowers in pairs, bracteate. *Calyx-tube* campanulate, lobes 5, upper lobes connate into 2-fid lobe, lower one longest. *Corolla* often persistent; standard orbicular with inflexed auricles at base; wings oblong or obliquely obovate; keels not beaked. *Stamens* 9+1, vexillar stamen free, anthers uniform. *Ovary* sessile, ovules 3 or more; styles incurved at the middle, slightly thickened, glabrous; stigma capitate. *Pod* linear or oblong, compressed, transversely lined between the seeds, septate; *seeds* strophiolate.


Spreading vine with densely pubescent terete branchlets. Common petiole 4 cm, stout, pubescent. *Leaflets* ovate-rhomboid, rounded and often abruptly subcordate at the base; terminal one 4×2.5 cm; lateral 3×2 cm; somewhat hispid above, pubescent beneath. *Racemes* terminal or axillary, elongating in fruit, pilose; bracts ovate, hairy. *Calyx* shaggy. *Corolla* 1.5 cm long, yellow. *Pod* about 3.5 cm long, compressed, shaggy with brownish hairs, 5-6-seeded. Flr. & Frt.: December-February

Grows on open areas and in grasslands.


Locality: Birjhora Mahavidyalaya campus. Photo No. 13.1 (plate 13)
**Butea** J. Koenig ex Roxb.

Asiat. Res. 3:469. 1792 (nom. cons.)

*Lianas or trees. Leaves* 3-foliate; leaflets unequal, terminal one larger; laterals oblique; stipules caducaous. *Inflorescence* terminal or axillary or racemes or panicles. *Flowers* fascicled; bracts and bracteoles caducaous. *Calyx* tube broadly campanulate; woolly; upper 2 lobes connate; others deltoid or lanceolate. *Corolla* exserted; petals clawed; standard lanceolate, reflexed; wings falcate, free or adnate to keel, keels incurved. * Stamens* 9+1, vexillary, free. *Style* incurved; ovules 2. *Pod* oblong, sometimes falcate, compressed, wing like, indehiscent.


Deciduous *trees*; branchlets densely tomentose. *Leaflets* 10-20 × 9-15 cm, coriaceous, glabrous above, base cuneate, margin entire, apex obtuse, retuse. *Racemes* up to 40 cm long; flowers clustered at the nodes of rachis, about 6 cm across. *Calyx*-tube velvety; upper lobes connate, 5 mm; lower one deltoid, smaller than upper. *Corolla* flame coloured; standard lanceolate, 5-6 × 2-3 cm, silky pubescent without, clawed; wings falcate, adnate to keel; keels incurved, beaked. *Staminal sheath* 6 cm, thick, curved; filaments 2 cm. *Style* 4 cm, incurved. *Pod* 14-16×4-5 cm. *Leaf fall*: January. *New foliage*: April – May. *Flr.*: February- April. *Frt.*: March onwards.
Commonly found in plain areas like river banks, road sides etc.

Vern. name: Palash (As.)

Uses: Flowers in Saraswati puja; leaves are pieced together to serve foods


Photo No. 13.2 (plate 13).

*Clitoria* L.

Sp.Pl. 753. 1753


Annual twiner on bushes. Leaves 5-7 foliate; leaflets ovate, obtuse, glabrous, sub-coriaceous, emerginate, 2.5-5.0 cm long; lateral petiole 0.3 cm, terminal about 0.8 cm long. Flowers solitary, axillary on stout pedicel, white or deep blue or blue centred; bracteoles foliaceous, persistent; calyx tubular, lanceolate, toothed; petals unequal; ovary stipitate; styles incurved, flat, oblong, slightly curved, beaked, dehiscing from apex to base. Seeds 7-11, quadrate, brown.

Flr. & Frt: round the year.

Usually planted in house garden as ornamental plant and near temples for religious purpose.

Vern. names: Aparajita (As., Beng.)

Uses: Powdered seeds with sugar and water are prescribed to infertile men.

Crotalaria L.
Sp.Pl. 714.1753

Herbs or sub-shrubs. Leaves simple, 1-foliate or digitately 3-foliate; leaflets entire; stipules filiform to foliaceous or absent. Flowers usually in terminal, leaf-opposed or axillary racemes. Calyx-tube short; lobes unequal, ovate or lanceolate, sub-equal or more or less connate in 2 lips. Corolla equal to calyx, generally yellow; petals clawed; standard orbicular or ovate, with two appendages; wings oblong or obovate, shorter than the standard, clawed, usually with rows of crescent-shaped folds between nerves; keels as long as wings, connate, much incurved, with a beak spirally twisted or not. Stamens monadelphous, connate in a sheath, anthers versatile. Ovary sessile or stipitate; ovules 2 or more; style long, incurved or geniculate. Pod subsessile to long stipitate, oblong or globose, turgid or inflated, often dehiscent; seeds usually many, rarely 1 or 2, ovoid, reniform, oblong.

Key to the species:

1a. Plants herbs or under-shrubs; leaves simple:

   2a. Annuals. Leaves linear obovate ............................................ C. sessiliflora
   2b. Perrenials. Leaves obovate-oblong ................................................ C. juncea

1b. Plants under-shrubs or shrubby; leaves 3-foliate:

   3a. Corolla yellow, striped with red; pods cylindrical .................................. C. pallida
   3b. Corolla not striped; pods quadrangular .............................................. C. trifoliastrum

A shrub of 5-6 ft. high with ascending terete branches. Leaves linear to obovate-oblong, obtuse or sub-acute, sub-coriaceous, covered with silky hairs, petiole very short, stipules minute or absent. Racemes simple, terminal. Corolla bright yellow, glabrous, slightly exserted. Pod 2.5-3 cm long, rusty valvate. Seeds 10-15, brown. Flr. & Frt.: Hot season.

Cultivated and wild.

Vern. name: Junjunia bon (As.)

Use: Fibre is obtained from its stem.


*Undershubs. Leaflets* obovate. Ca 4 ×20 cm. glaucous-beneath; petioles ca 4 cm; Petiolules 1-2 mm, wolly. Flowers in long peduncled, terminal or lateral racemes, ca 1.5×1.0 cm. Corolla twice as long as calyx, bright yellow, reddish-brown stripped, ovary densely pubescent, ca 6 mm long; style pubescent on inner side. Pods oblong, ca 4×.7 cm. Flr. & Frt: May-November

Found on open field and near road side associated with *Solanum myriacanthum, Polygonum hydropiper* etc. Occurance: Common

Vern. Name: Ghanta Karna, Jun-junia (As)

Coll. No. 34 Borah, A. Shankarghola, Date: 14-05-01

Photo No. 13.3 (plate 13.)
Photo No. 13.1: *Atylosia goensis* (Dalz) Dalz.

Photo No. 13.2: *Butea monosperma* (Lamk.) Taub.

Photo No. 13.3: *Crotalaria pallida* Ait.

Photo No. 13.4: *Erythrina stricta* Roxb.

Photo No. 13.5: *Flemingia strobilifera* (L.) R. Br.

Photo No. 13.6: *Uraria picta* (Jacq.) Desv.
Crotalaria sessiliflora L., Sp. Pl. 716. 1753; Roxb., Fl. ind. 3: 259. 1832; Hook. f., FBI 2:82. 1876; Prain, Bengal Plants 1:375. 1903; Kanjilal et al., FA. 2: 12. 1938; Chowdhury et al., Ass. Fl. 209. 2005.


Flr.: August- September   Frt.: October- November

Usually grows in grasslands of plains, not common.

Coll. No. Borah A. 186. Date: 12-8-2002
Locality: Birjhora Mahavidyalaya campus, Bongaigaon


A perennial under-shrub of 2-3 ft. high with numerous, downy ascending branches. Leaves 3-foliate, petiole about 2.5 cm long; stipules minute, setaceous. Leaflets about 2.5 cm long, obovate-oblong, obtuse or emerginate, glabrous above, silky beneath. Racemes terminal and lateral. Calyx with long, linear teeth. Corolla less than one cm, yellow, glabrous. Pod short, quadrangular, thinly silky, 2-seeded.

Flr.: June- July Frt.: August- September.

Occurrence: Uncommon

Coll. No.: Borah A. 493. Date: 23-6-2005   Locality: Shankarghola

Note: Data deficient plant.
Dalbergia L.f.

Suppl. 52, 316. 1782 (nom. cons.)

Trees or rarely stragglers or lianas. Leaves usually alternate, odd-pinnate or in fascicles; leaflets alternate. Terminal one larger; laterals oblique, usually entire; extipulate. Panicles terminal or axillary; bracteate; bracteolate. Calyx-tube campanulate, pubescent; upper two lobes connate, oblong, apex obtuse; lower one largest, apex acute. Corolla exserted, glabrous; petals clawed; standard ovate or obovate; wings oblong; keels obtuse, jointed at the tip. Stamens 9 or 10, monadelphous or isodiadelphous (5+5); anthers uniform. Ovary stipitate; ovules 2 or more; style glabrous, incurved. Pod oblong-lanceolate, sometimes reniform, compressed; samaroid, usually reticulate, indehiscent; seeds 1-3 or 4, distantly placed, reniform, compressed.

Key to species:

1a. Trees. Leaflets 3-5. Flowers ebracteate. Pods 1-3-seeded ...................... D. sisoo

1b. Straggling shrubs. Leaflets 17-25. flowers persistently bracteate and

bracteolate. Pods 1-seeded.................. D. stipulacea

Dalbergia sisoo Roxb., Fl. ind. 3:323. 1832; Hook. f., FBI 2:231. 1876; Prain, Bengal Plants 1:411. 1903; Kanjilal et al., FA 2;100. 1938; Matthew, Fl. Tam. Car. 1:386. 1983; Chowdhury et al., Ass. Fl. 209. 2005.

Middle sized to large, gregarious and deciduous tree with grayish bark having reticulately longitudinally furrowed. Leaves 10-15 cm long, common petiole zigzag, pubescent when young; stipules caducaous. Leaflets 3-5, alternate, 2.5-6 cm across, ovate, obovate, orbicular or rhomboid, acuminate. Panicles terminal and / or
axillary, on new shoots. *Flowers* 5 cm across. *Calyx*-tube 3mm; upper lobes 1.5 mm; lower one slightly larger than upper lobe. *Corolla* cream cloured or yellowish-white; standard obovate, 8×5 mm; wings and keels 6 mm. *Stamens* 9, united in a sheath which is slit along the top, filaments 1.5 and 2 mm. *Ovary* pubescent; style short. *Pod* oblong, 5-7.5 ×1 cm, strap shaped, pale brown, glabrous narrowed at the base to a stipe, apex acute, faintly nerve; seed(s) 1 or 2, reniform, flat. Flr.: February- May Frt.: November- December

Wild as well as cultivated. A large area is found occupied by this species naturally on the bank of Kuklung Nala along Indo-Bhutan border which is a part of Manas Biosphere reserve.

Uses: Wood is widely used for making furniture; leaves as cattle fodder.

Coll. No. Borah A. 129. Date: 2-5-02. Locality: Barpara. Fig 14.a (plate 14)

*Dlabergia stipulacea* Roxb., Fl. ind. 3:233. 1832; Prain, Bengal Plants 1:410. 1903; Kanjilal *et al*., FA 2;107.1938; Chowdhury *et al*., Ass. Fl. 209.2005.

A large straggling shrub appears like erect bush; old stems fluted, grayish brown outside. *Leaves* 12- 24 cm long, common petiole terete, slender, glabrous, supported by a pair of falcate stipules. *Leaflets* 17-25 in number, 2-3.5 cm ×.8-1.2 cm, oblong, cuneate and slightly oblique. *Panicles* axillary, about 9 cm long, with racemose branches. *Flowers* are supported by persistent large bracts and bracteoles. *Calyx* about 3 mm long, lowest tooth linear and longer than the other. *Corolla* reddish-purple, about 6mm long. *Stamens* diadelphous in two sheaths of 5 each. *Pods* 5-10 × 2.5-3 cm, pendulous, thin, flat, dark green, deep brown when ripe,
Fig. A. *Dalber gia sisoo* Roxb. ex DC.  

B. *Dalbergia stipulacea* Roxb.
oblone, more or less obtuse; usually 1-seeded, thickened and rugose over the seed.

Flr.: March- April Frt.: November-December

Commonly grows on slopes of foot hills.

Vern. name: Dat-bijla / Bijuli (As.), Garo-deosal (Bodo)

Uses: Stem is used as small posts in huts.

Coll. No. Borah A. 130. Date: 2-5-2002 Locality: Khagarpur hillock

Fig. 14.b. (plate 14)

Derris Lour.

Fl. Cochinch. 432. 1790 (nom.cons.)

Small trees, stragglers or lianas. Leaves alternate, od-pinnate; leaflets opposite. Flowers axillary or in terminal racemes or panicles, pedicels often clustered. Calyx-tube campanulate, truncate, obscurely toothed. Corolla exserted; petals clawed; standard suborbicular, not appendaged; wings obliquely oblong, adnate to keel; keels obtuse, incurved. Stamens monadelphous. Ovary subsessile, style incurved, glabrous; stigma capitate. Pod oblong or orbicular, often winged at the upper suture, indehiscent.


A small tree with a short trunk and spreading crown, evergreen. Bark blackish and rough outside. Leaves 15- 25 cm long, imparipinnate, common petiole terete, slender; stipules caducaous, small, oblong, obtuse. Leaflets opposite, 5-7, in number, 5-10 ×2.5- 6 cm, ovate-elliptic, acuminate, round at base, chartaceous,
glabrous, dark green and shining above, pale underneath. *Racemes* axillary, simple, peduncled, 7-14 cm long, pedicels in fascicles of 2-4, pubescent with a pair of minute bracteole in the middle. *Calyx* small, sub-truncate. *Corolla* 1-1.25 cm long, white and purple; petals cohering by the tips; standard broad, appendiculate at the base, shortly clawed; wings slightly adhering to the keel, silky outside. *Stamens* monadelphous, upper stamen partially free, anthers versatile. *Ovary* subsessile, 2-ovuled; style incurved; stigma small. *Pod* 4-5 cm × 2.5-3 cm, woody, flattened, oblong, indehiscent, much thickened at the sutures, not winged; 1-seeded, tipped with the remains of the style. *Seeds* reniform, white streaked with brown, oily.

*Flr.*: May-June  *Frt.*: December-February

The plant is cultivated as well as growing wild.

Vern. name: Koroch (As.)

Uses: The plant is usually planted on road sides for shade; leaves are good fodder for cows; oil from seeds are used in illuminating purpose rarely.

Coll. No.: Borah A. 148. Date: 12-5-2002  Locality: Boitamari

*Desmodium* Desv.

*J. Bot. Agric.* 1:122. 1813 (nom. cons.)

*Subshrubs* or *herbs*. *Leaves* 1- or 3-foliate; lateral leaflet larger; laterals equilateral or unequilateral.; stipules lanceolate, striate, setaceous, free or united; stipels subulate. *Flowers* in terminal or axillary racemes or clusters; primary bracts striate and ciliate each subtending one or more flower; secondary bracts often present, each subtending one flower; sometimes bracteoles present. *Calyx-tube*
campanulate, 4-5-lobed; upper 2-lobes free or connate, entire or 2-fid; laterals shorter than others; lower one longer than others. Corolla exceeding calyx; standard obovate or orbicular; wings obliquely obovate, usually adhering to keels; keels obtuse, incurved. Stamens 9+1, sometimes monodelphous. Ovary sessile or stipitate; ovules two or more; style incurved, glabrous; stigma capitate. Pod oblong, flat, usually hooked-pubescent, nerves prominent, indented; articles 2-10; mostly indehiscent; seeds as many as articles.

Key to species:

1a. Leaves 3-foliate:


   D. triflorum

2b. Plants erect. Flowers in racemes or panicles:

3a. Shrub. Leaflets oblong-lanceolate, not sinuate.

   D. caudatum


   D. sequax

1b. leaves 1-foliate:

4a. Branchlets slightly angled; leflet ovate or lanceolate, entire; joints of the pod 6-10.

   D. gangeticum

4b. Branchlets terete; leaflets broadly ovate or deltoid, more or less repand; joints of the pod 3-6.

   D. velutinum

Shrub of 6-8 ft. high with few branches. Leaves 3-foliate, common petiole 2-3.5 cm long, stipules free, subulate. Leaflets 2.5-10 cm × 0.5-3.5 cm, terminal one largest, oblong-lanceolate, subcoriaceous, slightly pubescent along the nerves. Racemes long, lax. Calyx 25-30 cm long; toothed; the lowest linear and longer than the others. Corolla whitish. Pod 5-10 cm × 0.4-0.6 cm, joints 6-8, covered with short hooked hairs. Flr.: June-September Frt.: September-January

Commonly grows in shady damp places, also on hill slopes.

Vern. name: Bor-Biyoni-sabota (As.), Samthai (Bodo)

Coll. No. Borah A. 137. Date: 2-5-2002 Local: Dhaligaon


A suberec undershrub of 3-4 ft. high. Leaves 1-foilate; common petiole 1.25-2.8 cm long, stipule subulate, striate, ciliate. Leaflets 5-10 × 3.25-5 cm, ovate to lanceolate or elliptic-lanceolate, acute, rounded at base, membranous, glabrous. Racemes 15-30 cm long, terminal, lax, pubescent, with reflexed hairs pointing downwards; bract minute. Calyx teeth lanceolate, longer than the tube. Corolla purplish white. Pod 1.25-2 cm long, deeply indented with lower suture; joints 6-8, clothed with minute hooked hairs. Flr.: July-October Frt.: October-December

Commonly grows on slopes of foothills and open areas.

Coll. No.: Borah A 138. Date: 2-5-2002 Local: Dhaligaon

An undershrub of about 8 ft high. Leaves 3-foliate, 5-18 cm long, common petiole 1.25-3.5 cm long, sulcate, rusty hairy. Stipules deltoid, closely ciliate. Leaflets 3.7-9 cm x 2.5-7 cm, elliptic or rhomboid, acute, repand in the upper half, sub-coriaceous, dark green and densely grey pubescent beneath. Racemes 5-8 cm long, terminal and axillary, sometimes panicled. Calyx broadly funnel-shaped, hairy outside; toothed, teeth deltoid, ciliate. Corolla light purple, about 0.8 cm long. Pod 1.25-2 cm long, indented along both sutures; joints 6-8, rhomboid or lentil-shaped, densely clothed with hooked hairs. Flr.: September-October Frt.: December-January

Generally grows in open areas or in scrub forests.

Vern. name: Soru-biyoni-sabota (As.), Samthai (Bodo)


Prostrate herb, branchlets elongate, pilose. Leaves 3-foliate, to 6 mm; leaflets 4-6 x 4-5 mm, laterals equilateral, chartaceous, glabrous above, pubescent below; base cuneate, margin entire, apex obtuse-retuse; stipules obliquely ovate, 4 mm; stipels minute. Flowers 3 mm across, 3-5 in a cluster. Calyx-tube 5-lobed, upper
lobes 1 mm, lower 2 mm. *Corolla* pink to violet; standard 3 mm; wings 2 mm; keel 4 mm. *Staminal-sheath* 4 mm. *Stamens* 9 +1. *Ovary* 4 mm; style 2, incurved. *Pod* to 1 cm, lower margin deeply indented, upper entire. Flr.: Peak in Winter Frt.: Throughout the year

Commonly grows in grasslands, riverbeds etc. as surface grower.


An erect sub-shrub of about 5 ft high; branches striate, densely hirsute. *Leaves* 1-foliate, ovate, 7-12×4-8 cm, chartaceous, pubescent above, tomentose below, base truncate or cordate, margin wavy, apex obtuse-acute, mucronate; stipules 5 mm; stipels 2 mm. *Flowers* in axillary or terminal panicled raceme, 5-15 cm long; flowers 3-5 in a cluster; bracts setaceous; bracteoles obscure. *Calyx-tube* campanulate, 4-lobed, hairy. *Corolla* rose-purplish; standard orbicular-ovate, 6×4 mm; wings oblong, 6×2 mm; keels 6×2 mm. *Stamens* 9+1. *Ovary* sessile; ovules ca. 10; style 1 mm. *Pod* 1.5-2.5 cm long, indented on both margins, densely clothed with hooked hairs. Flr.: September-November. Frt.: November-December.

Commonly grows in mixed deciduous forests.

Vern. Name: Gach-bioni-sabota (As.), Samthai (Bodo)

Use: Fibre of the bark is used (sometimes) to make rope.

Coll. No.: Borah, A. 518. Date: 12-12-05 Locality: Kakoijana RF
**Erythrina L.**

Sp. Pl. 706. 1753.

*Trees* with prickly branches. *Leaves* 3-foliate; terminal leaflet larger, equilateral, rhomboid-deltoid; laterals inequilateral; stipules small. *Racemes* axillary and /or terminal. *Flowers* showy, in pairs or clusters on rachis. *Calyx* spathaceous or campanulate and 2-1 labiate. *Corolla* much exserted; standard much exceeding wings and keels. *Stamens* 10, upper one free or so; others connate at base; filaments alternately longer and shorter. *Ovary* stalked, many ovuled; style incurved, glabrous. *Pod* linear, falcate, turgid, septate between the seeds, attenuate at base and apex, torulose.


A medium sized deciduous *tree*, often prickly. *Bark* furrowed, greenish-yellow outside, brown-white inside; branchlets with many slightly incurved prickles. *Leaves* 3-foliate, common petiole 15- 20 cm long, terete; stipules falcate. *Leaflets* 12-17 cm across, sometimes broader than long, rhomboid-orbicular or ovate, lateral oblique, all shortly acuminate, glabrous, shining above, base cuneate. *Racemes* 15-23 cm long, horizontal, crowded at the end of the branchlets; bracts caducous, up to 5 cm long, linear or subulate. *Calyx* spathaceous, about 1.25 cm long, pubescent in bud. *Corolla* coral red; standard 3.5- 5 cm long, 2.5 cm width, ovate or obovate, with parallel white lines inside; keel 2- 2.5 cm long, scarious, light greenish; wings

Commonly found in plains and hill slopes with a striking appearance when in flower.

Vern. name: Moder (As.)

Use: As ornamental tree. There is a belief that betel-vine climb on this tree superior in taste to other.

Coll. No.: Borah A. 348. Date: 11-2-2004 Locality: Kakoijana RF

Photo No. 13.4 (plate 13)

**Flemingia** Roxb. ex. W. Aiton et. W.T. Aiton


Shrubs. Leaves 1- or 3-foliate; leaflets gland dotted below; stipules striate; stipels 0. Racemes axillary and / or terminal, simple or branched; bracts foliaceous or scarious. Calyx-tube campanulate; lobes lanceolate, unequal; lower one longest. Corolla exserted or not; petals clawed; standard obovate or orbicular, auricled at base; wings oblique, adhering to keel; keel straight or incurved, obtuse or acute. Stamens 9+1; vexillary one free. Ovary subsessile; ovules 2; style incurved, glabrous; stigma capitate. Pod oblong-ovoid, turgid, densely coated with red globules; seeds sub-orbicular.

Shrubs. Branches valvety tomentose. Leaves 1-foliolate, oblong to ovate lanceolate, 8-16×4-8 cm. acute or acuminate, base rounded or sub cordate, glabrescent above, silky pubescent and gland dotted beneath, margin entire, apex acuminate; stipules 5-10 mm., linear. Racemes simple or branched, flexous. Flowers ca 1 cm. Calyx-tube ca 2 cm. Corolla exserted, white; standard obovate, 6×5 mm; wings oblong, smaller than standard; keels incurved. Staminal sheath ca 6 mm. Ovary sessile, woolly, style 6 mm. Pods oblong, 0.7- 1.2×0.6- 0.7 cm, densely pubescent, enclosed by bracts, 2-seeded.

Flr.: February-October. Frt.: April.-December.

Occurrence: Not very common, found grow on foot hill slopes.

Vern. name: Makhiotee (as.)

Uses: The branches along with inflorescence which are used to strike the cattle are hung over the roof of the cattle-shed and are said to protect the cattle from all kinds of ailments during Rongali Bihu..

Call. No. Borah A 60. Date: 10.09.2001 Locality: Deuripara, Bongaigaon

Photo No.: 13.5. (plate 13)
**Mucuna** Adanson

Fam. 2:325, 579. 1763 (nom. cons.)

Woody or herbaceous *climbers*. *Leaves* 3-foliate; stipules deciduous. *Racemes* axillary; flowers clustered on nodose rachis; bracts caducous; bracteoles small. *Calyx-tube* broadly campanulate; two-lipped; upper lobes connate; laterals short; lower one elongate. *Corolla* much exserted, dark purple; standard half as long as wing and keels, folded, auricled at base; wings oblong, incurved; keels slightly longer than wings, incurved, apex beaked. *Stamens* 9+1; vexillary stamen free; anter dimorphic, longer basifixed, the shorter ovate and bearded. *Ovary* sessile, vilous; ovules many; stigma capitate. *Pods* variousely shaped, septate.


A *twining annual*; branchlets downy-pubescent. *Leaves* pinnate-compound, up to 16 cm; leaflets ovate-rhomboid, terminal 9×7.5 cm; laterals 10×7 cm, thin, coriaceous, adpressed white-pubescent, base obtuse- subacute or truncate, margin entire, apex acute, mucronate. *Racemes* to 10 cm; peduncle 5 cm. flowers 4 cm long. *Calyx-tube* 6 mm; upper lobes 5 mm, lower one 7 mm. *Corolla* dark-purplish; standard ovate, 2.5×1.5 cm; wings 3×1 cm; keels 4×0.5 cm. *Staminal sheath* 2.5 cm, filaments 4 mm. *Ovary* 1 cm. style 3.5 cm. *Pods* curved at base and apex, S-shaped,
longitudinally ribbed, covered with dense pale brown bristles. Flr.: January- March
Frt.: April – June

Grows generally in scrub forests and wastelands, often on hill slopes.

Vern. name: Bandor-kekowa (As.), Akolshi (Beng.)


Note: At maturity, the bristle hairs on the seeds disperse in air and irritate when
come in contact with skin.

Sesbania Scopoli

Introd. 308. 1777 (nom. cons.)

Shrubs or trees. Leaves even-pinnate; leaflets many, oblong, inequilateral;
stipules lanceolate. Racemes axillary; bracts and bracteoles caducous. Calyx-tube
campanulate, lobes triangular. Corolla exceeding calyx; petals with long claws.
Stamen 9+1, vexillary stamen free, bent to the base with staminal sheath. Ovary
stipitate, ovules many. Pod long, linear, 4-angled or flattened, septate between seeds.

Key to species:
1a. Small tree. Flowers white; standard petal not appendaged ... S. grandiflora
1b. Shrub. Flowers dark brown to purple; standard petal appended ... S. sesban

Sesbania grandiflora (L.) Poir. in Lam., Encycl. 7: 127. 1806; Hook. f., FBI 2:115.
1876; Prain, Bengal Plants 1: 404. 1903; Matthew, Fl. Tam. Car. 1: 458. 1983;
(Desvaux) 3:120. 1814.
Small tree, branchlets pubescent. Leaves to 30 cm; leaflets 25-30 pairs, oblong, 1-3.5×0.5-1 cm, chartaceous, pubescent, base obtuse, margin entire, apex emerginate; stipules lanceolate, 1 cm. Racemes 3-5-flowered. Flowers ca 5-6 cm across, 10-12 cm long, pendulous. Calyx-tube ca. 2 cm, triangular. Corolla white or creamy-white; standard 10×6 cm, reflexed, not appendaged; wings 10×2.5 cm; keels 11×3.5 cm. Staminal sheath to 12 cm; filaments 1.5 cm. Ovary about 8 cm. Pods ca. 60 cm, 5-6 mm across, margins thick; seeds ca. 30, to 8 mm. Flr.: December-February; also in April Frt.: January – March

Flr.: December-February; also in April Frt.: January – March

Generally grows on hill slopes; also found in low lying areas.

Vern. name: Bok phul (As., Beng.)

Uses: Flowers are eaten fried as vegetable, sold in market; powder of dried leaves is given to inhale in intermittent fever.


torulose, many seeded; seeds transversely oblong, estrophiolate. Flr.: August –
September. Frt.: October – April.

Common in open sunny places and along roadsides.

Vern. name: Joyontiphul (As., Beng.)

Uses: Leaf extract is applied externally on bowel to reduce stomach pain. Leaf
extract with salt is also prescribed in worm. Flowers are eaten fried with
pounded rice.


_Tephrosia_ Pers.

Syn. Pl. 2: 328, 1807, (nom. Cons.)

_Herbs_ or _subshrubs._ Leaves odd-pinnate or 1-foliate; leaflets opposite,
obovate, oblanceolate or oblong-elliptic; stipules lanceolate or subulate; stipels
minute. _Flowers_ in terminal or leaf-opposed false-racemes, rarely in clusters;
bracteate. _Calyx_-tube campanulate, lobes lanceolate-setaceous, upper one acutye,
lower longer. _Corolla_ exserted; petals clawed; standard orbicular. _Stamens_
diadelphous, vexillary stamen free. _Ovary_ sessile; ovules many; style incurved. _Pods_
linear, flattened, continuous or septate; seeds many, reniform, ellipsoid or ovoid,
strophiolé sometime present.

Kanjilal et al., FA. 2: 470. 1938; Chowdhury et al., Ass. Fl. 213. 2005.

_Herbs_, leaflets opposite, mucronate, oblong-elliptic or lanceolate, obovate,
closely parallel nerved; stipules obscure. _Flowers_ axillary, solitary, paired or leaf

Flr. & Frt. September-January

Grows along hill side and also low land of the stydy area, associated with *Ocimun basilicum, Cleome viscosa* etc. Occurrence: common.

Coll. No. Borah A. 48. Date: 14.05.2001 Locality: Abhayapuri

*Uraria* Desv.

*J. Bot. Agric.* 1:122. 1813.


A little branched erect *under-shrub*, 3-6 ft. high; stem terete, finely downy. *Leaves* variable, the lowermost simple, small, orbicular followed by 3-5-7-9-foliate leaves with linear leaflets mixed with few 1-foliate ones. *Stipules* obliquely ovate or lanceolate, sharply long acuminate. *Leaflets* linear, 12-15×1-2 cm, acute at apex, rounded at base, glabrous and variegated with irregular grayish blotches along the midrib above. *Racemes* terminal, simple, 10-30 cm long, very dense and hairy; bracts
scarious, deciduous. Calyx deeply divided, lobes feathery. Corolla purple, exserted.

Pod of 3-6 joints. Flr. & Frt.: June- October.

Grows in grasslands. Occurrence: Rare.

Coll. No.: Borah A.. 182. Date: 12-8- 2002  Locality: Birjhora College campus

Photo No.: 13.6. (plate 13)

Cultivated ones:

_Cajanu_s A.P. de Candolle
Cat. Horti. Monspel. 85. 1813 (nom.cons.)


Perennial erect shrub, branchlets densely silky pubescent. Leaves 3-foliolate. Leaflets elliptic, lanceolate or oblong, chartaceous, velvety-pubescent below, base cuneate, margin entire, apex acute-acuminate. Inflorescence terminal panicles or axillary raceme. Flowers 1.5 cm across. Calyx upper lobes conate, apex 2-fid. Corolla exserted, yellow, standard suborbicular, wings narrow. Stamens 9+1, vexillary free. Ovary woolly, ovules 4-6. Pods linear oblong, acuminate; strophioles minute or absent; seeds 4-6, ovoid-oblong. Flr. & Frt: Round the year

Cultivated for pulses. Vern. name: Rahardail, Rahar mah (As.)

Uses: Decoction of immature leaves is given to take with sugar to jaundice patient.
Canavalia A.P. de Candolle

Prodr. 2:403. 1825 (nom. cons.)

Vines. Leaves 3-foliate; leaflets ovate; stipules small, wart like. Flowers fascicled on a nodose rachis; bracts minute, bracteoles caduceus. Calyx-tube campanulate; upper 2 lobes connate, larger, truncate or 20dentate; lower one entire or 3-fid. Corolla exserted, petals clawed. Stamens monadelphous. Ovary sub-stipitate; ovules indefinite; style incurved, glabrous. Pods oblong or linear, compressed or turgid, with a wing or rib near the upper suture, 2-valved; seeds ovoid-oblong, compressed.


A large perennial climber, branchlets glabrous. Leaves pinnately 3-foliate; leaflets 10-17 × 9-12 cm, ovate or rhomboid-elliptic, terminal usually largest, lateral oblique. Racemes axillary. Flowers large, white with tinge of pink or purple. Calyx 2-lopped; upper lip notched, lower 3-lobed, sparsely adpressed. Corolla 2.5- 5 cm long, exserted, all clawed. Stamens monadelphous. Ovary silky. Pod 20- 25×3- 4 cm (larger in cultivation) flat but with two prominent longitudinal ridges along the upper suture, with a slight serpentine curvature along its vertical plane. Seeds 6-10, compressed, pink or white when ripe. Flr. & Frt.: August – October.

Cultivated and escape. Vern. name: Kamtal Urohi (As.) Makhan-sim (Beng. & As.)

Two types are commonly sold in the Bongaigaon market- larger one, the cultivated and somewhat smaller in size- the wild or escape.

Uses: Pods and tender shoots are eaten as vegetable and the seeds as pulse.
**Lablab** Adanson
Fam. 2. 325. 1763


*Lablab purpureus* (L.) Sweet, Hort. Brit. 481. 1827.


_Vine_ with branchlets glandular pubescent. _Leaves_ 3-foliate; leaflet ovate-deltoid, pubescent, base truncate-obtuse, margin ciliate, apex acuminate; stipules lanceolate; stipules subulate. _Flowers_ in long peduncled racemes; bracteate, bracteolate. _Calyx-tube_ campanulate. _Corolla_ exserted, pinkish-violet, petals clawed, auricled, appendaged. _Pod_ flat, septate, strophiole whitish.

Flr: throughout the year but peak in December-February. Pods: January onwards.

Much cultivated for its pods which are used as vegetable.

Vern. name: Urohi (As.), Seem (Beng., As.)

**Lathyrus** L.

Sp. Pl. 723. 1753.

_Small herb_ with a climbing tendency. _Leaves_ paripinnate, rachis end with tendrils, leaflets few. _Flowers_ small. _Pod_ small, compressed, 4-5-seeded.

An annual *herb* with hollow winged stem, often climbing. *Leaves* paripinnate, the rachis ending in tendril or bristle; petiole winged; stipulate. *Leaflets* 2-4, small, lanceolate. *Calyx-tube* campanulate, teeth long, lanceolate. *Corolla* bright blue or white; standard broad, veined; keel short. *Style* flattened at the tip, bearded. *Pod* 4-5-seeded, glabrous, compressed; dorsal suture with a narrow spreading wing on either side. *Seeds* faceted, spotted.

Cultivated as *rabi* crop for its seeds which are used as food and the plant is a good fodder. Long term eating of the seed may cause lathyrisism.

Vern. name: Kola mah / Kala mas / Khesari mah (As.)

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*Lens* Gren. & Godr.


*Lens culinaris* Medic. Vern. name: Masoor mah / Masoor dali (As.)

The most commonly cultivated lentil.

Cultivated mainly in the southern part of the district by the Muslim community.
Phaseolus L.
Sp. Pl. 723. 1753.


The following species of Phaseolus are cultivated in the study area:

- **P. aureus** Roxb.  Vern. Name: Magu mah (As.)
- **P. lunatus** L.  Vern. Name: Lesera mah (As.)
- **P. vulgaris** L.  Vern. Name: French bean (Eng.)

Pisum L.
Sp. Pl. 723. 1753.

Annual scandent herbs with more or less hollow stem. Leaves paripinnate ending with a tendril. Pods smooth, dehiscent; seeds globose.

The following two species are commonly cultivated in the area:

- **P. arvense** L.  - the purple flowered Motor
- **P. sativum** L.  - the white flowered Motor

Psophocarpus Neeker ex A. P. de Candolle
Prodr. 2:403. 1825 (nom. cons.)

A glabrous twiner. Leaves 3-foliate; leaflets ovate-rhomboid, nearly equal. Racemes lax, 3-5-flowered, long peduncled, bracts lanceolate. Calyx-tube campanulate. Corolla exserted, blue; petals clawed. Stamens monadelphous. Ovules 15 or more. Pods 4-gonous, 13-15 cm long, 4-5 cm in width, apex obtuse, horned, margins 4-winged; wings 7-8 mm broad; seeds ca. 10.

Flr. & Frt.: September-December

Cultivated but not common; also run as wild near homesteads.

Vern. name: Chari-siriya-urohi (As.)

Vigna Savi


Climbing herbs or subshrubs, rarely erect. Leaves 3-foliae; stipules peltate or basifixed or 2-fid at the base, stipulate. Inflorescence axillary and/or terminal, in racemes or in clusters; rachis usually thickened at the point of insertion of pedicels; bracts and bracteoles deciduous. Calyx-tube, campanulate, 5-lobed; 2-lipped. Petals appendaged. Stamens 9+1 with vexillary one free. Pod linear to oblong, terete or flattened, straight or curved; seeds indefinite, reniform or quadrate, often 3-pronged.

The following species of Vigna are commonly cultivated in the area:

V. mungo (L.) Hepper vern. name: Mati Mah, Mati Kalai (As., Beng.)

V. unguiculata (L.) Walp. ssp. cylindrica (L.) van. Eseltine

Vern. Name: Urohi-mah (As.)
CAESALPINIACEAE

Herb, sub-shrub, shrub, trees and climbers. Leaves usually paripinnate or bipinnate. Flowers slightly irregular i.e. medianly zygomorphic, sub-perigynous in racemes or paniculate inflorescence. Sepals 5, occasionally 2, usually united, sometimes free, imbricate. Petals 5, free, imbricate; the odd 5th petal is posterior, smallest and innermost. Stamens usually 10 or less by abortion, free or rarely slightly united. Ovary superior, sometimes stalked. Fruit legume or pod.

Key to the genera:

1a. Stragglers or lianas. Usually armed. ... ... ... ... ... ... Caesalpinia (p.p.)

1b. Trees, shrubs or herbs. Unarmed:

2a. Leaflets 2. ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Bauhinia

2b. Leaflets many:

3a. Leaves 1-pinnate:

4a. Petals 3. Pods with pulpy mesocarp ... ... ... ... ... Tamarindus

4b. Petals 5. Pods without pulpy mesocarp ... ... ... ... ... Cassia

3b. Leaves 2-pinnate:

5a. Flowers in diffuse corymbose racemes ... ... ... ... ... Delonix

5b. Flowers in elongate corymbose racemes ... ... Caesalpinia (p.p.)

Bauhinia L.

Sp. Pl. 374. 1753.

Trees or shrubs. Leaves of 2 leaflets, palmately nerved; stipules small, caducous. Inflorescence terminal or axillary of racemes or panicles; bracts and

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bracteoles small, caducous. *Calyx-tube* lined by disc, spatheceous, 2- or 5-lobed. *Petals* 5, sub-equal, similar or not, erect or spreading, clawed. *Stamens* 10, or reduced to 5 or 3; filaments pubescent at base. *Ovary* stipitate, oblong, pubescent; ovules many, style elongate or short. *Pod* oblong, flattened, woody, dehiscent or not; seeds compressed, horizontal or oblique.

Key to the species:

1a. Plant trees or shrubs:

   2a. Fertile stamens 10:

      3a. Calyx spathaceous; flowers large; erect shrubs ... ... ... *B. acuminata*

      3b. Calyx of 5 segments; flowers small; middle sized trees.. *B. malabarica*

   2b. Fertile stamens 3 or 4-5:

      4a. Fertile stamens 3; buds sharply angled ... ... ... ... ... *B. pupurea*

      4b. Fertile stamens usually 5; buds not angled ... ... ... ... ... ... *B. variegata*

1b. Plant large climbers:

   5a. Branches flat; twisted in alternate directions ... ... ... ... *B. scandens* 5b.

   Branches not flat, not twisted.. ... ... ... ... ... ... ... ... ... ... *B. vahlii*


An erect *shrub*; young parts pubescent. *Leaves* 7-12 cm long, slightly longer than broad, cleft about one-third way down into two acute or sub-obtuse lobes; base sub-cordate, glabrous above, pubescent beneath. *Flowers* 6-7 cm across, in short
leaf-opposed racemes; bracts and bracteoles linear, pedicel 1- 1.5 cm long. Calyx 2.5- 3.5 cm long, tube short, spathecous, acuminate with setaceous teeth. Petals 2.5- 4 cm long, white, elliptic with prominent midrib and ascending veins. Stamens 10, fertile. Ovary stipitate. Pod glabrous, 7- 12 ×1-1.5 cm, beaked, tardily dehiscent. Seeds flat. Flr.: April – May, sometimes in November- December also. Frt.: May onwards

Occurrence: Found grow along hill slopes or near so, common.

Vern. name: Boga-Kanchan, Boga-kotora (As.)

Uses: Ornamental; sometimes planted in gardens; leaves and flowers are eaten by Golden Langur (Schedule-1 species)

Coll. No. Borah A. 216 Date: 24- 4- 2002 Locality: Mahadev hillock

Photo No.: 15.1 (plate 15)


Moderate sized tree with bushy crown. Leaves broader than long, 3- 10 cm long, cleft about a fourth of the way down into two rounded lobes, cordate to subcordate, coriaceous, glabrous above, glaucous and glabrate beneath; petiole 2- 3.5 cm long, swollen at both ends, rusty pubescent. Flowers 1.2 cm across, in axillary and terminal racemes, bracts and bracteoles minute. Calyx brown, tomentose; tube less than 1 cm, lobes 5, linear, subulate. Petals dull white, 1- 1.5 cm long. Stamens 10, alternately longer and shorter. Ovary pubescent. Pod 17- 35 cm long, on a 2-3 cm long stalk, flat, flexible, straight or sub-falcate, beaked, marked with reticulate lines when dry. Seeds 20-30, ovoid, globose, dark-brown.
Flr.: August-October  Frt.: January-May

Found grow along shallow hill slopes. Occurrence: Rare.

Vern. name: Tenga kotra / Kotra (As.)  Uses: As ornamental plant in gardens.


*Trees*; branches warty. *Leaves* oblong, 5.5-11.5 \(\times\) 6-12 cm; leaflets connate about half way, sometimes lobes overlapping, thin coriaceous, 9-11-nerved, base sub-cordate, entire, obtuse-subacute; petiole up to 3 cm. *Flowers* 6-8 cm across in few flowered terminal racemes; pedicels 2.5 cm; bract ovate, to 4 cm; buds narrow obovoid, apex obtuse, acutely 5-angled. *Calyx* tomentose, tube turbinate, apex 2-cleft. *Petals* 5, rose-pink, narrow at base, entire, obtuse. *Stamens* usually 3 fertile, filaments to 2.5 cm. *Ovary* compressed, grooved; ovules many; style terminal, stigma capitate. pod oblong, 15-25 cm long, slightly falcate, flat, greenish-purple, pubescent along the suture. *Seeds* 12-15, flattened, dark-brown, smooth.

Flr.: September-January  Frt.: January-March

Found in wild as well as cultivated in the household gardens.

Occurrence: Rare.  Vern. name: Ronga-kanchan/ Ronga-kotra (As.)

Coll. No. Borah, A. 508. Date: 21-12-2005  Locality: Shankarghola

Photo No.: 15.2 (plate 15)

A large deciduous *climber* with flat stem twisted to form depressions on alternate sides; branchlets terete, tendrils few. *Leaves* broadly ovate, entire in old plants, deeply lobed, sometimes almost to the base; in young plants and copious shoots the lobes acuminate or caudate; glabrous, chartaceous; base cordate, 5-7-nerved. *Flowers* small, in racemes arranged in terminal panicles; bracts minute, subulate. *Calyx* tube very short, limb 5-cleft. *Petals* obovate, clawed, white, puberulous. Fertile *stamens* 3. *Ovary* stipulate, glabrous. *Pod* 2.5- 3.5 cm long, indehiscent, obliquely oblong, often ending in a revolved tip, thin, flat, glabrous, 1-2-seeded. Fr. & Frt.: November- December.

Grows on foothills and hill slopes; can be easily recognize from the stem while in leafless condition. Occurrence: Rare. Only a few plant observed in the area. Vern. name: Deo-jakhala / Ram-jakhala (As.)

Uses: Piece of stem is often used as decorative material; also, the stem is carrying by monk for religious purposes.


A large climber with irregularly fluted stem; branchlets often ending with a pair of tendrils; young parts, petioles, and leaf beneath are densely rusty. Leaves variable in size, usually 11-30 cm across, sometimes smaller, cleft through about a third of the length; lobes obtuse, rounded, thin but tough, dark green and glabrescent above, downy beneath; base cordate, 11-15-nerved; petiole 7-15 cm long, swollen at both the ends; stipules ovate oblong, obtuse. Flowers 3-5 cm across, white or cream coloured, in terminal woolly corymb or corymbose racemes; pedicels 2.5-6 cm long, densely tomentose; bracts linear; bracteoles linear, small. Calyx-tube 5-toothed, irregularly spitted into two broadly ovate, reflexed lobes. Petals 2-3 cm long, obovate or oblanceolate, silky-pubescent outside; margins crisped, glabrous. Fertile stamens 3. Ovary densely wooly, stipe adnate to calyx-tube, densely wooly. Pod 13.5-30 cm long, flat, woody, rusty, velvety. Flr.: April-June Frt.: Cold season.

Found grow on hillock-slopes especially along the hill streames.

Occurrence: Rare. Vern. name: Nakkati-lewa (As.)
Coll. No. Borah, A. 225. Date: 11-11-02 Locality: Nakkati hillock
Note: Endangered species; reported earlier from Japorigog R.F. of Kamrup district only, hence the present report is a new addition to its range of distribution.

Photo No. 15.3. (Plate 15)

A moderate sized tree. Leaves ovate, 5-12 ×6-13 cm, usually deeply cordate, 11-15-nerved, thinly coriaceous, glabrous, dull green above and grey glaucous beneath, cleft through about a quarter or one third of the length; petioles about 4 cm; stipules triangular. Panicles usually terminal on leafless shoots. Flowers 6-8 cm across, bract and bracteoles very small, pedicels short. Calyx covered with grey and sticky pubescent, tube about 2 cm long, slender; limb spatheceous, 5-toothed at the apex. Petals 5, about 4 cm long, obovate or ovate-oblong, base clawed with distinct midrib and veins, glabrous; 4 white or pink and one variegated. Stamens usually 5, rarely less, filaments incurved. Ovary with along stipe, pubescent; ovules many. Pod oblong, 15-22 cm long, hard, flat, glabrous, prominently veined, slightly falcate, dehiscent. Seeds 10-15.

Flr.: February- April Frt.: Rainy season.

Often cultivated though found few as escape.

Occurrence: Rare. Vern. name: Kanchan, Boga Kanchan, Kurol, Kotra (As.)

Coll. No. Borah A. 519. Date: 09-03-2006 Locality: Koilamoila

Uses: Usually plant as ornamental tree in household gardens.

Caesalpinia L.


Trees, shrubs and climbers, usually prickly. Leaves abruptly 2-pinnate. Flowers showy, usually yellow, red, rarely white in axillary or terminal racemes or panicles. Bracts deciduous. Calyx deeply 5-cleft; lobes imbricate, lowest largest and concave; tube short. Petals spreading, clawed, uppermost smaller than the others. Stamens 10, free, declinate; anthers oblong, uniform, versatile. Ovary few ovuled;
style filiform; stigma terminal. Pod various in form, dehiscent or not, smooth or prickly.

Key to the species:

1a. Armed straggler or lian. Wild .............................................................. C. bonduc
1b. Unarmed shrub. Ornamental, cultivated ..................................... C. pulcherrima


Stragling shrubs with short straight or hooked prickles. Leaves 30-50 cm long; pinnae 4-8 pairs; leaflets 6-10 pairs; elliptic-oblong, obtuse, mucronate, 1.5-3.0×1-2 cm; stipules foliaceous, pinnate or lobbed. Racemes 12-15 cm long. Flowers yellow, ca 1.5 cm across. Pods oblong-ovoid, 5-8×3.5-4.5 cm, beaked; prickles straight, dense. Seeds 1 or 3, Ca 8×6 cm, shining. Flsr.: July- August Frt.: January-March.

Found grow along hill slopes covering a considerable area.

Occurrence: Common. Vern. Name: Leta guti (As.)

Uses: Seeds and roots are used as febrifuge.

Coll. No. Borah, A 80. Date: 07-02-2007 Locality: Khagarpur

Photo No.: 15.4 (plate 15).

Unarmed handsome shrub with bushy branches. Leaves pinnate, 6-9 pairs of pinnae, leaflets 8-12 pairs, broadly oblong or ovate oblong, glabrous. Flowers orange or yellow or both, in terminal and axillary racemes. Petals 4, sub-equal, clawed, crisped; fifth with smaller blade and longer claw. Flr.: Round the year

The plant is commonly cultivated for its beautiful flower in household gardens, institutions, road dividers etc.

Vern. name: Radha-chura (As.). Occurrence: Common. Uses: Ornamental

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**Cassia** L.


*Trees, shrubs or herbs. Leaves even-pinnate; leaflets sub-opposite, often with glands on rachis or petiole; stipules various. Inflorescence axillary or terminal, racemes or panicles, varying in size and type. Calyx-tube short, deeply lobed; lobes 5, imbricate. Petals 5, imbricate, sub-equal or upper one often somewhat smaller, clawed. Stamens usually 10, rarely all fertile, sub-equal or of various sizes, 1-3 wanting or reduced to staminodes, rarely stamens 5; anthers of the three lower often longest. Ovary sub-sessile or stipitate; ovules many; style glabrous, incurved; stigma usually truncate or sometimes ciliolate. Pod terete or flat, membranous or woody,*
transversely septate between seeds, rarely winged, often apex horned. *Seeds* usually compressed, transverse, rarely longitudinal.

Key to the species:

1a. Trees. Stamens 10. Pod woody, indehiscent:

   2a. Flowers yellow in lax raceme or panicle:

      3a. Leaflets 4-8 pairs, oblong-broadly ovate. Raceme drooping. *C. fistula*

      3b. Leaflets 7-10 pairs, ovate-oblong. Panicle corymbose. *C. siamea*

   2b. Flowers pink in corymbose raceme or panicle. Leaflets 8-12 pairs

      4a. Raceme erect. Leaflets acuminate. *C. renigera*

      4b. Raceme not erect. Leaflets blunt or round. *C. nodosa*

1b. Shrubs or tall herbs. Stamens 6-7 fertile. Pods not woody, dehiscent:

   5a. Leaf rachis with glands. Valves of pods not winged:

      6a. Plants hirsute throughout. *C. hirsuta*

      6b. Plants not hirsute:

         7a. Annual herb. Leaflets 3 pairs, obovate or obovate-oblong, obtuse or sub-acute. *C. tora*

         7b. Undershrub. Leaflets more than 3 pairs, oblong to lanceolate:

            8a. Leaflets 4-5 pairs, oblong-lanceolate, sharply acuminate, not foetid. *C. occidentalis*

            8b. Leaflets 6-12 pairs, narrow lanceolate, acuminate or acute, not foetid. *C. sophera*

   5b. Leaf rachis without glands. Valves of pod with projecting wings. *C. alata*

Soft wooded erect shrubs. Leaf-rachis ridged, 30-75 cm long; leaflets opposite, 5-14 pairs, oblong or obovate-elliptic, glabrous, rounded, retuse and apiculate at apex, base unequal sided; stipules auricled, acuminate. **Racemes** terminal, 20-30 cm long, long peduncled. **Flowers** yellow, 1-2 cm across; bracts orange. **Pods** compressed, about 16×1.5 cm, dehiscing along the ventral suture; seeds deltoid-rhombic. Flr.: September – November Frt.: October – February

**Occurrence:** Common. **Use:** Pounded leaves are employed externally with mustard oil in curing scabies.

Coll. No. 122 Borah, A. Date: 06-10-2002 Locality: Barpara

Photo No.: 15.5 (plate 15).


Medium sized deciduous tree, bark smooth, grey. Leaf rachis 15-40 cm long; leaflets 4-8 pairs, (sub)-opposite, oblong-elliptic to broadly ovate, acute or sub-acuminate, base cuneate or rounded, shining above, (sub) pubescent beneath. **Racemes** 15-40 cm long, drooping. **Flowers** yellow, 3-4 cm across. **Stamens** 10. **Pods**
cylindric, 4-6 × 15-20 cm, dark brown to blackish. *Seeds* many, flat, transverse, immersed in dark brown pulp, areole absent. Flr.: April – August Frt.: July – February

Grown in dry deciduous forests and also planted for its beautiful flower and shade. Occurrence: Common

Vern. name: Sonaru, Sonalu (As.); Soneru, Sinaru (Garo); Banarnori (Char area)

Uses: Pulp of fruit is eaten, sweet; used to treat mouth ulcers. Watery extract of the leaf is prescribed (about 5 ml once a day) for long time to control diabetes. About 5-6 nos. of leaves are boiled in about 1 litre of water and filtered with clean cloth. This with goat’s milk is given orally to cure abdominal gripes. Leaf extract is also believed to be efficacious in cancer. Timber is used for house posts, durable.

Coll. No. Borah A 04. Date: 28-4-2001 Locality: Barpara

Photo No. 15.6 (plate 15).


A much branched *undershrub*, about 120 cm in height, all parts hirsute with dense spreading hairs, stem deeply ribbed. *Leaves* compound, spiral, paripinnate, petiolate, pulvinous; leaflets subsessile to shortly petiolate, 1.5-5.7×0.8-2.1 cm across, ovate to broad lanceolate, bade obtuse, apex acuminate, densely pubescent on both surfaces, entire pinnately veined, lateral nerves opposite to alternate up to 8-9 on either half, oblique, open. *Rachis* up to 11 cm long, densely pubescent, striate.
Flowers in groups of 1-4 deeply yellow on short peduncles, crowded at the ends of shoots. Calyx persistent, petals yellow. Pods 6-12× 0.3-3.5 cm across, slender flattened, grooved, densely villous. Flr. & Frt.: October –January.

Commonly growing along open hillsides and wastelands.

Occurrence: Common. Vern. Name: Medelua (As.)

Coll. No.: Borah, A. 64. Date: 11-10-2001. Locality: Barpara

Photo No. 16.1 (plate 16)


A medium sized tree with horizontal and drooping branches. Leaves 20-30 cm long; leaflets 10-12 pairs, lowest usually smaller, elliptic-oblong to oblong-lanceolate, often bluntly rounded. Flowers pink, in clusters or panicles from old nodes. Calyx pubescent, reddish. Petals oblong-ovate with distinct midrib. Stamens 10, filaments yellow, 3 longer with swellings about the middle and hairy anthers, 4 shorter with spurred anthers, 3 incurved with apparently sterile anthers. Pods long, compressed, woody, transversely ribbed. Flr: Rainy season. Frt.: till next flowering.

Cultivated tree, now running wild in some places. Commonly planted in the campus of institutions, roadsides etc usually by social forestry department.

Coll. No.: 175. Date: 23-4-2007 Locality: Birjhora Mahavidyalaya Campus

Photo No. 16.5 (plate 16)

Cassia occidentalis L., Sp. Pl. 377. 1753; Wight & Arn., Prodr. fl. Ind. orient. 290. 1834; Hook. f., FBI 2:262. 1878; Prain, Bengal Plants. 1: 437. 1903; Kanjilal et al.,
A soft wooded foetid sub-shrub. Leaves 15-20 cm long, channeled with a gland at base; stipules small, caduceus; leaflets 4-5 pairs, opposie, oblong-lanceolate, 3.5-7×1.5-2.5 cm, glabrous, glandular-pilose, base round, margin entire, apex obtuse or acute; petiole 4 cm, with a sessile globose gland at its base; rachis eglandular. Flowers in axillary or terminal racemes or corymbose raceme; 2 cm across. Calyx lobes 5, ovate, obtuse. Petals 5, yellow, oblong-ovate, clawed. Stamens 10; upper 3 staminodes, with filaments and empty anthers; antheriferous 7; lower 3 large, 2 medium, 2 short. Ovary subsessile, pubescent; ovules many. Pod compressed, slightly falcate, flat, obtuse at apexes, with transverse depressions between the seeds. Seeds 20-30, pale brown, longitudinal. Flr.: July-October  Frt.: Winter season

Grows on open areas as weed. Occurrence: Common

Vern. name: Bor Medeluwa / Hat-thenga (As.)

Uses: The leaves and seeds are used in skin diseases.

Coll. No.: Borah A 134. Date: 16-11-2001  Locality: Barpara

Photo No. 16.2 (plaque 16)

Cassia renigera Wall. Cat. n. 5307. 1849; Randhawa, M.S. Flowering trees. 121.1983; Chowdhury et al., Ass. Fl. 215. 2005.

A medium sized deciduous tree, 18-20 ft high, branches horizontal and drooping. Leaves 20-30 cm long; leaflets 10-12 pairs, elliptic-oblong to oblong-lanceolate, pointed at apex, leathery, glossy. Bract large, kidney shaped at the base
of the leaf stalk of young leaves, deciduous. *Flowers* arise as clusters on short stems from the scars of old leaves, erect, showing a line of pink, erect blossoms arranged on horizontal branches. *Pods* about 20 cm long, ribbed.

Fir.: May-June. Frt.: June onwards

The plant is usually cultivated as ornamental tree for its beautiful flower along roadsides, gardens etc. and now running wild near such places.

Coll. No.: Borah A. 70. Date: 19-5-200. Locality: Barpara.

Photo No. 16.3 (plate 16)


*Tree* up to 15 m high; branchlets glabrescent. *Leaves* 15-20 cm; leaflets 7-10 pairs, ovate, oblong, 2.5-6 ×1.5-2 cm, coriaceous, glabrous above, pilose below; stipules subulate, caducous. *Panicles* terminal, corymbose; bracteolate. *Flowers* 3 cm across. *Calyx*-lobes 5, ovate; outer 2 smaller, 4mm; inner 3 larger, 7 mm. *Petals* 5, yellow, ovate-elliptic, clawed. *Stamens* 10; upper 3 staminodes; of antheriferous 7 lower 2 large, one medium, other 4 short. *Ovary* sessile, deeply grooved, pubescent; ovules many. *Pod* long-stipitate, strap-shaped, flat, compressed, woody. *Seeds* 20-30, longitudinal. Fir. & Frt.: almost throughout the year.

Cultivated largely by Social Forestry department along roadsides.

Photo No. 16.4 (plate 16)
Photo No. 16.1: *Cassia hirsuta* L.

Photo No. 16.2: *Cassia occidentalis* L.

Photo No. 16.3: *Cassia nodosa* Warm. ex Roxb.

Photo No. 16.4: *Cassia renigera* Wall. ex Benth.

Photo No. 16.5: *Cassia siamea* Lamk.

Photo No. 16.6: *Cassia tora* L.

Plants undershrubs. Leaf-rachis 7-20 cm long, grooved, with a conical gland at base; leaflets 1.5-5.0×0.6-2.0 cm, lanceolate, acute or acuminate, unequal at base, glabrous above, glaucous beneath. *Racemes* corymbose, about 3 cm long. *Flowers* yellow, 2-3 cm across. *Ovary* hirsute. *Pods* subterete, 5-10 ×0.5-0.7 cm.

Flr.: April – August. Frt.: May – November.

Occurrence: Rare. Grows as weed along railway sides.

Vern. name: Medelua (As.), Medla-phul (Char area).

Uses: Leaf decoction is prescribed locally for curing leprosy.


Photo No. 16.5 (plate 16)


Annual foetid *herbs*, 30-150 cm high; stems woody below. *Leaf-rachis* 3-4 cm long; pubescent, grooved with 2 subulate gland in between two lower pairs of leaflet; stipules linear; leaflets 3-pairs, obovate, gradually bigger from lower to upper pair, 1.5-3.0 × 1.0-1.5 cm, glabrous above, pubescent beneath, apex rounded,
minutely mucronate, base unequal; foliar glands between the lowest pair of leaflets. *Flowers* in corymbose racemes, golden yellow, about 1.5 cm across. *Stamens* 7; staminodes 3. *Ovary* pubescent. *Pods* compressed, sub-tetragonous, 7-11 ×0.2-0.3 cm, 20-30 seeded, glabrous, obscurely septate between seeds; seeds oblong, with ascol on both the sides. *Flr.:* May – August. *Frt.:* June – December.

Occurrence: Common. Grows along the plains, hill sides open places.

Vern. names: Soru-medeluwa (As.) Jhunjhunbon (Char area)

Uses: Aqueous extract of leaves is administered for the treatment of insomnia.

Coll. No. Borah A. 36. Date: 02-5- 2001 Locality: Barpara

Photo No. 16.6. (plate 16)

**Delonix** Rafinesque

Fl. Tell. 2:92. 1837

Unarmed *trees*. *Leaves* 2-pinnate; leaflets indefinite; stipules small; stipels 0. *Corymbs* terminal; bracts caduceus; bracteoles 0. *Calyx-tube* short, persistent; lobes 5, valvate, subequal. *Petals* 5, orbicular, imbricate, clawed, subequal, uppermost dissimilar; margins often fimbriate. *Stamens* 10, free, declinate, exserted; filaments villous at base; anthers uniform. *Ovary* subsessile; ovules indefinite, style filiform; stigma truncate. *Pod* flattened, woody, dehiscent; seeds indefinite, oblong, transverse.

A soft wooded deciduous tree with spreading crown. Leaves large, feathery, 2-pinnate; pinnae 11-18 pairs; stipules pectinate. Flowers gorgeous scarlet and orange; petals 5 cm or more long, orbicular with a long claw. Pod 30-60 cm long, flat, woody. Flr.: April–June Frt.: May onwards

Cultivated for its beautiful flower and canopy; also grow wild.

Vern. name: Krishnachura (As.)


**Tamarindus L.**

Sp. Pl. 34. 1753.


A large evergreen tree with large canopy. Bark shallowly fissured, dark grey. Leaves 5-12 cm long, even-pinnate; stipules caducous. Leaflets 10-20 pairs, 1-1.7 × 0.3-0.5 cm, linear oblong, slightly notched at apex, coriaceous, glabrescent; petiolules minute. Racemes lax, few flowered. Flowers cream or pale yellow coloured. Calyx segments lanceolate. Petals streaked with red, 3 only developed,

Found cultivated as well as wild usually near homesteads, periphery of forests, road sides etc.

Occurrence: Common Vern. name: Teteli (As.), Tentul (Beng.)

Uses: pulp of the ripe fruits are eaten fresh, pickle is also prepared, considered medicinal for chronic amoebic dysentery, but not prescribed for persons with gastric trouble.

Coll. No.: Borah, A 194. Date: 22/5/2002. Locality: Kakoijana RF

**MIMOSACEAE**

*Herbs, shrubs, trees* and *climbers*. *Leaves* usually bi-pinnate. *Flowers* regular, hypogynous, tetramerous or rarely pentamerous in dense globose head like spikesor simple spikes. *Sepals* united, valvate. *Petals* valvate, united to form a funnel shaped corolla. *Stamens* indefinite to definite to 10, exserted with long filaments, mostly coloured and united (monadelphous), sometimes free.

Key to the genera:

1a. Plants armed:

2a. Pods bristly or spinous on margins; a persistent replum present .. .. *Mimosa*

2b. Pods unarmed; replum absent .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..
3a. Pods straight, compressed, thin... Albizia
3b. Pods curved, turgid, woody... Samanea

Acacia P. Miller

*Shrubs, trees or climbers*, usually spinous or prickly. *Leaves* bipinnate, sometimes reduced to phyllodes, usually with a gland towards the base of the primary rachis and often several between the pinnae; stipules sometimes modified into spines; leaflets small. *Flowers* in globose heads or spikes, hermaphrodite or polygamony, usually 5-merous. *Calyx* campanulate, shortly toothed. *Petals* valvate, more or less united to lower half. *Stamens* indefinite, much exserted, free or connate to one another and to corolla at the base. *Ovary* sessile or stipitate, ovules many, style filiform. *Pod* dehiscent or indehiscent, often compressed or dry, subcylindric or moniliform, never breaking into joints.

Key to the species:

1a. Shrubs or trees with stipular thorns:

2a. Prickles straight; inflorescence heads... *A. farnesiana*
2b. Prickles curved; inflorescence spikes... *A. catechu*

1b. Climbers or stragglers:

3a. Young parts pubescent; pinnae 7-16 pairs... *A. pennata*
3b. Young parts tomentose; pinnae 3-6 pairs... *A. concinna*

A tree, thick branching. Leaves simple, stipulate or curved prickles; alternate 8-20 X 1.2-3 cm across; venation slightly curved—from petiole to leaf tip, the leaves are bow shaped. Flowers yellow in rounded heads. Cylindrical spikes; regular, 4 merous. Petals-4, united, valvate. Stamens free, numerous, embryo straight. Flr. & Frt: Nov.-Feb.

Cultivated and almost naturalized in the area.

Occurrence: Commonly found along the roadsides as shade and ornamental tree.


Deciduous trees with recurved prickles inserted below leaf base, bark grey to blackish. Leaf rachis 6- 17 cm long, glandular; pinnae 10-13 pairs; leaflets small, 30-50 pairs. Flowers pale yellowish or creamy white. Pods stalked, oblong, glabrous. Flr. & Frt.: May- July

Grows along hill streams of alluvial soil.

Vern. Name: Khoir (As.)

Note: A large area has been occupied by this species along the Kuklung nala from Bhutan Border to Kuklung RF.


Occasionally planted in homestead.

Vern. name: Tarua-kadam(As.), Remsu (Garo)

Use: Decoction of root in used as ear drop to control discharge from the ear (otorrhea). Stem is used as toothbrush to cure pyorrhoea. The plant is also planted for ornamental purposes.

Coll. No.: Borah a. 519. Date: 4- 4- 2006  Locality: Birjhora Mahavidyalaya.


Large prickly climbers. Young shoots, inflorescence, leaf rachis pubescent. A large cup like gland is present near the base and 2-4 smaller between the upper pinnae. Pinnae 7-16 pairs. Leaflets thin, linear-oblong, more than 50 pairs. Flowers
in elongate compound panicles, pale white. Pods star shaped, dark-brown, 8-14-seeded. Flr. & Frt.: September- December

Grows on hill slopes near streams. Vern. Name: Kosera kaint. (As.)

Uses: Bark is used for fish poisoning.

Coll. No.: Borah A. 526. Date: 27-4-2006. Locality: Shankarghola


A large, prickly climber, branches densely covered with small, white spots and armed with hooked prickles. Young parts tomentose. Leaves bipinnate, 5-10 cm long, leaf axis angular, covered with hooks. A prominent gland is present near the base and another below the upper most pair of pinnae; pinnae 3-6 pairs; leaflets 5-6 pairs in lower pinnae, 10-14 in middle pinnae. Flowers yellow in dense, globose, panicles. Pod linear oblong, 8-13 cm. long thick, succulent, contracted between the seeds. Seeds 6-10 per pod, saponaceous, indehiscent. Flr.: March- May Frt.: December- January

Vern. name: Kusiakata, Amsikira, Suse-lewa (As.), Suchci-wak-chigong (Garo)

Uses: Leaf and pods are used in medicine. Decoction of leaf with *Vitex negundo*

is given on head for convulgence. (M. Das 2007.)

Coll. No.: Borah A 525. Date: 27-4-2006. Locality: Shankarghola
**Albizia Durazzini**


Unarmed trees, rarely shrubs. Leaves alternate, bipinnate, basal pinnae smaller, upper ones larger, usually with a gland near the base and sometimes between the upper pinnae. Flowers in globose heads or in panicles or clusters; 1 or 2 central flower(s) per head often larger. Calyx campanulate or tubular, 5-toothed. Corolla funnel shaped, petals 5. Stamens indefinite, connate at base to form a staminal tube; filaments long, coloured. Ovary sessile, many ovuled. Pod thin, flat, strap shaped, indehiscent or turbly dehiscent. Seeds compressed, orbicular.

Key to the species:

1a. Pinnae usually one pair; leaflets not more than 3 pairs.. .. .. .. .. A. lucidior

1b. Pinnae 2-6 pairs; leaflets more than 3 pairs:

2a. Flowers sessile, in paniculate heads .. .. .. .. .. .. .. .. .. .. .. A. procera

2b. Flowers pedicilate, in short corymbose racemes or heads.. .. .. ..A. lebbek


A large deciduous tree with a spreading crown dark brown bark. Young parts pubescent, branches lenticellate. Pinnae glandular, 2-5 pairs, stipels minute. Leaflets 3-10 pairs, obovate or oblong, pale green, obtuse or retuse at the apex; base unequal. Flowers greenish-white, fragrant in pedunculate heads or in fascicles of 2-4 from upper leaf axils or at the end of short leafless branches. Calyx short toothed. Corolla
funnel shaped. **Stamens** long, fading to yellowish with a green terminal portion. **Pod** 15-30 cm long, pale, straw coloured, finely reticulate, alternately depressed on either side over the seeds. **Seeds** 4-12, sutures thickened.

Fir.: May- June. Frt.: Winter.

Found as wild and also cultivated. Vern. name: Siris, Kathiya-koroi (As.).

Uses: Timber yielding tree.


A middle sized **tree** with horizontally wrinkled and warty branches. Young part brown silky. **Rachis** with a large cup shaped gland at the base and sometimes another near the top. **Pinnae** usually one pair. **Leaflets** 2, sometimes 3, terminal pair usually largest, oblong-lanceolate or oblanceolate, base cuneate or rounded, glabrous, glossy-dark green above, pale beneath. **Heads** small, peduncled. **Calyx** campanulate, puberulous in mature flowers. **Corolla** silky outside. **Stamens** many, pale yellow. **Pods** 15-25 cm long, attenuated at both ends, deep brown, reticulated, flexible at length, dehiscent. **Seeds** 6-8, orbicular. Fir.: March – May. Frt.: winter.

Wild and cultivated also.

Vern. name: Moj, Micha-goch, Moj-koroi (As.)

Uses: Sometimes wood is used as timber.

Coll. No.: Borah A 496. Date: 19-11-2005. Locality: Shankarghola

A large semi-evergreen tree with smooth yellowish-grey or brown bark outside. Leaf rachis with a large basal gland; pinnae 2-6 pairs, about 20 cm long, often with glands between the upper 1-2 pairs of leaflets; leaflets 6-16 pairs, oblique, oblong-ovate or rhomboid-oblong, obtuse, silvery when young. Heads usually in fascicles of 2-5, sometimes solitary or arranged in large terminal panicles. Flowers sessile, yellowish-white. Calyx tubular. Corolla 0.5 cm long. Stamens 1 cm long, filaments yellowish. Pods 10-20 cm long, glabrous, reddish-brown, flexible. Seeds 6-12. Flr.: Summer season Frt.: Winter season

Uses: Cultivated as shade tree over tea; sometimes to yield timber.

Coll. No.: Borah A 113. Date: 05-04-2002. Locality: Shankarghola

*Mimosa* L.

Sp. Pl. 516. 1753.

Armed sub-shrubs or stragglers. Leaves alternate, bi-pinnate; leaflets even-pinnate, inequilateral, often sensitive; rachis prickly; stipules small. Flower-heads in terminal racemes or axillary clusters; bracts deciduous; bracteoles minute. Flowers sessile, 4-merous, polygamous. Calyx-tube campanulate, minute. Petals 4, valvate, connate at base. Stamens as many or twice as many as petals; filaments much exserted, free. Ovary stipitate; ovules 2 or indefinite; style filiform; stigma simple. Pod
stipitate, oblong, flat, thin, spinous, or bristly along margins, breaking up into several 1-seeded segments having a persistent replum; seeds ovoid, flat.

Key to the species:

1a. Spreading sub-shrubs. Pinnae pairs 2-3. Stamens as many as petals. \textit{M. pudica}

1b. Stragglers. Pinnae pairs 4-7. Stamens twice as many as petals. \textit{M. rubicaulis}


A spreading deciduous \textit{sub-shrub}; stem and branches prickly and clothed with bristles. \textit{Leaves} sensitive; pinnae 4, digitately arranged; stipules linear-lanceolate with bristly edges; leaflets 12-20 pairs, about 0.8 cm long, obliquely narrow oblong, acute, undersurface adpressed. \textit{Heads} on slender axillary peduncles, covered with spreading bristles. \textit{Petals} 4, pink. \textit{Stamens} 4, filaments about 6 mm. ovary subsessile, globose, style 6 m. \textit{Pods} clustered, flat, with weak prickles on the sutures. \textit{Seeds} 2-5, compressed, ovoid. Flr.: July – November Frt.: November - December

Grows as weeds in crop fields, roadsides, degraded forests etc.

Vern. name: Lajuki-lota, Nilaji-bon (As.), Lajjawati (Beng.)

Coll. No. Borah A. 24. Date: 15-8-01 Locality: Barpara

Uses: Roots are believed to be medicinal in dog bite.

A straggling shrub; young branches reddish-brown, branchlets grooved, thickly basset with prickles. Leaves bi-pinnate, rachis prickly, at first downy, glabrescent with age, ending in a bristle, stipules subulate. Pinnae 8-12 pairs, often with a short stiff bristle between each pair. Leaflets 10-20 pairs in each pinna, lowest pair often reduced to bristle, glabrous and dark green above, paler and sparingly hairy beneath. Heads on long peduncles, either fascicled on leaf axils or in terminal panicles. Flowers pink or white, tetramerous; bracts minute, linear, spatulate, hairy outside. Calyx campanulate, shortly toothed. Corolla very small. Stamens 8, filaments filiform, free, much exserted. Ovary glabrous, stipitate, many ovuled; stigma terminal, entire. Pod 7-12 cm long, slightly curved, smooth, 6-10 jointed, 1 seeded, braking up and separating from the persistent sutures. Flr.: July-September Frt.: November- January

Grows on hill slopes of foothills near streams. Occurrence: Rare

Vern. name: Kuchoi kaint, Kauri-kanta (As.)

Coll. No. Borah A. 504. Date: 16-9-2006 Locality: Mahadev hillock

Samanea (A.P. de Candolle) Merrill


Pithecolobium saman (Jacq.) Benth. in Hook., Lond. J. Bot. 3; 216. 1844.

A large tree with an extensive hemispherical crown. Leaves bipinnate, pinnae 4-5 pairs, 5-11 cm long, leaflets 3-7 pairs, glabrous above, pubescent beneath. Flower heads 2 cm across in terminal or axillary corymbose racemes. Petals about 1 cm, basally connate. Stamens indefinite, monadelphous, filaments exserted, 2 cm long, pinkish, base white. Pods linear oblong. Flr.: February-June Frt.: March-April.

Introduced species, commonly planted as shade tree on roadsides, large campus, tea gardens etc.

Uses: As shade tree in the plains. The pod is eaten by cattles.


**ROSACEAE**

Trees and shrubs, sometimes armed. Leaves alternate, simple or compound; stipules free or adnate to the petiole. Inflorescence terminal and / or axillary, of racemes or umbellate to panicles, rarely flowers solitary, bracteate, bracteolate. Flowers pentamerous, bisexual, regular. Calyx-tube free or adnate to the ovary, lobes 5, valvate or imbricate. Petals 5, imbricate, inserted on the margin of the disc. Disc glandular, lining the calyx tube. Stamens usually indefinite, inserted at the mouth of the calyx-tube; anthers small, didynamous. Carpels 1 to many, free or connate;
ovary half-inferior or superior, 1 or 2-5-celled; ovule(s) 1 or 2 per cell. *Fruit* usually a drupe.

**Key to genera**

1a. Plants trees. Leaves simple:

2a. Foliar gland present. Fruit drupaceous  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  *Prunus*

2b. Foliar gland absent. Fruit a pome ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  *Pyrus*

1b. Plant herbs or shrubs. Leaves compound:

3a. Herbs with runner. Leaves digitately 3-foliate. Achenes on a fleshy red receptacle, spherical, insipid  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  *Duchesnea*

3b. Shrubs. Leaves imparipinnate. Achenes enclosed in the fleshy calyx tube forming a pseudo-baccate fruit.  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  *Rosa*

**Duchesnea** Focke

Pfamilien. III.3:33. 1888.


A silky pubescent *herb* with perennial rootstock and slender runner. *Leaves* dark green, 3-foliate, stipules foliaceous, adnate to the petiole. Leaflets obovate, toothed, base cuneate, nerves sub-parallel. *Flowers* yellow, solitary or on long
axillary peduncles equal to the petiole. Calyx persistent with 5 long bracteoles exceeding the lobes. Petals 5, obovate. Stamens many, persistent. Carpels many on a convex receptacle. Fruits of numerous minute black achenes on a fleshy red receptacle, spherical, insipid. Flr. & Frt.: Throughout the year.

Occurrence: Sporadically found in the district on damp, partially shaded places.

Vern name: Gorukhish, Kukur-muta (As.)

Uses: Ripe red fruits are eaten fresh.


Prunus L.
Sp. Pl. 473. 1753.

Trees. Leaves simple with glands at the base or on the petiole. Flowers in racemes or umbellate clusters or solitary. Calyx-tube campanulate, lobes 5, spreading. Petals 5, white or ink. Stamens 20 or many, inserted on calyx. Carpel 1; ovary superior, 1-celled, enclosed by calyx-tube; ovules 2, pendulous. Drupe ovoid, mesocarp dry or fleshy, endocarp bony or woody, seed solitary.


A small deciduous tree with narrow lanceolate leaves, acuminate, serrate, glabrous above, pubescent beneath. Flowers pink, mostly solitary. Drupe downy, succulent, red inside; stone deeply and irregularly furrowed.

Cultivated for its edible fruit. Vern. Name: Nora-bogori or Ahom-bogori (As.)
Pyrus L.
Sp. Pl. 479. 1753.

Deciduous trees or shrubs with simple or pinnate leaves. Flowers white, red or pink in terminal cymes or corymbs. Petals 5. Stamens 20 or more. Disk annular or lining the calyx-tube. Carpel 2-5, connate, adnate to the calyx-tube. Fruit 2-5-celled pome.


A deciduous tree sometimes with spinescent branches. Fruit usually pyriform.

Cultivated for its fruit. Vern. name: Naspati (As.)

Rosa L.
Sp. Pl. 491. 1753.

The roses are very commonly planted in the household gardens. Several kinds are found with variation in flower size, colour etc. of which are commonly grouped as "local" and "hybrid or grafted". Among the "locals", the most common are-

Rosa alba L. Boga-Golap (As.)

Rosa damascena Mil. Golap (As.)

Rosa indica L. Konta- Golap (As.)

Rosa multiflora Thunb. Lota-Golap (As.)
CRASSULACEAE

Succulent *herbs*. Leaves alternate, simple or compound, exstipulate. *Flowers* 4-merous, bisexual, in terminal, corymbose panicles. *Calyx*-tube persistent, lobes 4, valvate. *Corolla* gamopetalous; lobes 4, shorter than the tube, patent or recurved. *Stamens* 8, epipetalous, 2-seriate. *Hypogynous* scales as many as, and slightly adnate at base to carpels. *Carpels* superior, 5, more or less free, ovary 1-celled; ovules many. *Follicles* membranous, enclosed by the withered calyx and corolla, dehiscing on the adaxial side; seeds many, minute.

*Kalanchoe* Adanson

Fam. 2:248. 1763.


Semi-succulent herb of 2-3 ft. high; branchlets glabrous, swollen at nodes. Young plants grow from the margins of old leaves. Leaves decussate, distant in adult, often 3-5-foliate, oblong or ovate-elliptic, thick coriaceous, glabrous, greenish, base oblique margin crenate, apex obtuse-subacute; petiole greenish with violet blotches. Cymes panicled; bracts foliar, bracteoles linear. Flower 2-3 cm across, pendulous. Calyx tube lobed above middle, terete, green with reddish blotches; lobes 4, triangular. Corolla app. 5 cm, base greenish, glandular within, apex reddish, lobes 4, ovate, acuminate. Stamens 8, inserted above the constriction of the corolla. Hypogynous scales 4, adnate to carpels. Carpels 4, app. 1 cm; ovules many. Follicles 1.5 cm; seeds linear. Flr.: & Frt.: February - May

Generally grows on damp soil (not water logged), partially shaded area, also cultivated in homesteads. Vern name: Pategoja, Dupar tenga (As.)

Uses: Leaves eaten as vegetable. It is acidic during morning to midday and gradually reduces thereafter; also less acidic in April. Curry is prepared from the leaves of this plant with fish and other vegetables. It is medicinal for kidney stone and constipation.


Photo No. 17.1 (plate 17).

DROSERACEAE

Insectivorous herbs. Leaves rostrate or cauline, glandular, often exstipulate, stipules represented by hairs edging the dilated base of the petiole. Inflorescence of circinate racemes. Flowers 4- or 5-merous, bisexual, regular. Calyx-tube 5-toothed;
lobes imbricate, persistent. Petals 5, free, imbricate, persistent. Stamens 5, free, alternating with petals. Ovary superior, 1-celled; ovules many; styles 3-5, free or connate. Capsule 3-5-valved, loculicidal; seeds indefinite.

**Drosera** L., Sp. Pl. 218. 1753.


Insectivorous, acaulescent herbs, stem scarcely any. Leaves 0.5-1.5 cm tinged with red, all radical-rolslulate, spathulate, clothed with curious gland-tipped tentacles; petioles flat; stipules scarious, scape 5-10 cm long, rachis purplish, glabrous. Calyx-lobes 5, oblong, obtuse. Petals 5, pinkish or whitish, oblong-oblancteolate, 5-6 mm. Stamens 5, filaments 3.5-4 mm. Ovary ovoid, 3-celled; ovules 2 per cell; styles 5. Capsule 5-valved. Seeds many, black, minute. Flr. & Frt.: January-February
Grows in limited on rice fields after rice harvested, sun exposed. One can easily find out it from its glistening leaves when exposed to sun in the morning. Occurrence: Rare; found only at one spot (rice field) at Barpara.

Vern. name: Rhod-mukuta (As.), the sun dew.


Photo No.: 17.2 (plate 17)


**COMBRETACEAE**

*Trees, shrubs* or *scandent. Leaves* opposite, sub-opposite, alternate, extipulate, sometimes with peltate scales or dots beneath. *Flowers* small, bracteolate, 4- or 5-merous, in terminal or axillary racemes, panicles or spikes. *Calyx-tube* adnate to ovary and produced at the apex, broadly campanulate; lobes 4 or 5, valvate. *Petals* 4-5 or 0, inserted on the calyx, alternating with calyx-lobes. *Stamens* 4-5 or twice the number. *Ovary* inferior, 1-celled, ovules few. *Fruit* indehiscent, drupaceous or coriaceous, angled or commonly winged, sometimes crowned by an accrescent calyx; seed solitary.

Key to the genera:

1a. Trees. Leaves alternate or sub-opposite. . . . . . . . . . . . . . . *Terminalia*

1b. Scandent or straggling shrubs. Leaves opposite:

2a. Petals small, greenish-yellow. Drupe winged. . . . . . . . . . . . . . . . . Combretem

2b. Petals conspicuous, pinkish-white. Drupe not winged. . . . . . . . *Quisqualis*
**Combretum** Loefling, Iter Hispan. 308. 1758 (nom. cons.)

Large *straggling* or *scandent* shrubs. *Leaves* opposite, entire, petiolate. *Flowers* 4-5-merous, bisexual, in panicled spikes; bracts large. *Calyx* base adnate to ovary, 4-5 angled, produced above the ovary. *Petals* inserted between the calyx teeth or rarely absent. *Stamens* twice as many as the petals, inserted on the disk. *Ovary* 1-celled. *Fruit* 4-5 winged or ridged, dry, generally indehiscent; wings membranous.

**Combretum acuminatum** Roxb., Fl. ind. 2:225. 1832; Hook. f., FBI 2: 457. 1878; Prain, Bengal Plants 1:483. 1903; Kanjilal et al., 2:252. 1938; Chowdhury et al., 219. 2005.

A large woody *climber*, young parts puberulous. *Leaves* opposite, ovate or elliptic, oblong-lanceolate, acuminate, coriaceous, glabrous along the midrib; lateral nerves 10-15 on either side; base sub-cordate or acute. *Spikes* axillary and forming leafy panicles at the ends of branches, bracteoles small, caduceus. *Flowers* 4-merous. *Calyx* dotted with minute round scales; campanulate; teeth erect, acute. *Petals* narrowly oblanceolate, acute. *Fruit* 2.5-5 cm long, 1- 1.3 cm broad, narrowly ellipsoid-narrowed at either end, bluntly 4-ridged, fluted between the ridges, brown.

Flr.: February-March. Frt.: till July

Grows on hill-slopes near streams.

Vern. name: Nahar-lota (As.)


Photo No.: 17.3 (plate 17)
*Quisqualis* L., Sp. Pl. ed. 2. 1:556. 1762.


A large scandent shrub. Leaves elliptic-acuminate, pubescent. Flowers 5-merous, scented, at first white and then turning red. Flr.: Summer season. Ornamentally planted in the homesteads and sometimes running wild.

*Terminalia* L., Syst. Nat. ed. 12. 2:674. 1767;
Mant. 21, 128. 1767 (nom. Cons.)

Large trees, often buttressed. Leaves sub-opposite, opposite or alternate, sometimes crowded at the ends of the branches, entire or slightly crenulate, often with glands at the base of the blade or on the petiole. Flowers small, bisexual, or sometimes the upper flowers of the spike male, greenish, in simple or panicled spikes; bracts narrow, caducous. Calyx tube constricted and produced above the ovary with a campanulate limb and 5 short lobes. Petals 0. Stamens 10, in two series, inserted on the calyx tube, filaments exserted; disk epigynous, hairy, lobed within the stamens. Ovules 2-3, pendulous. Fruit drupaceous or dry, smooth or angular or with 2-5 wings.

Key to the species:

1a. Fruits winged. Spikes panicked  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  T. *arjuna*

1b. Fruits not winged. Spikes simple:

2a. Leaves apically clustered. Drupes globose, tomentose  ...  ...  T. *bellirica*
2b. Leaves sub-opposite. Drupe not globose, smooth. .. .. .. .. .. T. chebula


A deciduous tree; branchlets pubescent. Leaves alternate to sub-opposite, oblong or obovate-oblanceolate, 7-12 ×3.5-5 cm, thick-coriaceous, nerves 15-18 pairs, glabrous, base obtuse-subcordate, margin crenate-serrate, apex obtuse; petiole with 2 glands close to the base of the blade. Spikes axillary, in panicles, peduncle to 5 cm. Flowers to 4 cm across. Calyx-tube 2 mm, pubescent, lobes 5, triangular, cream coloured. Stamens 10; filaments 3-4 mm. Ovary ovoid, 1-celled; ovules 2 or 3. Drupe 5-angled, 5-winged, wings equal. Flr.: April-July. Frt.: June onwards.

Vern. name: Arjun goch (As.)

Use: Fruit and bark medicinal. A liquor, like tea, is prepared from dried bark of the tree which is considered good for heart, liver etc. and medicinal for high blood pressure and in reducing blood sugar. Timber of the tree is valuable.

Coll. No.: Borah A. 50. Date: 12-5-2001 Locality: Mahadev hillock

Photo No. 17.4 (plate 17).


A large deciduous tree with buttresses at the base. Leaves alternate, clustered at the end of branches, ovate-elliptic, obtuse, sub-acute or apiculate at the apex, margin with a pellucid rim; coriaceous; puberulous and copper coloured when young, dark green and glabrous when mature. Flowers greenish-yellow with an unpleasant smell, in slender axillary and extra axillary interrupted drooping spikes from new shoots, bisexual, upper flowers often male, bracts villous, caducous. Calyx hairy outside, woolly within, limb cup shaped, expanded, teeth 5, triangular. Drupe about 2.5 cm long, globose, often abruptly narrowed to a short stalk, grey velvety, obscurely ribbed when dry. Flr.: Summer season Frt.: December-February

Commonly found in the forests.

Vern. name: Bohera, Bhomora (As.) the Myrobalan of commerce.

Coll. No.: Borah, A. 91. Date: 18-6-2002 Locality: Shankarghola

Photo No.: 17.5 (plate 17).


Deciduous tree, young parts shining, rusty, pubescent. Leaves sub-opposite or alternate, acute, elliptic or ovate-oblong or shortly acuminate, silky when very young, glabrous with age. Spikes 5-7 cm long, terminal or from the upper leaf axils on new shoots, often paniéled. Flowers with an offensive smell, bisexual; bracts linear, deciduous. Limb of calyx-tube expanded, cup shaped, glabrescent outside, villous inside. Drupe 2.5-5 cm long, obovoid or ellipsoid, smooth, more or less 5-
PLATE 17.

Photo No. 17.1: *Kalanchoe pinnata* (Roxb.) Pers.
Photo No. 17.2: *Drosera burmannii* Vahl.

Photo No. 17.3: *Combretum acuminatum* Roxb.
Photo No. 17.4: *Terminalia chebula* Retz.

Photo No. 17.5: *Terminalia bellirica* (Gaertn.) Roxb.
Photo No. 17.6: *Terminalia arjuna* Roxb.

Wild and cultivated in homesteads for its edible, medicinal fruit and timber.

Vern. name: Silikha, Horiteki (As., Beng.), the chebulic myrobalan of commerce

Coll. No.: Borah A. 102. Date: 20-6-2002 Locality: Shankarghola

Photo No.: 17.6 (plate 17).

**MYRTACEAE**

*Trees. Leaves* decussate or alternate, coriaceous, pellucid-punctate, exstipulate. *Inflorescence* axillary or terminal, in panicked or corymbose cymes or flower solitary. *Flowers* 4-5-merous. *Calyx-tube* campanulate or urceolate, persistent, adnate to the ovary, lobes 4-5, distinct, sometimes deciduous. *Petals* 4 or 5, imbricate, usually free, deciduous. *Stamens* usually indefinite, inserted on the margin of the disc, incurved in bud. *Ovary* inferior, 2-5-celled; ovules indefinite on axile placentae. *Fruit* an indehiscent berry or loculicidally capsule; seed(s) solitary or indefinite.

Key to the genera:

1a. Fruit capsules. Mature leaves alternate:

2a. Inflorescence spikes. Petals and stamens free .. .. .. .. .. *Callistemon*

2b. Inflorescence other type. Petals fused. Stamens sub-connate .. *Eucalyptus*

1b. Fruit berries. Mature leaves decussate:

3a. Ovary many-celled. Seeds indefinite .. .. .. .. .. .. .. .. .. .. *Psidium*
3b. Ovary 2-celled. Sees 1 or 2. ... Syzygium


Cultivated in gardens. Vern. Name: Bottle-brush (Eng., As.)

Eucalyptus L’ Heritier de Brutelle, Sertum Angl. 18. 1789:t. 20. 1792.

Trees. Bark smooth, older parts decorticating in long strips. Leaves pellucid-punctate, pale green. Flowers in axillary or terminal panicles or solitary, 4-merous, bisexual. Stamens many, in several series, free. Ovary inferior, adnate to hypanthium; ovules many. Fruit globose or ovoid, loculicidal, sees many.


Tall tree with smooth bark due to decortication of older barks. Leaves 10-15 cm long, lanceolate. Flowers in 3-flowered umbels, arranged in panicles. Stamens opening by slits. Fruit ovoid.

Cultivated in gardens, roadsides etc. for ornamental purposes.


Cultivated and escape.

Vern. name: Madhuri-am (As.). Uses: Ripe fruits are eaten fresh.

Syzygium J. Gaertner, Fruct. 1:166. 1788 (nom. cons.)

*Trees.* *Leaves* decussate, lateral nerves close. *Cymes* paniculate, terminal and /or axillary, bracteolate or not. *Calyx-tube* turbinate, persistent, adnate and produced above ovary; lobes 4, obscure or distinct. *Petals* 4, calyptrate or free, caducous. *Disc*
thickened or not. *Stamens* indefinite, bent inwards in bud; filaments unequal, basally sub-connate. *Ovary* 2-celled; ovules indefinite. *Berry* globose, 1-seeded.

Key to the species:

1a. Flowers large, in raceme like or panicled cymes. Calyx-tube with a thickened staminal disk at the mouth:

2a. Berry globose or pyriform, crowned by inflexed calyx-lobed, delicately rose scented...

2b. Berry globose, crowned by spreading calyx-limb, not rose scented...

1b. Flowers small, in panicled or corymbose cymes. Calyx-tube without a thickened staminal disk at the mouth:

3a. Lateral nerves of leaf distant, 8-20 pairs. Leaves with a pleasant aromatic smell, red before falling...

3b. Lateral nerves of the leaves numerous. Leaves without aromatic smell:

4a. Berry oblong or ellipsoid, usually curved...

4b. Berry globose or ellipsoid, not curved...


Evergreen tree with light grey or brown bark and pits in old stem. *Leaves* variable in size and shape, elliptic-oblong or ovate, acuminate, acute or subobtuse, narrowed to the base, smooth, glossy when young. *Flowers* greenish-white, sessile,
about 1 cm in across, fragrant, usually in threes in branchiate panicles of compound cymes. *Calyx* broad turbinate, with a truncate or very obscurely lobed limb and pedicel like solid basal portion. *Petals* dirty white, calyptrate, sub-orbicular, dotted with large pellucid glands. *Berry* variable in size and shape, usually up to 2.5 cm or more long, oblong or ellipsoid, often somewhat curved, black, juicy and shining when ripe, crowned with cup like limb of the calyx. *Seed* usually one. Flr.: April-May Frt.: June- July

Grows wild and cultivated for its edible fruit.

Vern. name: Kola-jamu (As.), Kala-jam (Beng.)

Use: Ripe fruits are eaten, considered medicinal for diabetes, heart ailments etc.


Fig. No. 18.a (Plate 18).

*Syzygium fruticosum* DC., Prodr. 3:260. 1828; Bennet, Fl. Howrah 264. 1979;
Duthie in FBI 2:499. 1878; Prain, Bengal Plants 1:491. 1903; Kanjilal et al., FA 2:279. 1938.

Glabrous small tree. *Leaves* elliptic-oblong to oblong-lanceolate, gradually acuminate, base cuneate or acute. *Cymes* panicled, usually trichotomous, 4-angled branches. *Flowers* small, sessile, bracteoles minute. *Calyx* turbinate, limb truncate or very obscurely 4-lobed. *Petals* white, calyptrate, sometimes free. *Berry* 0.5- 0.7 cm long, globose or ellipsoid. Flr.: March-April Frt.: May- June

Vern. name: Kathiya jamu (As.) Use: Ripe fruits are eaten by men and birds.

Coll. No.: Borah A 149. Date: 22-5-2002. Locality: Shankarghola
Fig. No. 18.b (Plate 18).


A medium sized evergreen tree; bark grey to black. Leaves narrowly oblong-lanceolate to lanceolate, tapering to an acuminate apex and base, glabrous, lateral nerves 10-20 on either half, slender. Flowers white, about 3.5 cm in across, in few flowered terminal raceme like cymes or panicled. Calyx turbinate, lobes sub-equal. Petals 4, free, about 1.5 cm across. Stamens many, filaments 3-3.5 cm long, subulate. Berry 3 cm in across, white or yellowish when ripe, sometimes winged with pink, globose or pyriform, crowned by the persistent inflexed calyx-lobes, rose scented.

Flr.: February- April   Frt.: May- July

 Mostly cultivated in homesteads and also grow wild.

Vern. name: Boga-jamu / Golapi-jamu (As.), Golap-jam (Beng)

Uses: Ripe fruits are sweet, eaten fresh.


A moderate sized tree. Leaves lanceolate to elliptic-lanceolate or oblanceolate, bluntly acuminate at the apex acute at the base, glabrous, thinly coriaceous, with small gland dots; lateral nerves 8-14 on either side. Cymes
Fig. A. *Syzygium cumini* (L.) Skeels  A(i) A flowering twig.  A(ii) Flower.  
B. *Syzygium fruticosum* DC.  A(iii) Fruit  B(i) A flowering twig.  B(ii) Flower.  B(iii) Fruit
branched or panicled, solitary or fescicled in leaf axils or axils of fallen leaves.

*Flowers* white, 1.5 cm across. *Calyx-tube* clavate-turbinate, lobes reflexed. *Petals* free. *Style* persistent. *Berry* globose, to 1.3 cm long, crowned by the spreading calyx-limb. Wild and cultivated. Frt.: March-June  

Vern. name: Bogi-jamu (As.). Uses: Ripe fruits are eaten fresh, sweet, juicy.


Photo No.: 19.1 (Plate 19).


A medium sized glabrous *tree* with barks exfoliating in irregular hard plates. *Leaves* elliptic or obovate, obtusely acuminate, apiculate or rounded at the apex, subcoriaceous; lateral nerves 8-12 on either side; pleasant aromatic when bruished, turning red before falling. *Cymes* arranged in corymbose lateral panicles with trichotomous spreading branches from leafless nodes. *Flowers* 0.5 cm across, greenish-white, sessile. *Calyx* campanulate, gland dotted, limb with four obtuse deciduous lobes. *Petals* white, sub-orbicular, calyptrate. *Berry* 0.7-1.2 cm long, globose or ovoid with truncated tip. Frt.: April-May  

Vern. name: Godha jamu (As.)

Uses: Fruit is edible. Wood is used in making agricultural implements.

LECYTHIDACEAE

*Trees.* Leaves alternate, often apically clustered, simple; stipules small. Inflorescence axillary or terminal of racemes or spikes. Flowers 4-5-merous, bisexual. Calyx-tube enclosing ovary, campanulate. Petals 4 or 5, imbricate, adnate to the stamens. Disc intrastamina, thick. Stamens indefinite several series, generally basally connate. Ovary inferior, 2-6-celled; ovules indefinite per cell, axile. Berry woody, fleshy, or fibrous, with 1 or many seeds.

*Careya* Roxb., Pl. Coromendal 3:13. 1811 (nom. cons.)


A medium sized deciduous tree with thick, grey or brown bark, brownish-red inside. Leaves alternate, large, obovate or oblanceolate, shortly acuminate or obtuse; base narrowed to a short margined petiole, crenulate-denticulate, glabrous, thin, lateral nerves 10-15, looping near the margins; turns red or purple before falling. Flowers in few flowered stiff terminal spikes, 7-10 cm across, with an unpleasant smell, white or pink; bracts 3, unequal, central elliptic, 2 lateral linear. Calyx about 2.5 cm long; calyx-tube campanulate, not produced beyond the ovary; lobes 4. Petals 4, white, caduceus, about 5 cm long, imbricate, elliptic. Stamens numerous in several series; filaments up to 7 cm long, gradually longer outwards; innermost and outermost series without anthers. Ovary inferior, 4-celled with an annular disk at the
top; ovules numerous, in 2 series in axile placentae. Berry about 7 cm in across, globose or ovoid, crowned with the limb of the calyx-tube; seeds numerous, immersed in pulp. Flr.: April- May   Frt.: July

Grows along hill slopes especially near streams.

Vern. name: Kum, Kumbhi (As.).

Use: timber is durable under water, used for oars and tool handles, sometimes as house posts.

Coll. No.: Borah A. 158. Date: 23-5-2002   Locality: Shankarghola

Photo No.: 19.2 (plate 19)

**BARRINGTONIACEAE**

Handsome evergreen tree. Leaves alternate, usually crowded at the apex of the brachlets, exstipulate, entire. Flowers in pendulous racemes. Calyx-tube funnel shaped. Petals falling off along with stamens. Stamens in several series, all perfect.

Fruit angular, 1-seeded.

_Barringtonia_ J.R. Forster _et_ J.G.A. Forster
Charact. Gen. 75. t. 38. 1776 (nom. cons.)

A medium sized tree with reticulate furrowed, almost black bark. Leaves alternate, crowded at the ends of brachlets, obovate or oblanceolate, minutely denticulate, glabrous. Flowers in slender, drooping, glabrous racemes; about 1.5 cm across, fragrant, deep red. Calyx-tube funnel shaped; lobes 4, rounded. Petals 4, adnate to the base of the staminal tube, imbricate, falling off early along with stamens. Stamens in several series, red, connate below; filaments dilated at the base. Disk annular. Ovary inferior, 2-celled, with 2 pendulous ovules in each cell. Fruit about 3.5 cm long, oblong, bluntly quadrangular, crowned with the persistent calyx lobes, somewhat narrowed and truncate at both ends, fibrous, 1-seeded.

Flr.: March-June Frt.: September-October

Usually grows on banks of streams, edges of swamp and moist places.

Vern. name: Hijol (As.)

Uses: Wood is durable under water; used to make boat, cabinet making, and posts of bridges etc. Leaves are eaten by cow, goat etc.

Coll. No.: 146 Borah A.. Date: 22-5-2002 Locality: Koroiguri

Photo No.: 19.3 (plate 19)

LYTHRACEAE

Herbs, shrubs and trees, often with quadrangular branches. Leaves entire, opposite, sometimes whorled, rarely alternate; exstipulate. Inflorescence various, often cymose or panicled. Flowers bisexual, 4-6-merous; bracts often foliar; bracteoles 2 or 0. Calyx-tube usually free, persistent; lobes 3-6, often with few accessory teeth, valvate. Petals as many as calyx teeth. Stamens inflexed in bud,
many or definite, inserted on the calyx-tube. *Ovary* free, rarely inferior; style usually long; stigma capitate, rarely 2-lobed; ovules numerous, usually on axile placentae.

*Fruits* sometimes adnate to the calyx, dehiscent or not. *Seeds* many, sometimes winged.

Key to the genera:

1a. Herbs. Flowers solitary in leaf axils or in racemes or spikes ....... *Rotala*

1b. Shrubs or trees. Flowers in panicles :

2a. Shrub. Leaves sessile or sub-sessile ........ *Woodfordia*

2b. Trees. Leaves not sessile:

3a. Flower 4-merous. Stamens 8 ....... *Lawsonia*

3b. Flower 6-merous. Stamens many ...... *Lagerstroemia*

*Lagerstroemia* L., Syst. Nat. ed. 10.2:1068, 1076, 1372. 1759.

*Shrubs or trees. Leaves* decussate or alternate, coriaceous. Panicles terminal, dense. *Flowers* 6-merous. *Calyx*-tube campanulate, ribbed or smooth; lobes 6, erect or spreading. *Petals* 6, showy, clawed. *Stamens* indefinite, reclinate, inserted at the base of the calyx-tube. *Ovary* 4-6-celled; ovules indefinite per cell. *Style* curved. *Capsule* exceeding thick calyx-tube; dehiscing by 3-6 valves; seeds winged.

Key to the species:

1a. Calyx ribbed. Petals mauve purple ........ *L. raginae*

1b. Calyx not ribbed. Petals white ........ *L. parviflora*
A large deciduous tree; branchlets sharply 4 angled; bark grayish-brown, peeling off in thin pieces. Leaves 5-10 ×2.5-3.7 cm, elliptic oblong or obovate, acuminate or acute, glabrous above, pubescent beneath. Flowers 0.7-1.3 cm across, white, fragrant in lax axillary and/or terminal, downy panicles of cymes. Calyx-tube broadly copular, enlarging and woody in fruit, lobes 6, triangular. Petals 6, membranous, ovate-oblong, margin undulate. Outer 6 stamens longer than the rest. Capsules 1.5-2.2 cm long, ovoid or ellipsoid, seated on accrescent calyx, 3-4-valved. Seeds with a terminal wing which is thickened and somewhat curved on the back. Flr.: with new leaves: March-June. Frt.: November-December.

Vern. name: Sidha, Dhuli, Jorali Sida (As.), Bon-sitha (Bodo)

Uses: wood hard, use in housing, furniture and agricultural implements.

Coll. No. Borah A. 591. Date: 28-4-2007 Locality: Kalamat (Manas part)
acute. Petals 6-7, 2.5-3.7 cm long, much crumpled and wavy with deeper coloured veins, margins erose, clawed. Capsules usually sub-globose, smooth, seated on the persistent, woody and ribbed enlarged calyx tube, 5-6-valved. Flr.: May-August Frt.: Up to March

Usually grows along river banks, edges of swamps etc.

Vern. name: Ajar (As.)
Coll. No.: 460. Borah A. Date: 3-5-2005. Locality: Shankarghola
Photo No.: 19.4 (plate 19)
Use: Timber is used to make boat, durable under water. Also plant as ornamental tree on roadsides.

Lawsonia L., Sp. Pl. 349. 1753.


Cultivated for its leaves from which “henna” is obtained.

Vern. name: Jetuka (As.), Henna (Beng., Hindi), Camphire (Eng.)
Rotala L., Mant. 143, 175. 1771.

Annual herbs, stems erect or creeping. Leaves small, sessile, decussate or whorled. Inflorescence racemes or spikes or flowers solitary. Flowers 3-6-merous. Calyx-tube campanulate, persistent. Petals 3-6, minute. Stamens 3-6, exserted or not. Ovary 2-4-celled, ovules indefinite per cell. Capsule dehiscing by 2-4 valves.


Decumbent herbs with erect branches. Leaves 0.8-1.5 × 0.4-0.9 cm, decussate, obovate, sub-orbicular or elliptic-lanceolate; flower bearing leaves linear lanceolate, apex rotund or emerginate, base cuneate. Flower 2 mm across, solitary or in spikes. Calyx lobes 4. petals 4, rose-pink, obovate, persistent. Stamens 4 or less. Capsule ellipsoid, dehiscing by 2 valves. Flr. & Frt.: January-February.

Locally abundant herb of marshy places.

Coll. No. Borah, A. 87. Date: 12-2-2002 Locality: Gosaipara

Woodfordia L., Syst. ed. 10:1045. 1759.


**Lythrum fruticosum** L., Syst. ed. 10:1045. 1759. **Woodfordia floribunda** Salisb., Parad. Lond. t. 42. 1806; Clarke in FBI 2: 572. 1879.

A large spreading **shrub** with reddish brown bark peeling off in small thin pieces. Young parts hairy; leaves and branches covered with black dots. **Leaves** sessile or sub-sessile, opposite, sometimes whorls of three, distichous, 5- 12 ×0.7-3.7 cm, lanceolate or ovate-lanceolate, acuminate. **Flowers** scarlet, shortly pedicellate, zygomorphic, in short panicles of closely clustered cymes, usually from the axils of the fallen leaves; lower bracts more or less leafy, upper smaller, brownish; bracteoles minute. **Calyx** scarlet, persistent, tubular, lobes 6, alternating with 6 hairy teeth. **Petals** 6, white, acute. **Stamens** 12, inserted at the base of the calyx-tube, filaments red, anthers versatile. **Ovary** superior, 2-celled; ovules numerous. **Capsule** ellipsoid, splitting irregularly, included within the persistent calyx tube. **Seeds** numerous, minute. **Flr.** January- March **Frt.** April- May

Found along water channels of hillocks with sandy soil.

Vern. name: Agni-jwala (As.)

Uses: Flowers and leaves are used in dying silk.

Coll. No. Borah A. 589. Date: 28-3-2005. **Locality:** Kalamati (part of Manas) 

Photo No.: 19.5 (plate 19).
Photo No. 19.1: *Syzygium kurzii* (Duthie) Balak.

Photo No. 19.2: *Careya arborea* Roxb.

Photo No. 19.3: *Barringtonia acutangula* (L.) Roxb.

Photo No. 19.4: *Lagerstroemia reginae* Gaertn.

Photo No. 19.5: *Woodfordia fruticosa* (L.) Kurz.

Photo No. 19.6: *Duabanga grandiflora* (Roxb.) ex DC.)
MELASTOMACEAE

*Herbs and shrubs*. Leaves exstipulate, opposite or whorled, entire or nearly so, often 3-7-nerved. *Inflorescence* various. *Flowers* regular, bisexual. *Calyx*-tube tubular or campanulate, partially or entirely adnate to the *ovary* and more or less prolonged beyond it; limb usually 4-5-lobed. *Petals* as many as calyx-lobes. *Stamens* as many as or twice as many as petals, inserted on the edge of the *calyx*-tube; sometimes stamens unequal in length, inflexed in buds. *Ovary* usually 4-5 or 3-6-celled; style simple; ovules many. *Fruit* included in the *calyx*-tube, baccate or capsular. *Seeds* many, minute.


Strigose or villous *shrubs*. Leaves 3-7-nerved. *Flowers* 5-merous. *Calyx*-tube with simple hairs or scales; lobes deciduous. *Stamens* twice as many as petals, unequal in length. *Ovary* 4-5-celled, setose at apex, ovules numerous. *Fruit* coriaceous or somewhat baccate, bursting irregularly. *Seeds* numerous, curved through half a circle, minutely punctate.


A tall *shrub*, usually 1.5-2 m in height, much branched, bushy, stem hard, rough, younger one armed with short, rigid, wedge shaped spinous outgrowths, terete to obscurely quadric angular. *Leaves* simple, opposite, decussate, exstipulate, petiolate, lamina 5.5-10.7×1.6-3.7 cm across, one of a pair sometimes smaller than
other, broad ovate-lanceolate, coriaceous, hispid along the nerves; entire, acute, base obtuse, venation palmate with usually 5, convergent nerves. Flower in terminal dichasial cymes; bracteate, pedicillate, bisexual, actinomorphic, pink, around 4×4 cm across. Bract wide, pubescent, green. Sepals 5, basally connate, forming a calyptrate, hispid with dense, pinkish, spinous structures, twisted, lobes wedge shaped. Petals 5, basally connate, imbricate, pink, obovate, convolute, lobed, lip notched. Stamens 10, epipetalous, anthers yellow. Gynoecium about 2-8 cm long, carpels 5. Fruit a loculicidal capsule. Flr. & Frt: November-December and again March -April.

Grows in moist hill slopes forming a patch.

Occurrence: common. Vern. Name: Phutuka (As.)

Coll. No.: Borah, A. 53. Date: 9-3-2001. Locality: Barpara. (Plate 20.)

**Osbeckia** L., Sp. Pl. 345. 1753.

Hairy shrubs and sub-shrubs with 4-angled branches. Leaves opposite or ternate, basaly 3-5-nerved. Cymes terminal, rarely flowers solitary. Flowers 4-5-merous. Calyx-tube with stellate hairs or pectinate scales outside, adnate to the lower half of the ovary; segments deciduous. Stamens 8-10. equal or unequal, anthers oblong, more or less beaked, connective not produced at the base, slightly swollen or with two tubercles. Ovary 4-5-celled, setose at the apex; ovules numerous. Capsule opening by 4-5 pores from the free tip. Seeds numerous, curved through half a circle, pitted.
**Fig.** *Melastoma malabathricum* L.
Osbeckia nepalemis Hook. f., FBI. 2: 525. 1879; Prain, Bengal Plants 1: 516, 1903; Kanjilal et al., FA. 2: 295. 1938; Chowdhury et al., Ass. Fl. 221. 2005.

Sub-shrub of about 5ft. high with sharply 4-angled, sometimes shortly winged branches covered with ascending stiff hairs. Leaves oblong-lanceolate to lanceolate, broadly acute to shortly acuminate; base broadly cordate to rounded, 5-nerved, pubescent on both surfaces with rather harsh hairs, petioles very short. Flowers white, 5-merous, about 3 cm in across, in compound corymbose cymes, terminal and sometimes from upper axils; bracts more than 1 cm long, ovate or elliptic, ciliate along the margins. Calyx with persistent scales, fringed with bristles, of which 5 alternate with the lobes, rim deciduous, lobes 1 cm long, broadly lanceolate, glabrous, ciliate along the margins. Petals 1.5 cm long, broadly obovate, usually with a few cilia at the apex. Stamens 10, filaments dilated in the middle; apex constricted and crowned by a rim, anthers attenuated to a pointed tip. Fruit about 1.3 cm long, free portion of the fruiting calyx very short; apex of the capsule slightly protruding beyond the rim. Flr.& Frt.: April – November, sometimes through out the year.

Usually grows along slopes of foot hills near streams or moist areas.

Vern. name: Boga phutkola, Bogi-phutuki (As.)

Coll. No.: 329 Borah A. Date: 30-3-2005  Locality: Gosaipara, Sanyasi-pahar

SONNERATIACEAE

Trees. Leaves decussate, simple, entire, coriaceous, exstipulate. Inflorescence terminal and / or axillary, in cluster or flower solitary. Flowers 4-6-merous, bisexual,
regular. Calyx-tube, campanulate, thick coriaceous, lobes 4 or more, valvate, persistent. Petals early falling or absent. Stamens many, in several series, inserted on the rim of calyx-tube. Ovary superior, 4-6- or more celled, ovules many per cell. Berry indehiscent, seeds many.

Duabanga Buch.-Ham., in Trans. Linn. Soc. 17:177-178. 1835


Tall tree with drooping branchlets. Leaves opposite, distichous, red when young, about 25 cm long and 10 cm width, oblong or ovate-oblong, shortly acuminate, cordate, coriaceous, glabrous. Flowers 5-7.5 cm across, with an unpleasant smell in terminal corymb of flowers. Calyx cup-shaped, persistent, deeply 6-8-lobed, thick, spreading. Petals creamy white, falling of early with the stamens, about 2.5 cm long, clawed, margins erose. Stamens numerous in one series, filaments exserted. Ovary adnate to the calyx at its base, 4-8-celled; ovules numerous. Capsule coriaceous, about 6.3 cm across, loculicidally splitting into 4-8-valves; seeds minute.

Flr.: February-March Fruit: Summer

Often gregarious in riverbanks.

Vern. name: Khokon, Hokol (As.), Bandar-kanda (Bodo)

Coll. No.: Borah, A. 75. Date: 7-2-2002 Locality: Shankarghora

Photo No.: 19.6 (plate 19)
PUNICACEAE

Small *trees or shrubs* with spin tipped branchlets. *Leaves* mostly decussate, simple. *Flowers* bisexual, terminal, solitary or in clusters. *Calyx* tubular, adnate to the ovary; lobes 5-7, valvate. *Petals* 5-7, imbricate and crumpled. *Stamens* many, filaments free. *Ovary* inferior, 3-7-celled; cells superposed in 2 series; ovules many. *Berry* crowned by calyx-lobes; seeds many.


A small *tree* or shrub. *Flowers* red. Ripe *fruits* split open producing reddish seeds. Cultivated in homesteads for its edible fruit.

Ver. Name: Dalim (As.)

ONAGRACEAE

*Herbs* or *sub-shrubs*, sometimes aquatic. *Leaves* opposite or alternate, exstipulate. *Flowers* bisexual, regular or irregular. *Calyx*-tube wholly adnate to the ovary, lobes 2-5, usually 4. *Stamens* as many as or twice as many as petals inserted with them. *Ovary* inferior, 1-6, usually 4-celled; style simple or with 2-4-lobed stigma; ovules 1 – many in each cell. *Fruit* dehiscent or not, one or many seeded.

Aquatic herbs or sub-shrubs. Leaves alternate or decussate, simple. Flowers 4-5-merous. Calyx-tube not produced above; lobes 4. Petals 4. disc raised, with nectarines below the stamens. Stamens 4 or 8. Ovary 4-5-celled; ovules many in 2 or more vertical rows per cell. Capsule terete or angular, ribbed, loculicidal or poricidal; seeds 1-seriate or multi-seriate.

Key to the species:
1a. Aquatic. Stems floating with aerophores. Flowers 5-merous. ... L. adscendens
1b. Terrestrial. Stem erect without aerophores. Flowers 4-merous.
   2a. Stem winged .............................................................. L. hyssopifolia
   2b. Stem not winged .......................................................... L. perrenis


Floating aquatic herb with spongy aerophores. Leaves alternate, oblong-elliptic, chartaceous, glossy above, glabrous, base attenuate, margin entire, apex obtuse. Flowers ca 4 cm across, peduncle about 2.5 cm, bracteolate. Calyx-tube 1 cm, lobes 5, deltoid. Petals 5, cream with a yellow blotch inside, obovate. Stamens 10, filaments subequal; epipetalous and free. Ovary 5-celled; ovules many. Capsule terete, thick-walled, 10-ribbed, glabrous; seeds 1-seriate, embedded in endocarp. Flr. & frt.: Throughout the year
Often gregarious forming a mat on water with erect shoots and rootlets from nodes.


Fig. No. 21.a (Plate 21)


Usually grow in damp soil, along drains etc., also as weed in rice fields.

Occurrence: common. Vern. name: Pani-jolokia / Bon-long (As.)


Fig. No.: 21.b (Plate 21)


Annual *herbs*, young branches pubescent. *Leaves* connate at the base, glabrous. *Calyx* lobes 4, lanceolate, Ca 3.7 mm long, glabrous. *Corolla* 4, Ca 3 mm long. *Ovary* 4 celled; stigma globose. *Capsules* Ca 1 cm long, thin walled, glabrous. Flr. & Frt.: August.- September.
Grow in damp soil along drains, river banks, streams banks etc.

Note: Not common; semi aquatic.

Coll. No. 9  Borah, A. Date: 5-8-2001  Locality: Kakoijana

Fig. No.: 21.c (Plate 21)

TRAPACEAE

Aquatic floating herbs. Leaves dimorphic, sometimes prickly, with long petiole. Flowers white, tetramerous. Calyx hairy, half superior, lobes enlarging and become spinescent in fruit. Fruit single seeded, hard, with beak and spines.

*Trapa* L., Sp. Pl. 120. 1753

(monogeneric)

*Trapa natans* L. Sp. Pl. 120. 1753; Hook. f., FBI 2:59. 1879.

Key to the varieties:

1a. Fruits with two spines. ... ... ... ... ... ... ... ... ... ... ... *T. natans* var. *bispinosa*

1b. Fruits with four spines. ... ... ... ... ... ... ... ... ... ... ... *T. natans* var. *quadrispinosa*


An aquatic floating herb. Leaves dimorphic; submerged leaves opposite, pinnately segmented; floating leaves in rosettes, green but mottled with brown, broadly rhomboid. Flowers few, white, close to the surface of water, pedicels short.
Fig. A. *Ludwigia adscendens* (L.) Hara

B. *L. hyssopifolia* (G. Don) Exell  
C. *L. perennis* L.
Calyx hairy, half superior, two of the lobes enlarging and spinescent in fruits.  
Stamens 4. Fruit single seeded, hard, obovoid with a short beak and two lateral sharp spines dark brown or black when ripe. Flr. & Frt.: October to March.

Found in beels of the area in association with Nymphoides spp..

Occurrence: Frequent. Vern: Bor singori / Paniphal (As.)

Uses: Seeds are is eaten either raw or cooked.

Coll. No.: 159 Borah A. Date: 22-10-2001 Locality: Doloni beel


Floating leaves of the plant is smaller than the previous one, sparingly hairy beneath on the nerves. Fruits have spines in all the four angles. Usually grows with T. natans var. bispinosa, Nymphoides sp. etc. Flr. & Frt.: winter.

Vern: Soru singori (As.) Uses: The seeds are eaten either raw or cooked.

Coll. No.: Borah A. 160. Date: 22-10-200. Locality: Doloni beel

PASSIFLORACEAE

Vines with tendrils. Leaves alternate, simple, entire or lobed, palmi or pinnati-nerved; foliar glands on petiole or at leaf base; stipulate. Inflorescence axillary, 1-many-flowered, sometimes cymose with basal flowers transformed into tendrils; bracts and bracteoles small to large forming a conspicuous involucre or absent. Flowers 4-5-merous, bi- or unisexual. Calyx-tube saucer shaped or copular;
lobes 4-5, imbricate, sometimes connate, persistent. Petals 4-5, imbricate. Corona extrastaminal, inserted on the calyx-tube, annular or thread-like. Disc often extrastaminal, annular, often with 5-ligulate glands. Male flower: Stamens ca. 5., inserted on androgynophore or on calyx-tube; anthers oblong, basifixed. Bisexual, female flower: Ovary superior, sessile or on agynophore, 1-celled; ovules many on 3-parietal placentae; styles 3, short. Fruit an indehiscent berry or 3-valved capsule, seeds compressed, pitted, enclosed in a membranous or pulpy aril.


Climbers with tendrils. Leaves alternate, palmately lobed, margin mostly glandular-dentate; stipules small or large. Flowers bisexual, solitary; bracts and bracteoles often large. Calyx-tube saucer shaped to cylindrical, lobes 5. Petals 5, inserted on the throat of calyx-tube. Corona extrastaminal, with 1 to several rows of filiform segments and a shallow cup surrounding gynandrophone. Stamens 5, on gynandrophone. Ovary 1-celled; ovules many; styles usually 3; stigma capitate. berry fleshy, indehiscent.


A vine with densely hispid hanchlets. Leaves usually 3-5-lobed to halfway, suborbicular -ovate, appressed glandular-pubescent, base cordate, margin subentire to ciliate, apex acute; stipules sub-reniform, deeply cleft into glandular processes. Flowers about 4 cm across, axillary, often solitary; bract and bracteoles 2-3 cm, deeply pinnatisect, glandular -pubescent. Calyx tube short, saucer shaped, lobes

Vern. name: Lota bel / Koth bel / Mewa (As.)

Uses : Pulp of the ripe fruit is eaten; it can also be taken as "shorbet".


**CARICACEAE**


*Carica* L., Sp. Pl.1036. 1753.


A very common vegetable plant usually planted near habitations. *Leaves* large with long, hollow petiole, latex milky. Sometimes staminate inflorescence axes up to 1 m. *Flowers* creamy-white with a peak during November to March. Fruiting throughout the year.
Uses: fruits are eaten as vegetable; also raw, considered digestive. Flowers (usually male) are eaten fried with small fishes.

CUCURBITACEAE

Vines or prostrate or trailing herbs with tendrils; branchlets often scabrid. Leaves alternate, simple, usually pinnately lobed, sometimes angular, palmately or pedately nerved. Flowers actinomorphic, pentameric, unisexual and epigynous. Sepals and petals 5 in both staminate and pistillate flowers. Stamens 5, connate forming synandrium. Carpels 3, connate; ovary inferior, placentation parietal; ovules many. Fruit fleshy, berry-like or pepo.

Key to the genera:

1a. Tendrils branched:

2a. Petals fimbriate, white:

3a. Fruit globose, flesh hard .......................... Hodgsonia

3b. Fruit elongated or ellipsoid, flesh not hard .................. Trichosanthes

2b. Petals entire, yellow or greenish-yellow:

4a. Flowers solitary:

5a. Anthers connate into a column .......................... Cucurbita

5b. Anthers free:

6a. Flowers yellow. Calyx-lobes lanceolate .......................... Benincasa

6b. Flowers white. Calyx-lobes linear ................................ Lagenaria

4b. Flowers not all solitary; males in racemes .......................... Luffa

1b. Tendrils simple:
7a. Calyx-tube closed at base by scales. ............................................Momordica

7b. Calyx-tube without scales:

8a. Male flower solitary ..................................................................Coccinia

8b. Male flowers in clusters or racemes. ...........................................Cucumis


Cultivated as vegetable. Fruits are usually taken though tender leaves and flowers are also used as vegetable. Flr. & Frt.: Summer

**Coccinia** R. Wight et Arnott., Prodr. 347. 1834.

Climbing herb, tendril simple. Leaves about 5-8 cm in diameter, palmatifid, 3-5 angled, cordate, papilose, scabrid. Flowers all solitary, axillary, dioecious, white, moderately large. Calyx tube campanulate, short; corolla campanulate, about halfway down; stamens 3, 1-2 celled. Female: calyx and corolla as in male, ovary oblong, stigma 3, bifid. Fruits smooth, bright scarlet when ripe. Flr. And Frt.: June – September

Common along roadside and in thickets.

Vern. name: Telakachu (Char areas); Belipoka (As.)

Uses: Fruits are eaten cooked; leaves are used as medicine in skin diseases.

Coll. No. Borah A 89. Date; 18-6-201 Local: Barpara


Prostrate or climbing vines; branchlets stiff-hispid. Leaves angular, 3-7-lobed; tendrils simple. Flowers monoecious, male flowers in clusters, female solitary. Corolla yellow, rotate or campanulate. Stamens 3, filaments free, inserted below the mouth of the calyx-tube. Ovary globose or subterete; placentae 3; ovules many; stigma 3-lobed. Fruit globose or ellipsoid-oblong, smooth; seeds many, ovoid, compressed, smooth.

Cultivates for its delicious fruit, which is eaten fresh when ripe, usually with milk. Ripe fruit has a peculiar smell spreading almost to 100 mtr from which it can be easily identified & located amidst grasses.

Vern. name: Bangi, Siral, Phuti (As.)


Cultivates for its fruits which are eaten fresh as well as cooked.

Vern. name: Tiyanh (As.) Sasha (Beng.)

*Cucurbita* L., Sp. Pl. 1010. 1753 & Gen. Pl. ed. 5. 441. 1754.

*Climber*; branchlets scabrid. *Leaves* cordate, ovate, 5-angular or lobed; tendrils 2 or more. *Flower* axillary, solitary, monoecious, large, yellow. Male flower: petals 5, apically recurved. *Stamens* 3, inserted at the base of the calyx-tube; filaments free, anthers confluent. Female flower: *ovary* oblong; placantae 3-5; ovules many; stigmas 3-5, 2-lobed; staminodes 3. *Fruit* large, indehiscent.

Following species of *Cucurbita* are generally cultivated in the region:

1. *C. maxima* Duch. Vern.: Ronga lao (As.)
2. *C. moschata* (Duch. ex Lam.) Duch. ex Poir. vern.: Ronga lao (As.)
3. *C. pepo* L. vern.: Komora (As.)

300
*Hodgsonia* Hook. f. & Th.

in Proc. Linn. Soc. 2:257. 1853; Cl. in FBI 2:606. 1879.

*Hodgsonia macrocarpa* (Bl.) Cogn. in DC, Monog. Phan. 3; 349. 1881;

*Hodgsonia heterooclita* (Roxb.) Hook. f. & Th. in Proc. Linn. Soc. 2:257. 1853; Cl. in FBI 2:606. 1879.

Woody climber. *Leaves* ca 18 cm across, deeply 3-5-lobed, glabrous, coriaceous; lobes entire or sparingly denticulate, sharply short acuminate or acute; tendrils 2-3-fid from the top. *Flowers* large, dioecious, buds brown tomentose; male flowers in racemes, female solitary; bracts about 1.5 cm long, deciduous. *Calyx* long, tubular, campanulate, teeth 5. *Petal* 5, connate at the base. *Stamens* 3, filaments very short, connate. *Ovary* globose; stigmas 3, bifid. *Fruit* ca 12 cm in wide, depressed, globose, red-brown, closely tomentose, 12 grooved; flesh hard; seeds 6, flat, ellipsoid. Flr.: February - March   Frt.: May

Vern: Thebou lota, Topou-guti (As.), Til-lau (Bodo)
Uses: Bark and fruit are bitter. Kernel of the seeds are eaten after roasting.
Occurrence: Locally rare; only two plant found-one at Kakoijana, another at Kalamati.


A hirsute vine with large leaves and white flowers. Fruits large, elongated to bottle-shaped. Very commonly cultivates for its fruits which is a very good vegetable during summer.

Vern. name: Pani lao, Jati lao (As.)

**Luffa** P. Miller, Gard. Dict. Abr. ed. 4. 1754.

Vines; branchlets glabrous. Leaves 5-7-lobed; tendrils 3-fid. Flowers monoecious; males in racemes, females solitary, co-axillary with males. Corolla golden yellow, petals 5. Stamens 5, filaments inserted at the calyx-tube, free. Fruit oblong, longitudinally striped or ridged; fibrous within; seeds many.

Key to the species:

1a. Fruits slender towards base, tapering at apex with persistent calyx;

   longitudinally ridged ........................................... L. acutangula

1b. Fruits oblong, not ridged but white striped .................................. L. ageyptiaca


Vine with lobed leaves. Petals golden yellow, usually blooms at evening.

Fruits elongated or oblong, tapering towards base from apex, longitudinally ridged and furrowed, beaked. Flr. & Frt.: Summer season
Cultivates for its fruit which is much eaten as vegetable.

Vern. name: Jika, Jinga (As.)


*Vines.* Leaves 5-7-lobed, lobes ovate, gland dotted, scabrid, base cordate. Flowers monoecious; males in axillary racemes; females solitary, coaxillary with males. *Corolla* golden yellow, petals 5, campanulate. *Stamens* 5, filaments inserted at the calyx-tube, free. *Fruit* oblong, about 18 cm long or more, glabrous, longitudinally white-striped, fibrous within; seeds many. *Flr.* & *Frt.*: Summer

Cultivated and wild.

Vern. name: Bhol (As.).

Uses: fruits are eaten cooked as vegetable


Key to the species:

1a. Flowers monoecious. Fruits ribbed and tubercled. \textit{M. charantia}

1b. Flowers dioecious. Fruits not ribbed, but softly spinous. \textit{M. dioica}


An annual climbing or trailing herb, puberulous. \textit{Leaves} alternate, orbicular, 5-7-lobed; lobes acute, dentate, base cordate; \textit{tendrils} simple, pubescent; petioles channeled. \textit{Flowers} monoecious, yellow. \textit{Male flowers}: solitary; peduncles long with an orbicular bract below the middle. \textit{Calyx} 5 lobed, lobes elliptic. \textit{Corolla} 5 segmented, obtuse or emarginated. \textit{Stamens} 3, one 1-celled, the others 2 celled. \textit{Female flowers}: peduncles solitary with a bract near the base. \textit{Calyx} and \textit{corolla} as in the male. \textit{Ovary} inferior, fusiform; stigmas 3, bifid, staminodes 3, glanduliform; \textit{fruits} small, tapering at the both ends, tubercled. \textit{Seeds} compressed. Flr. & Frt. May-November.

Cultivated and growing as wild along the roadside, waste lands etc. near homesteads.

Vern. Name: Tita kerala (As.).


Uses: Fruits are edible used as vegetable, the leaf extract are used for treatment some insect bites and scabies.

*Vine*; branchlets glabrescent. *Leaves* broadly ovate, deeply 3-5-lobed, chartaceous, glabrous, base cordate, margin denticulate, apex obtuse-acute. *Flowers* dioecious; male flowers solitary. *Fruits* obtuse at the ends, softly spinous; *seeds* ovoid, compressed, sculptured.

Cultivated for its fruit which is a popular vegetable. Sometimes found as escape near homesteads where earlier the plant was cultivated.

Vern. name: Bhat-kerela (As.)

*Trichosanthes* L., Sp. Pl. 1008. 1753.

*Vines*; branchlets scabrid. *Leaves* deeply lobed or angular or not, coriaceous; tendrils 2-3-branched. *Flowers* dioecious or monoecious; male flowers in racemes, females solitary. *Corolla* rotate, white; petals 5, fimbriate. *Stamens* 3, inserted at the base of the clayx-tube. *Pistillode* 3, minute. *Ovary* globose, glabrescent; ovules many; style elongate; stigma 3-lobed. *Fruit* globose or oblong, beaked, smooth or striate.

Key to the species:

1a. Leaves lobed:

2a. Fruit ellipsoid or globose; orange streaked. ... ... ... ... *T. tricuspidata*

2b. Fruit long elongate, fusiform; long white streaked. ... ... ... ... *T. anguina*

1b. Leaves not lobed. ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... *T. dioica*

*Vine* with suborbicular, often 5-lobed or angular leaves. *Fruit* long, elongate, cylindric and fusiform, at first glaucous green, streaked with white ultimately bright orange.

Cultivates for its fruit which is used as vegetable.

Vern. name: Dhunduli, Nilaji (As.), Chichinga (Beng.), the snake-gourd.


*Vine* with perennial root stock with scabrous stem. *Leaves* cordate, acute, sinuate-dentate, not lobed, nor angular. *Fruit* oblong, nearly spherical or somewhat ovoid-fusiform with light green stripes, red when ripe.

Cultivates for its fruit which is a popular vegetable.

Vern. name: Potol (As., Beng.)


*Vine*; branchlets glabrescent at length. *Leaves* polymorphic, ovate or suborbicular, usually palmately 3-7-lobed; lobes acuminate or acute; thinly coriaceous, base scabrid, cordate, margin distantly denticulate; tendril 3 or 2-fid; cystoliths present in mature leaves. Male flower: flowers about 4 cm across in racemes, bracts obovate. *Calyx-tube* 3 cm, glabrous, lobes lanceolate. *Corolla* white, petals ovate, 2 cm long. *Stamens* 3; filaments short, anthers about 1 cm, ciliate.
Female flower: flowers solitary; ebracteate. Calyx-tube 1.5 cm. Petals involute, 2 cm. Ovary globose. Fruit ellipsoid or globose, at first red with orange streaks, ultimately deep red; pericarp thick, rough; seeds many, packed in grayish-brown pulp. Flr.: July-September Frt.: October-November

Grows near road sides, scrub forests especially near damp places and climb on small trees or shrubs.

Vern. name: Koa-bhaturi (As.)

Coll. No.: Borah A 451. Date: 20-8-2006 Locality: Barpara

**BEGONIACEAE**

Succulent herbs, stems well developed or not. Leaves alternate, simple, inequilateral, palminerved, base oblique, margin toothed or lobed; stipules 2, free, deciduous. Cymes terminal or axillary, bracteate, bracteolate. Flowers monoecious. Perianth often 2, rarely more, valvate. Stamens many. Ovary inferior, usually 3-celled, 3-winged; ovules many per cell; styles 2-4, free or connate; stigma branched or twisted, densely papillose. Capsule ovoid, loculicidally dehiscent; seeds many.

*Begonia* L., Sp. Pl. 1056. 1753.

(monogeneric)

A cauliscent hairy herb. Leaves ovate, acuminate, cordate and oblique at base, hispid ciliate; petioles densely rusty pubescent. Capsule hairy with a descending wing. Flr.: August – September Frt.: October

Grows along hill streams on shady places.


DATISCACEAE

Trees or herbs. Leaves simple or pinnate, exstipulate. Flowers small, dioecious, apetalous, in racemes or panicles or clusters. Male flower: calyx-tube short, teeth 3-9; petals 0. Stamens 4-25; pistillode sometimes present. Female flowers: calyx-tube adnate to the ovary, lobes 3-8. Ovary 1-celled, palcentae parietal; styles as many as placentae, simple or 2-partite; ovules numerous. Capsules coriaceous or membranous, opening at the apex between the styles. Seeds numerous.

Tetramelos R. Br.


Tall deciduous tree with buttresses near base; barks grayish-white, marked with horizontal wrinkles. Leaves broadly or sub-orbicular, ovate-acuminate, irregularly toothed, bright green and thinly pubescent or glabrate above, and paler and softly pubescent beneath. Flowers dioecious, appearing before the leaves in
many flowered pubescent racemes or panicles at the ends of the branches or axils of fallen leaves, small, pale yellow. *Male flowers* sub-sessile in fasciculate panicles up to 25 cm long. *Calyx-tube* very short, lobes 4, sometimes with an interposed small tooth. *Petals* 0. *Stamens* 4, opposite to the calyx lobes, inserted round a flat central disk. *Pistillode* 0. *Female flowers* sessile in numerous pendulous spicate, sometimes branched racemes. *Calyx-tube* adnate to the ovary; teeth 4, short. *Ovary* 1-celled, 8-ribbed; ovules many on 4 parietal placentae; styles 4, subulate. *Capsule* globose, about 5 cm across, gland dotted with minute glands outside, seeds many.

Flr: February- March  Frt.: May- July

Grows near water bodies like bank of river, pond etc.

Vern. name: Bheleu / Bhelkor (As.)

Uses: Wood is used in preparing matchboxes. The plant is flood tolerant and hence is usually planted on riverbanks, river embankment sites, roadsides to prevent soil erosion during flood.

Coll. No.: 155 Borah A. Date: 25-2-2005  Locality: Ghilaguri

**CACTACEAE**

*Succulent* plants, stems of various shapes, herbaceous, shrubby or stragglers. *Leaves* small, subulate, scaly, spiny, caducous. *Flowers* solitary, sessile, bisexual. *Perianth* free or united into short or elongate tube, funnel-shaped or rotate. *Tepals* many; outer ones sepaloid, inner ones petalod. *Receptacle* cup shaped. *Stamens* many, inserted on the receptacle or on the base of perianth, not exceeding tepals.
Ovary inferior, 1-celled, with spiny areoles; ovules many. Berry spiny or bristly; seeds many.

Key to the genera:

1a. Stem columnar. Perianth funnel like, united... Cereus

1b. Stem flat. Perianth free.... Opuntia


Shrubs with columnar fleshy stems, usually angled, aereoles achinate. Perianth funnel like, united. Stamens epipetalous.


Shrub up to 6 m tall. Stem columnar, 3-7 angled or winged. Aerolees achinate, spines unequal. Leaves absent, converted into spines. Flowers lateral, sessile. Perianth funnel shaped with a few scales below. Stamens many. Ovules many. Flr.: Summer- Autumn. Cultivated and wild.

Vern. name: Siju (As.). Uses: as ornamental plant and as hedge.


Subshrubby; aereoles densely wooly; spines 1-3 per aerole, very unequal, brown tipped. Leaves subulate or absent. Perianth many; outer tepals yellow, shaded pink; inner ones yellow. Stamens many. Berry obovoid. Flr.: Autumn.

Cultivated and wild.

Vern. name: Sagar-phena (As.). Uses: As ornamental and hedge plant.


APIACEAE

Herbs with hollow internodes usually. Leaves alternate, simple or compound, with sheathing leaf bases. Inflorescence simple or compound umbels. Flowers small, bisexual, epigynous. Perianth pentamerous; sepals united to a 5-toothed calyx, petals 5, free. Stamens 5, free, alternating with petals. Carpels 2, united; ovary inferior, 2-chambered; styles 2, free. Fruit of two mericarps (cremocarps) with vittae.

Key to the genera:

1a. Erect aromatic herbs. Leaves spathulate, spinous-toothed ... Eryngium

1b. Prostrate herbs. Leaves orbicular-reniform or cordate, dentate-crenate:

2a. Leaves reniform. Flowers purplish. Mericarps 7-9-ribbed ... Centella

2b. Leaves lobed. Flowers greenish-white. Mericarps 3-ribbed ... Hydrocotyle


Vern. Name: Bor manimuni (As.). Occurrence: Common.

Uses: Very common wild medicinal plant. The leaf extract usually used in cuts and wounds, gastric trouble, pains etc. also used as vegetable which is very good for memory power and nerve strength.


Photo No.: 22.1 (plate 22)


A very aromatic erect perennial herb, glabrous. Leaves 5-10×0.6- 2.5 cm, basal leaves whorled, oblong-lanceolate, alternate at base, spinous-toothed; cauline leaves deeply dentate. Inflorescence capitulum arranged in umbels; bracts spinulose, stellate. Flowers white. Fruits ellipsoid, seeds semi-terete.

Commonly growing in wild; occasionally cultivated.
Vern. name: Man-dhania, Bon-memedhu, Bongali-dhania (As.)

Uses: Leaves are used in chutney, salads etc. considered digestive.


Photo No.: 22.2 (plate 22)

*Hydrocotyle* L., Sp. Pl. 234. 1753.


Diffuse prostrate herbs, creeping with stolons. Leaves hispid, lobed or sub entire; pectioles 2-10 cm long. Umbels few flowered, peduncles very short; bracts minute. Flowers sub sessile, 8-10 per umbel. Fruits broadly orbicular. Ca 0.2 mm across. Fl. & Frts. March-April; sometimes round the year.

Occurrence: Common, grow in damp places.

Vern. Name: Saru Manimuni (As.)

Uses: Very common wild medicinal plant, generally leaf extracts used for prevention of gastric trouble, pains, bleeding and wounds.


Photo No.: 22.3 (plate 22)

The following species are commonly cultivated in the region:

1. *Coriandrum sativum* L. Vern. name: Dhania (As.)
2. *Daucas carota* L. Vern. Name: Gajor (As.)

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ARALIACEAE

Trees, shrubs and rarely herbs, sometimes epiphytic. Leaves alternate or whorled, simple or compound; leaflets coriaceous, entire, prominently nerved; petioles usually long; stipules adnate to the petiole or absent. Panicles terminal or axillary with flowers in umbellate cymes; bracts caducous. Flowers 5- or 6-merous, often polygamous, regular. Calyx-tube adnate to the ovary. Petals 5 usually, rarely 6 or 7, free or falling off in a cap. Stamens usually 4, alternating with the calyx lobes, rarely many, inserted round the disk. Ovary inferior, 2 or more celled; ovule 1 per cell, pendulous. Fruit a drupe or berry; seeds pendulous, albuminous.

Key to the genera:

1a. Trees. Leaves tripinnate. Flowers in dense globose umbels .... Heteropanax

1b. Trees, shrubs or stragglers. Leaves digitate or palmately lobed or angled.

   Flowers in paniced umbels.: 

2a. Fruit sub-globose, 5-6-angled. Seeds compressed. .... Schefflera

2b. Fruit broadly globose or turbinate. Seeds not compressed... ...Brassaiopsis


Large shrubs or trees often armed. Leaves digitate or palmately lobed or angled; stipules connate to the petiole, not prominent. Inflorescence umbels, arranged in large panicles. Bracts persistent; pedicels surrounded at base by a dense cluster of persistent bracteoles. Flowers often polygamous, pentamerous. Petals valvate. Ovary 2-celled; styles united, long or short. Fruit broadly globose or turbinate, 2- or 1-seeded. Seeds not compressed.

Brassaiopsis palmata (Roxb.) Kurz. JASB 39(2):77. 1870; Clarke in FBI 2:735. 1879; Kanjilal et al., FA 2:360. 1938.

A small sparingly branched prickly tree; young petiole, undersurface of leaves and inflorescence tomentose with rusty stellate scurf. Leaves large, about 37 cm in across, deeply palmately 7-9-fid, almost palmatisect in young stages; segments lanceolate to elliptic-lanceolate, central largest, narrowed towards the base, distantly toothed or almost entire; petiole about 37 cm long, unarmed; stipules adnate at basal, upper free. Panicles large with branches about 25 cm long, bracts short, concave, acute, deciduous; bracteoles numerous, lanceolate, pubescent. Calyx rusty tomentose outside, 5-toothed. Fruit crowned by short style, ellipsoid. Flr. & Frt.: March- April

Grows on damp shady places near hill streams. Occurrence: Rare.

Coll. No.: 590 Borah A. Date: 19-4-2007 Locality: Shankarghola

Photo No. 22.4 (plate 22)

Note: Critically Endangered (Chowdhury et al. 2005). Earlier recorded from Khasi hills, Dulong RF (Lakhimpur district) and Apricola West RF (Kamrup). So the occurrence of the species is a new record for lower Assam beyond Manas.


Panax fragrans Roxb. ex DC. Prodr. 4:254. 1830; Roxb., Fl. ind. 2:76. 1832.
Soft wooded small evergreen tree. Leaves about 4 ft. long, tri-pinnate, rarely 4-pinnate; rachis often a pair of leaflets at the nodes, dilate at the base; leaflets about 7-14×3-7.5 cm, elliptic-ovate or lanceolate, short acuminate, entire; base narrowed and unequal; glabrous; sub-coriaceous. Flowers small, polygamous, yellow, fragrant, sub-sessile or shortly pedicellate in dense sub-globose umbels, racemed on the branches of an enormous panicle; flowers and inflorescence covered with more or less rusty, stellate scurf of tomentum. Bracts small, concave. Calyx turbinate. Petals 5, valvate. Stamens 5, spreading. Ovary 2-celled; styles 2, distinct, persistent and recurved in fruit. Fruit compressed. Flr.: December-January. Frt.: March-April

Grow wild and also cultivated. Occurrence: Frequent.

Vern. name: Keseru, Koronda, Karangiya (As.)

Use: Leaves are eaten by Eri silk worms; hence cultivated by silk farmers.

Coll. No.: 161 Borah, A. Date: 2-3-2002 Locality: Mahadev hill.

Photo No.: 22.5 (plate 22)

Schefflera J.R. forster et J.G.A. Forster

Charact. Gen. 45. 1776 (nom. Cons.)

Trees, shrubs or scandent shrubs; unarmed. Leaves digitate; leaflets entire or remotely toothed. Umbels panicked or in compound racemes. Flowers often polygamous, usually 5-6-, sometimes 10-merous; bracts wooly. Petals valvate, often cohering in a cap, which is raised by the stamens. Stamens and ovary cells as many as the petals. Fruit sub-globose, 5-6-angled; seeds compressed.

Soft woody climber with adventitious roots, often epiphytic. Barks conspicuously lenticellate. Leaves digitate, petiole terete, stipules connate; leaflets elliptic-oblong or lanceolate-acuminate, entire, coriaceous, glabrous, shining above. Flowers small, polygamous, in few flowered umbellules, racemously arranged on a much branched terminal panicle; rachis purplish; bracts woolly covering the umbellules. Petals 5, ovate-oblong, acute. Fruit 5-ridged, yellow when ripe. Flr.: March- April Frt.: October- November.

Commonly grows on large trees in moist localities.

Occurrence: Common. Vern. name: Jakhini-lota, Dhabai-lota (As.)

Coll. No.: 198 Borah A. Date: 13-3-2002 Locality: Dhaligaon

Photo No. 22.6 (plate 22)

**ALANGIACEAE**

Trees, sometimes armed. Leaves alternate, simple, entire, somewhat asymmetric at base; stipules 0. Cymes axillary; bract deciduous; pedicel jointed. Flowers bisexual, regular. Calyx-tube campanulate, adnate to ovary; lobes 10, valvate. Petals 10, linear, valvate. Disc cushion-like. Stamens as many or twice as many as petals, somewhat jointed at base, alternating with petals. Ovary inferior, 1-
PLATE 22

Photo No. 22.1: *Centella asiatica* (L.) Urban

Photo No. 22.2: *Eryngium foetidum* L.

Photo No. 22.3: *Hydrocotyle sibthorpioides* Lamk.

Photo No. 22.4: *Brassaiopsis ploycantha* (Wall.) R. N. Baner

Photo No. 22.5: *Heteropanax fragrans* Seem.

Photo No. 22.6: *Schefflera venulosa* (W. & A.) Harms.
celled; ovule solitary, pendulous. Berry globose, crowned with calyx-lobes and disc, 1-seeded.


A small tree with spreading often zig zag branches. Leaves simple, alterernate, bifarious, ovate-acuminate, angled; glabrous above at maturity; base usually oblique, truncate, cuneate or deeply cordate. Flowers white or cream coloured, bracteate, in axillary cymes, not exceeding leaves. Calyx minutely toothed. Petals 6-8, strap-shaped, puberulous. Stamens as many as and alternating with the petals; filaments short, covered with silky hairs. Ovary 2-celled. Drupe ovoid, dark purple when ripe, obscurely ribbed, about 0.5 cm long, crowned by calyx limb; stone 2-celled, 2-seeded. Flr.: March- June  Frt.: June- September.

Grows along roadsides and in scrub forests. Occurrence: Frequent.

Vern. name: Chikamarulia, Chagali gach, Boga marulia (As.)

Uses: As firewood.

Coll. No. 232 Borah A. Date: 12-6-2002  Locality: Mahadev hill
RUBIACEAE

Herbs, shrubs, trees and climbers. Leaves simple, opposite or whorled; stipule interpetiolar or intrapetiolar. Inflorescence cymes, cymose panicles, cymose umbels or globose heads. Flowers bisexual, actinomorphic, epigynous, 4-5-merous. Ovary inferior, crowded by fleshy disc.

Key to the genera:

1a. Flowers in dense globose heads. Ovules numerous .......................... Anthocephalus
1b. Flowers not in dense globose heads.

2a. Ovules numerous:

3a. Capsules 2 or 4-celled or cocci. Calyx segments equal .......................... Hedyotis
3b. Fruit a berry or drupaceous. One calyx segment enlarged .................. Mussaenda

2b. Ovules solitary or a few in each cell:

4a. Ovules few in each cell; ovary one celled .......................... Gardenia
4b. Ovules solitary; ovary one to many celled:

5a. Corolla lobes valvate:

6a. Armed tree or shrub .......................... Meyna
6b. Unarmed plants:

7a. Leaves foetid; twinning shrubs .......................... Paederia
7b. Leaves not foetid. Herbs or shrubs or trees

8a. Trees. Stem round, cylindrical .......................... Morinda
8b. Herbs. Stem angular:

9a. Flowers 3-merous; ovary 3-celled .......................... Richardia
9b. Flowers 4-merous; ovary 2-4-celled .......................... Borreria
5b. Corolla lobes twisted in bud:

10a. Inflorescence terminal, corymbose

11a. Leaves coriaceous; stipules interpetiolar . . . . . . . . . . Ixora

11b. Leaves membranous; stipules intrapetiolar . . . . . . . . . . Pavetta

10b. Inflorescence axillary, fascicled or solitary . . . . . . . . . . Coffea

**Anthocephalus** A. Rich. ex Walp., Repert. 2:491. 1843.


A large deciduous tree; stem straight; branches horizontal, almost whorled. Leaves 13-25×5-10 cm, ovate, elliptic-oblong, coriaceous, shining or glabrous above, pubescent beneath, acuminate; stipule caduceus, linear-lanceolate. Flowers pentamerous, small, orange coloured, united by the confluent calyx-tube in dense terminal solitary peduncled globose heads. Calyx segments 5, imbricate, oblanceolate, persistent. Corolla funnel-shaped, lobes 5, imbricate. Stamens 5, inserted on the throat of corolla. Ovary 4-celled above, 2-celled below; ovules many

Commonly planted along roadsides and edges of forests; almost naturalized.

Occurrence: Common.

Vern. name: Kadam, Raghu (As.)

Uses: Wood for packing boxes, match factory, plies and fire wood.

Coll. No.: Borah A. 265. Date: 11- 4- 2003 Locality: Mulagaon.

Photo No.: 24.1 (plate 24)

*Borreria* G. F. W. Mayer, Prim. Fl. ESS, eg. 79, 1818

*Spermococa* L., Sp. Pl. 102, 1753.

Hispid herbs with angular stems. *Stipule* segmented or hairy. *Flowers* in fascicles, 4-merous. *Ovary* 2-4-celled; ovule solitary.

*Borreria articulatis* (L. f.) F. N. Will. in Bull. Herb. Briss. 'Ser' 2. 5: 956. 1905.


Annual, procumbent hispid herbs, ca 50 cm high, sometimes straggling. *Leaves* elliptic, acute, 1.5- 3.5 × 0.8- 2.0 cm. *Flowers* fasciculate. *Calyx* hispid. *Corolla* 4-5 mm long, white or purple tinged. *Stamens* 4. *Ovary* 2 celled, hispid. *Capsules* sub globose 4-6 mm septifugal. Flr. & Frt. July- October and September- December.
Commonly grow on foothills as well as on plains, in open areas associated with *Richardia*. Vern. name: Gahori bon (As.)


Fig. No.: 23.a (plate 23)

*Coffea* L.


*Shrubs. Leaves* opposite; stipules free, broad. *Flowers* in axillary or terminal fascicles or flowers solitary or axillary cymes. *Calyx-tube* short. *Corolla* lobes 4-7, spreading, contorted. *Anthers* 4-7, sessile, often recurved, twisted. *Ovary* 2-celled, style filiform, bifid at apex; ovules solitary in each cell. *Drupe* with two concave pyrenes. *Seeds* concave or grooved ventrally.

**Key to species:**

1a. Flowers in many flowered fascicles. Evergreen shrub ........... *C. arabica*

1b. Flowers solitary. Deciduous shrub ................. *C. benghalensis*


Cultivated for commercial coffee.

A deciduous shrub, with slender spreading branches. Leaves 5-10 cm ×2.5-6 cm, elliptic or broadly ovate, acute or acuminate, entire, membranous, glabrous. Flowers appearing with the leaves usually, sometimes before appearing leaves; white, fragrant; solitary or 1-3 together, axillary or at the ends of small branchlets. Calyx truncate, teeth minute. Corolla salver-shaped; tube short, twisted in bud. Anthers dorsifixed. Drupe subglobose or ovoid.

Flr.: February- March. Frt.: October - December.

Grows on hill slopes in much; the slope appears white when the plants are in full blooming. Occurrence: Common.

Vern. name: Chagoli phul, Akaji, Kothona (As.)

Coll. No. 168. Borah A. Date: 3-3-2002 Locality: Mahadev hill

Photo No.: 24.2 (plate 24)

**Gardenia** L., in Phil. Trans. Li. II. 935. 1761.


Beautiful shrub with white fragrant flowers mostly cultivated in household gardens as ornamental plant.

Vern. name: Gandharaj, Tagor (As.)

Armed shrub. Leaves opposite to ternate, elliptic-ovate or oblaneolate, entire, bluntly acute or acuminate, coriaceous, glabrous, base narrowed into a short petiole, stipule intra-petiolar. Flowers dimorphic, male flowers with sterile ovule fascicled; bisexual flowers sessile, solitary. **Calyx** in male flowers urn-shaped, truncate, dilated; in bisexual flowers campanulate, segments contorted. **Corolla** campanulate. **Stamens** as many as corolla lobes. **Ovary** 1-celled; stigma 5-lobed; ovules numerous. **Fruit** not beaked, ellipsoid or subglobose, obscurely 5-ridged with fleshy pericarp. Flr.: March- April. Frt.: October- November

Vern. name: Gandhapaji, Bitmara, Dhuba-khola (As.)

Coll. No.: Borah A.187. Date: 9-3-2002  Locality: Kakoijana RF

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**Hedyotis** L., Sp. Pl. 101, 1753.

*Herb, sub-shrub or shrubs or climbers. Leaves* usually opposite; stipules conspicuous with bristles. **Flowers** tetramerous. **Calyx** turbinate or ovoid, segment 4. **Corolla** campanulate or funnel-shaped. **Stamens** 4, inserted on the tube or throat; filaments short. **Ovary** 2-celled, style filiform, stigma bifid, ovules numerous. **Fruit** a small septicidal or loculicidal capsule.

Profusely branched diffuse annual herb, almost glabrous. Leaves elliptic, lanceolate to linear, acute, sub sessile 10-30×1-6 mm. stipules membranous, shortly bristly. Cymes corymbose; peduncles solitary or paired, Ca 1 cm. Flowers 1-4, 2-3 mm across, white or purple tinged; pedicels Ca 0.5 cm long. Capsules sub-globose 1-2 mm across. Flr. & Frt: August-November.

Grow in open areas associated with grasses. Occurrence: Common.

Coll. No. Borah A. 160. Date: 12-12-2001 Locality: Barpara


*Shrubs* or small *trees*. Leaves opposite, coriaceous; stipules interpetiolar. Flowers usually 4-merous in terminal 3-chotomously branched or corymbose cymes. Calyx-tube ovoid, small. Stamens on the mouth of the corolla; anthers linear, 2-fid at base. Ovary 2-celled; style filiform, exserted. Fruit globose or sub-didynamous with 2 pyrenes.


A beautiful ornamental shrub usually planted in gardens.

Ver. Name: Rongan / Rongiyal phul (As.)


*Shrub* or small *tree*, usually spinous. Leaves opposite, ovate-elliptic, entire, acute or bluntly acuminate, membranous; stipules connate, cuspidate from a broad base. Flowers on short peduncled cymes. Ovary 5-celled, sometimes 3-4-celled; ovules solitary. Fruit a fleshy drupe.

A deciduous shrub or small tree; spinous, spines long, supra-axillary, branched. Leaves opposite or sometimes ternate, entire, ovate-elliptic or elliptic-ovate, acute or bluntly acuminate, membranous, glabrous; stipules connate, cuspidate from a broad base. Flowers greenish-white, on short peduncled cymes, axillary. Calyx 5-toothed. Corolla valvate in bud, throat woolly; lobes spreading. Stamens sub-sessile; anthers exserted. Ovary 5-celled, less often 3-4-celled or sometimes 6-celled; stigma lobed; ovules pendulous, solitary. Fruit a fleshy drupe, yellowish when ripe, with 3-5 woody pyrenes; seeds albuminous.

Flr: April-May. Frt.: Summer season

Occurrence: Locally rare, a few plants only found.

Vern. name: Moina gach, Kotkora (As.)

Uses: Ripe fruits are dried under the sun and then eaten with salt, tasty. Fruits are also eaten by birds.

Coll. No.: 200 Borah A. Date: 13-3-2002 Locality: Barpara.

Photo No.: 24.3 (plate 24).

Morinda L., Gen. Pl. ed. 1. 57. 1737

Shrubs or trees. Leaves opposite, rarely ternate; stipules connate, sheathing. Flowers axillary or terminal in simple or panicled or umbellate peduncled heads. Calyx-tube short, limb truncate. Corolla lobes 4-7, coriaceous, valvate. Stamens 4-7,
filaments short. *Ovary* 2 or sometimes spuriousely 4-celled; style slender with 2 stigmatic lobes; ovules solitary. *Fruit* a syncarpium.


A small tree with whitish barks exfoliating in thin pieces. *Leaves* narrow-lanceolate or oblanceolate, entire, long acuminate, membranous, more or less puberulous with upper surface glabrescent. *Flowers* fragrant, usually 5-merous, in axillary or leaf-opposed pedunculate globose heads, ultimately elongating in fruits. *Calyx* obscurely toothed. *Corolla* slaver-shaped. *Fruit* turbinate.

Flr.: January- May   Frt.: June- September.

Grows in forest especially on slopes of foothills as well as on open areas.

Occurrence: Common.   Vern. name: Ashu gach, Akal bih, Daru-haridra (As.)

Coll. No.: 242 Borah A. Date: 23-5-2002   Locality: Barpara

Photo No.: 24.4 (plate 24).


*Shrub*, sub-*shrub* or rarely *herb*, erect or *scandent*. *Leaves* opposite or alternately whorled; stipules free or connate. *Flowers* pentamerous, usually yellow, in terminal cymes, rarely solitary. *Calyx-tube* usually oblong or turbinate; segments deciduous, one of the segments enlarged into a long petioled white or coloured leaf. *Corolla* silky outside, silky below, funnel shaped above, throat villous. *Stamens* adnate to the throat, filaments short, anthers linear. *Ovary* 2-celled; ovules many on
peltate fleshy placenta; style filiform; stigmas 2, linear. *Fruit* a berry, fleshy. Seeds many, embryo minute.


A large *scandent shrub*. Leaves elliptic to oblong-lanceolate, acuminate, coriaceous, glabrous or puberulous on nerves. *Flowers* in dense terminal puberulous cymes. *Calyx* campanulate, teeth subulate, deciduous; *petaloid* segment enlarged, white or sometimes tinged with green, nerves prominent. *Corolla* pubescent, lobes as long as broad, yellow. *Berry* globose, glabrous.

Flr.: March- May Frt.: June – December.

Found grow near water bodies in forests. Occurrence: Rare.

Coll. No. 327 Borah A. Date: 3-5-2005 Locality: Singimari village

*Paederia* L., Mant. Pl. 1:52. 1767.

Twining shrubs; foetid when bruised; branches terete, flexous; stipules interpetiolar. *Flowers* 4-5-merous, in axillary and terminal 2-3-chotomously branched panicled cymes. *Calyx* persistent. *Corolla* tubular or funnel-shaped, pubescent. *Anthers* subsessile on the corolla tube, linear-oblong. *Ovary* 2-celled; stigmas 2, capillary twisted; ovules solitary in each cell. *Fruit* compressed or globose.

*Paederia foetida* L., Mant. Pl. 1:52. 1767; Kanjilal et al., FA 3:77.1939; Chowdhury et al., Ass. Fl. 231. 2005.
A slender wiry foetid climber, generally winding anti-clockwise. *Leaves* opposite, elliptic-ovate, oblong-ovate or lanceolate, shortly acuminate, entire, membranous, glabrous. *Flowers* grayish purple, with reddish-purple mouth, in axillary or terminal cymose panicles. *Corolla* funnel-shaped. *Fruit* ellipsoid, reddish, compressed; pyrenes with a broad wing. Flr.: July- October  Frt.: Winter

Grows in scrub forests as well as homesteads; sometimes cultivated.

Occurrence: Common.

Vern. name: Bhedai lota, Paduri lewa (As.), Daoukhi-Bondung (Bodo)

Uses: Leaves are eaten as vegetable; medicinal for stomach ache, digestive and internal wound-healer.

Coll. No.: 353 Borah. A. Date: 10-10-2005  Locality: Barpara

Photo No. 24.5 (plate 24)


*Shrubs* or *small trees*. *Leaves* usually membranous, stipules connate in a loose deciduous intrapetiolar sheath. *Flowers* in axillary or terminal 2-3-chotomously branched corymbose cymes. *Calyx* and *corolla* lobes usually 4, rarely 5. *Stamens* 4, rarely 5, on the mouth of the corolla. *Ovary* 2-celled, style long, slender, much exserted. *Fruit* small, baccate, fleshy with 2 ventrally concave pyrenes.


Fig. A. *Borreria articulata* (L.f.) Will.

B. *Richardia scabra* L.
Photo No. 24.1: Anthocephalus chinensis (Lamk.) A. Rich. ex Walp.

Photo No. 24.2: Coffea benghalensis Hayne ex Roem. & Schult.

Photo No. 24.3: Meyna spinosa Roxb. ex Link.

Photo No. 24.4: Morinda angustifolia Roxb.

Photo No. 24.5: Paederia foetida L.

Photo No. 24.6: Pavetta crassicaulis Bremek.
A large deciduous shrub. Leaves elliptic-ovate to lanceolate, obtuse, acute or acuminate, pubescent or glabrous. Flowers white, fragrant, in terminal and lateral corymbose panicles. Calyx pubescent, lobes 4, short. Corolla salver-shaped; tube long, slender. Stamens 4, on the mouth of the corolla, filaments short. Fruit globose, glossy. Flr.: February-March Frt.: April onwards

Occurrence: Rare. Vern. name: Gobor-sita, Gobor-hitha (As.)
Coll. No. 453 Borah A. date: 20-2-2006 Locality; Shankarghola.
Photo No. 24.6 (Plate 24)

Hispid herbs with angular stems. Stipule segmented or hairy. Flowers in fascicles, 3-merous. Ovary 3-celled; ovule solitary.


Procumbent herb, densely pilose, stem quadrangular. Leaves sub sessile, ovate lanceolate, acute, entire, membranous, reticulate nerve, base narrowed, petiole ciliate. Flowers sessile in conjugated cymes, small 0.3 cm, subtended by few leaves. Calyx 6 partite, 0.2 cm long, persistent. Corolla funnel shaped, white, lobes 4, length 0.1 cm. Stamen 4, anthers 2- locular. Style bifid, 3 celled with persistent calyx. Flr. & Frt.: July- October.

Grow on and below foothills associated with Borreria articularis.

Occurrence: Common. Vern. name: Gahori bon (As.)
ASTERACEAE

_Herbs_ or _shrubs_. _Leaves_ simple, exstipulate, alternate or opposite, entire or serrated or variously lobed. _Inflorescence_ head or capitulum. _Flowers_ actinomorphic or zygomorphic, epigynous; ray or disc florets, bisexual and / or unisexual, sometimes neuter florets occur in the same or different capitulum. _Calyx_ reduced to scales or hairs (_pappus_) or absent. _Stamens_ syngenecious. _Anthers_ always united in a tube. _Carpels_ 2, ovary one-chambered, ovule one. _Fruit_ cypsela.

Key to the genera:

1a. _Capitula_ homogamous:

2a. _Leaves_ opposite:

3a. _Twiners_ .......................................................................................... _Mikania_

3b. _Erect herbs_ or undershrubs:

4a. _Pappus_ paleaceous. _herbs_. .................................................................. _Ageratum_

4b. _Pappus_ of slender hairs. _Tall herb_ or undershrub. .................................. _Chromolaena_

2b. _Leaves_ alternate:

5a. _Prostrate_ or semierect _herbs_:

6a. _Leaves_ decurrent .................................................................................. _Sphaeranthus_

6b. _Leaves_ not decurrent ............................................................................. _Grangea_
5b. Erect herbs or undershrubs:

7a. Pappus absent. Fruit with hooks... Xanthium

7b. Pappus present:

8a. Woolly or glandular pubescent herbs:

9a. Leaves entire... Gnaphalium
9b. Leaves toothed or lobed... Blumea

8b. Glabrous herbs or undershrubs:

10a. Leaves dense. Capitulum subtended by leafy bracts... Elephantopus
10b. Leaves not dense. Capitulum not subtended by leafy bracts:

11a. Involucral bracts many-seriate... Vernonia
11b. Involucral bracts 1-2-seriate:

12a. Bracts 1-seriate. Non aromatic herb... Emilia
12b. Bracts 2-seriate. Aromatic herb... Crassocephalum

1b. Capitula heterogamous:

13a. Leaves opposite:

14a. Capitula terminal:

15a. Flowers white... Eclipta
15b. Flowers yellow:

16a. Small erect or prostrate herbs:

17a. Pappus of setose hairs; achenes smooth or faintly ribbed... Tridex
17b. Pappus 0 or of 2-3 bristles. Achenes ciliate... Spilanthes

16b. Tall herbs. Capitulum larger... Tithonia
14b. Capitula axillary ................................................................ Synedrella

13b. Leaves alternate or radical:

18a. Plants with milky sap ................................................................ Sonchus

18b. Plants without milky sap:

19a. Leaves pinnately dissected. Pappus absent or in many florets of 2 reflexed awns. ................................ Parthenium

19b. Leaves not pinnately dissected. Pappus present ................................ Conyza

Ageratum

Erect annual, hairy herbs, usually aromatic. Leaves opposite, hairy, margin serrated or dentate. Capitulum homogamous; disc florets only. Pappus of 5-awned scales. Achenes ribbed.

Key to the species:

1a. Flower heads white or pale-blue; flowers < 1 cm ................................ A. conyzoides

1b. Flowers heads pink or white, fluffy; flowers > 1 cm........................ A. houstonianum

Ageratum conyzoides

An erect hairy, annual herb, 30-60 cm tall or some times more. Stem woody to fleshy; green or purplish. Leaves broadly ovate; crenate. Head 1 cm across, white or very pale blue or very faintly pinkish purple, fragrant; discoid, in terminal corymbs. Pappus of 5 scales. Achenes angled black.

Flr. & Frt.: Almost round the year.
Found growing on foot hills and plains, usually in open areas associated with
grasses, *Borreria articularis*, *Richardia scabra*, *Euphorbia hirta* etc.

Occurrence: common Vern. Name: Gandheli Bon (As.)

Uses: The leaf extract has been used in treatment of small cut and wounds.

Coll. No. 12 Borah, A. Date: 12-3-2001 Locality: Barpara

Fig. No.: 25.a (plate 25)


An erect gregarious herb, hairy; stem purplish or purplish-green. 
*Leaves* hairy, ovate-oblong, acuminate or acute, margin serrate. *Heads* larger than *A. conyzoides*, fluffy, pinkish usually, sometimes white. *Flowers* about 1.2 cm long, pink. *Achenes* ribbed. Flr. & Frt.: Almost round the year.

Usually grow along roadsides near homesteads, prefer partially shaded, damp places. Vern. name: Gendheli bon (As.)

Coll. No.: Borah A. 433. Date: 8-3-2005 Locality: Hapachara (Kakoijana)

*Blumea* DC., Prodr. 5:439.1836

Annual or perennial herbs, undershrubs or sometimes shrubs, pubescent, usually aromatic. *Leaves* alternate, usually toothed or lobed. *Heads* not rayed, heterogamous, corymbose, panicled or fascicled. *Involucre* ovoid or campanulate, bracts many-seriate. *Receptacle* flat, naked or pubescent. *Flowers* yellowish, rarely purple or white; the outer flowers female, inner ones male. *Corolla* of female flowers
filiform, minutely 2-3-toothed; of male flowers tubular, 5-lobed. Style finely exserted. Fruit angled or ribbed. Pappus scanty, 1-seriate, often caducous.


A coarse or slender very variable herb, villous or glandular, aromatic. Leaves obovate or elliptic-ovobvate, sharply, coarsely or doubly toothed, rarely lyrate or lobulate, obtuse, densely white, silky beneath. Heads small, about 7 mm across. **Involucral** bracts linear-acuminate, more or less hairy. **Receptacle** glabrous. **Corolla** yellow. Fruit grey-brown, sub-tetragonus, minutely pubescent or glabrescent. Pappus white. Flr: Winter season Frt.: April

Grows in moist open areas associated with Drymeria cordata, Diplezium esculentum, Kalanchoe pinnata, Mikania micrantha etc.

Occurrence: Common


Fig. No. 25.b (plate 25)

**Chromolaena** D.C., Prodr. (DC.) 5:133. 1836.

Tall herb or scandent shrub. Leaves opposite, ovate-lanceolate, dentate, prominently nerved. Heads homogamous. Phyllaries many; pappus filiform. Achenes angled.
PLATE 25.

Fig. A. *Ageratum conyzoides* L. A(i) Habit. A(ii) Head. A(iii) Single flower.

Chromolaena odorata (L.) King and Robinson in Phytologia 20: 204. 1970;

A terrestrial scandent shrub upto 2 m tall. Stem fleshy but woody below. 
Leaves opposite, ovate, lanceolate, acute ca 4×10 cm, dentate. Head homogamous.
Flowers bluish-white, hairy. Corolla 5 petalous; united ca 1.5 cm long. Flowers 
hairy ebracteate, sessile, complete. Pappus white hairy. Stamen syngenesious. Ovary 
inferior. Flr. & Frt.: Almost round the year.

Found growing on roadsides and slopes of hills- a very problematic weed in 
the state. Occurrence: Common weed in forest fringes, scrub forests, roadsides.
Vern. Name: Jarmani Bon / Koli bon (As.).
Uses: Leaves are used to treat cuts and wounds; effective in stopping bleeding.
Coll. No.: Borah, A. 13. Date: 18-3-2001 Locality: Mahadev hill
Fig. No.; 26.a (plate 26)


Annual herbs. Leaves alternate or radical. Heads axillary or terminal,
Pappus hairs 1-2-seriate. Achenes ellipsoid.

Conyza bonariensis (L.) Crong., Bull. Torrey Bot. club. 70: 632.1943; Chowdhury 
Herbs, 50-90 cm tall. Leaves linear – lanceolate or obovate, 2.0-6.0× 0.3-0.6 cm, entire or distantly tothed at margins. Panicle ca 8 cm long, lax. Capitulum ca 1 cm across. Involucral bracts 1-2-seriate, very narrow. Disc florets yellow. Pappus brownish. Achenes sparsely silky ca 1 mm long. Flr. & Frt.: March-August.

Grows on open field in association with grasses. Occurrence: Rare.


_Crassocephalum_ Moench, Meth. Pl. 516. 1794.


Grows on open areas and in vegetable garden as weed.
Occurrence: Common. Vern. name: Bon-kopahi (As.)
Photo No.: 31.2 (plate 31)

**Eclipta** L., Mant. Pl. 22: 286. 1771.

*Herbs. Leaves opposite. Heads axillary or terminal. Involucre campanulate; bracts biseriate. Outer florets female; bases of anthers obtuse. Achenes narrowed below, top entire. Pappus absent or of 1-2 minute teeth.*


Grows on damp shady places associated with *Alternanthera, Centella* etc.
Occurrence: Common. Vern. Name: Kehraj (As.), Kesraj (Beng.).

Uses: Twigs are used as vegetables by local people, considered medicinal for liver and lung.


Photo No.: 31.1 (plate 31)

_Elephantopus_ L., Sp. Pl. 814. 1753

Perennial prostrate _herbs_. _Leaves_ sessile, elliptic to elliptic-lanceolate; those on flowering branches smaller in size. _Heads_ terminal on dichotomous peduncles.


Perennial, scabrous, rigid _herbs_, 10-15 cm. prostrate stem scally bearing crowded roots. _Leaves_ sessile in ragideal apex. _Leaves_ on flowering branches few, alternate or none. _Heads_ glomerate, terminal on long dichotomous rigid peduncles. _Involucreal_ bracts 3, leafy cordate with broad base acute apes. _Flowers_ white or published. _Pappus_ of 5- scalled, achenes angled, brown.

Flr. & Frt.: December- January

Grows on open field in association with _Chrysopogon aciculatus, Phyllanthus fraternus, Paspalum compactum, Evolvulus nummularius_ etc.

Occurrence: Common Vern. Name: Hostipoda, Goal (As.).

Coll. No. Borah, A. 126. Date: 27-7-2001 Locality: Barpara
**Emilia** Cass., in Bull. Soc. Philom. 68. 1817.

*Herbs. Leaves* alternate, sessile or subsesile, upper cauline, lower lyrate. *Heads* homogamous. *Phyllaries* uniseriate, more or less connate.


A slender nearly glabrous, annual *herb*, ± 20 cm tall. *Leaves* ovate with long base ± 6x3 cm, entire or serrate; upper ones pinnified. *Heads* small, few flowered, rosy, pappus white, copious. Fls. & Frts.: July- January.

Found growing along roadside associated with *Cassia tora*, *Leucas plukenetii* etc. Occurrence: Frequent.

Coll. No. Borah, A. 95. Date: 11-7-2001  Locality: Barpara


*Herb* of about 60 cm high. All parts covered with long hairs. *Leaves* simple, 4-8 cm x 1.5- 2.5 cm, oblanceolate, obtuse at apex, slender at base. *Heads* in axillary corymbs; yellow or pinkish yellow. *Corolla* lobes 4, hairy. *Achenes* tubercled. Flr. & frt.: March- April.

Grows in open places. Vern. name: Kopahi bon, Kopahi-gutia (As.)

**Grangea** Adanson, Fam. 2:121. 1763.


Flr. & Frt.: Winter season.

Grows in open marshy places.

Coll. No.: Borah, A. 445. Date: 11-3-2004  Localiry: Manikpur

Photo No.: 31.3 (plate 31)

**Mikania** Willd., Sp. Pl. iii.1742. 1803

*Climber*, stem hairy. Leaves opposite, ovate, acuminate, cordate. *Capitulum* homogamous, phyllaries 4; *pappus* filiform. *Achenes* ribbed.


Gregarious *climber*. Leaves long, petiolate 1.5-3.5 cm, opposite, ovate, acuminate, base cordate. *Flower heads* small, homogamous, few flowered,
racemose terminating the lateral branches, each head ca 0.5 cm long; involucre oblong; bracts 4, narrow, receptacle narrow. *Flower* 0.5 cm long, actinomorphic, bisexual, pentameres. *Calyx* limb shortly annular with connate hairs, 0.2 cm long. *Petals* 5, regular, slender and tubular; corolla limb campanulate, 5 fidd. *Stamens* syngeneous, anthers appendiculate with obtuse base, 0.2 cm long, style with long acute arms. *Stigma* bifid, ovary inferior. *Cypsella* truncate, 5-angled, *pappus* many, connate at the base. *Flr. & Frt:* February-October.

A very common and most problematic weed growing in all areas, very first growing during summer.

Vern. name: Germani lota, Indira lota, Amor lota (As.)

Coll. No.: Borah, A. 57. Date: 27-4-2001  Locality: Barpara

Fig. No.: 26.b (plate 26).


Stout, erect, white-puberulous *herbs* upto 1 m high. *Leaves* alternate, irregularly and pinnately dissected, 2-3×3-5 cm. *Capitula* 4-7 cm across, heterogamous, cream-white in axillary or terminal leafy panicles; *involucre*
Fig. A. *Chromolaena odorata* (L.) R. King & H. Robins.

B. *Mikania micrantha* Kunth. ex H.B.K.
companulate, phyllaries bi-seriate, 5 in each series, outer flowers falcate of female florets, each associated with a pair of male or neuter florets. Inner florets male; paltate or apaltate. Stamens 5, filaments short, anther linear with prolonged knob like connections. Pappus 0, disc also florets of 2 strongly reflexed bristle in ray florets.

Flr. & Frt.: All round the year.

Growing on open fields, roadsides especially railway tracts.

Occurrence: Common along railway tracts forming patches, exotic weed.


Photo No.: 31.4 (plate 31)

**Sonchus L., Sp. Pl. ed. 1:793. 1753.**

Annual milky herbs. Leaves radical and cauline, alternate, upper sessile. Heads peduncled, in corymb or umbels; involucre of bracts many-seriate; receptacle flat. Achenes narrowed at base, ribbed.


An annual milky herb of 70-100 m tall, with creeping rootstock. Leaves obovate – lanceolate, 10-17 × 1.5-3.5 cm, rounded to acute at apex, amplexicaul at base with auricles, often pinnatifid. Heads in corymb. Ray florets yellow. Achenes ribbed. Flr. & Frt.: September- February.

Common in open places in association with *Cyperus brevifolius, Hedyotis corymbosa, Vernonia cineria* etc.

Coll. No.: Borah, A. 294. Date: 18-9-2002 Locality: Chapaguri. (Plate 27.)
Fig. *Sonchus brachyotus* DC.

(i) Habit  (ii) A capitulum  (iii) Involucre  (iv) Flower  (v) Seed


Glandular, hairy *herbs*; wings of stem toothed. Leaves alternate, decurrent on the stem, 0.5-3 ×0.25-0.5 cm, linear-oblong or ovate-oblong, toothed or serrate, glandular, acute or obtuse, villous. *Heads* small, heterogamous not rayed, collected in a close terminal globose or ovoid compound involucre capitate cluster, 1.25-1.5 cm across, peduncle winged, pubescent. In a head, *outer flowers* are female, few to many, fertile; *central flowers* bisexual, fertile or sterile. *Involucre* narrow, bracts ciliate. *Receptacle* small, naked. *Corolla* in female flower 2-3-toothed, in bisexual flowers 4-5-toothed. *Style arms* filiform, sometimes connate. *Fruit* angular. *Pappus* absent. Flr.: February Frt.: April

Occurrence: Rare, a few found in grassland.


Photo No.: 31.5 (plate 31)


*Annual herbs*, prostrate or erect, rooting at basal nodes. *Leaves* opposite, ovate, elliptic. *Heads* usually long peduncled, axillary or terminal, *heterogamous* and
rayed or homogeneous and disciform; ray florets, when present, female, 1-serriate; disc florets hermaphrodite, all fertile; involucre ovoid or campanulate, bracts 2-3-serrate.


Annual herbs, rooting at basal nodes, 10-80 cm. Leaves opposite, ovate, elliptic, narrowed at base, obtuse or acute at apex. Flower in heads, usually long peduncled, axillary or terminal, heterogamous and rayed or homogeneous and disciform; ray florets, when present, female, 1-serriate; disc florets hermaphrodite, all fertile; involucre ovoid or campanulate, bracts 2-3-serrate. Calyx limb obsolete. Petals on ray florets connate in a yellow, ligulate corolla; of hermaphrodite florets regular tubular with a 4-fid limb. Fr. & Frt.: January- December

Grows on wet and partially shaded places in association with *Ludwigia* sp., *Cyperus* sp. etc. Occurrence: Common. Vern. Name: Moha Bhingaraj (A.). Uses: Plants are used as vegetable by Bodos. Leaves and flowers are chewed as medicine in toothache, mouth ulcer etc., proves its antibacterial property.


*Synedrella* Gaertn., Fruct. 2: 456, t. 171. 1791.

Fig. *Spilanthes paniculata* Wall. ex DC.

(i) A flowering twig. (ii) L. S. of capitulum.

(iii) Ray floret   (iv) Disc floret

Erect annuals, ca 30 cm high, pubescent all over. *Leaves* ovate-lanceolate, serrulate, acute, 5-12 × 3-5 cm petiolate. *Capitula* at upper leaf axils, yellow; involucre campanulate. *Stamens* 5; anthers linear, sagittate. Flr. & Frts.: October-March.

Growing on damp soils in association with *Euphorbia hirta*, *Croton bonplandium* etc.

Occurrence: frequent

Coll. No.: Borah, A. 162. date: 18-8-2001 Locality: Rabhapara

(Plate 29)

*Tithonia* Desf. ex Juss., Gen. Pl. (Jussieu) 189. 1789.

Tall herbs, hirsute. *Leaves* lobed or not, coriaceous. *Capitula* larger, yellow, long peduncled, heterogamous.


It may be a garden escape; colonize near foot hills with herbaceous background.

Coll. No.: Borah A. 606. Date: 22- 12- 2007 Locality: Rabhapara.
Fig. *Synedrella nodiflora* (L.) Gaertn. (i) Habit   (ii) Ray floret   (iii) Disc floret
*Tridax* L., Sp. Pl. 900. 1753


A terrestrial perennial, deciduous, procumbent herb of 10-45 cm height. Leaves cauliine, opposite-decussate, simple exstipulate, ovate, lanceolate, acute, cuneate, serrated, reticulate, finely pubescent. *Inflorescence* ovate, heterogamous head, yellowish, 1.5×0.8 cm nearly on terminal pubescent 12-16 cm or more long peduncle. *Involucre* bracts hirsute 5-lobed, green, 0.6 cm long. *Ray florets*: zygomorphic, female 7.5 mm long, pistillate, epigynous, yellowish. *Pappus* numerous, 0.3 cm long, white. *Corolla* three lobed, irregular, 0.75 cm long, forming tube below, half of the length. *Gynoecium* with bifid stigma, long style and globose ovary, smooth, 0.4 cm long; ovary unilocular, placentation almost central. *Disc florets*: at the central part of the head, actinomorphic harmaphordite, bracteate, 0.5 cm long, white; *pappus* hairy numerous, 0.3 cm long, white. *Corolla* 5-lobed, united, 0.4 cm long. *Androecium* epipetalous with 5 syngeneric stamens, 0.3 cm long. *Gynoecium* bi-stigmate, style long, 0.5 cm long; superior ovary unilocular, central placentation. Flr. & Frt.: November- March.

Grows on grassy open fields associated with *Euphorbia hirta*, *Cynodon dactylon*, *Vernonia cinerea* etc. Occurrence: Rare
Vernonia (L.) Lers., in Linnaea 4: 291. 1829


Key to the species:

1a. Annual herbs. Heads small ........................................ V. cinerea
1b. Shrubs or under-shrubs. Heads larger .................................. V. volkameriaefolia


Annual herbs. Capitula ca 20 flowered. Achenes terete, not angled or ribbed; pappus of hairs, bi-serriate, outer row minute.

Flr. & Frt.: March-October

Grows in grassy open field in. Occurrence: Common.


Fig. *Vernonia cinerea* (L.) Less.

(i) Habit  (ii) A capitulum  (iii) Involucral bracts  (iv) A flower
A large sub-shrub or herb, pubescent. Leaves variable in size and shape, oblanceolate or oblong-obovate, entire, repand or coarsely dentate, acute; midrib stout; base cuneate; petiole stout with a decurrent base for half the circumference of the branchlet. Flowers in large terminal cymosely panicled heads; involucre more or less hairy, oblong with obtuse or rounded ends. Petals strap shaped, ribbed, purplish. Fruit ribbed. Pappus whitish, filiform, persistent.

Flr.: December- January   Frt.: March- April
Occurrence: Rare.
Coll. No.: Borah A. 397. Date: 22-2-2005   Locality: Hapachara


Erect herbs. Leaves alternate. Inflorescence monoecious; heads single or clustered. Bracts 1-2-seriate. Receptacle cylindric. Involucre of female heads with the bracts united into an ovoid, 2-beaked, herbaceous utricle with 2 one-flowered cells, clothed with hooked bristles. Achenes ovoid, pappus absent.


A coarse annual herb; hispidilose or strigilose. Leaves 2.5- 10.5 cm long and as broad, broadly triangular-ovate or sub-orbicular, often lobed, acute, scabrid or hispid. Flowers unisexual in single or clustered axillary heads. Female flower: involucre burr-like, covered with hooked spines. Male flower: heads at the tops of inflorescences; anthers exserted. Cypsela enclosed in the hardened cells of utricle. Pappus 0. Flr.: January- March. Frt.: April
Photo No. 31.1: *Eclipta prostrata* (L.) L.

Photo No. 31.2: *Erechthities valerianaefolia* DC.

Photo No. 31.3: *Grangea maderaspatana* (L.) Poir.

Photo No. 31.4: *Parthenium hysterophorus* L.

Photo No. 31.5: *Sphaeranthus indicus* L.

Photo No. 31.6: *Xanthium strumarium* L.
Grows on open field after summer season end. Occurrence: Common

Vern. name: Agora, Agra (As.)

Uses: young saplings are eaten cooked as vegetable mixing with others.

Coll. No.: Borah A. 462. Date: 21-4-2005 Locality: Koroiguri

Photo No.: 31. 6 (plate 31)

**PLUMBAGINACEAE**

Perennial herbs, sub-shrubs or shrubs. Leaves alternate, entire, exstipulate. Flowers bisexual, regular, pentamerous in terminal scapes or peduncles, capitulate, racemed or panicled; bracts rigid; bracteoles 2. Calyx inferior, gamosepalous, often tubular, 5-10-ribbed. Corolla hypogynous, salver-shaped, petals free or connate at the base. Stamens 5, opposite the petals; filaments free or adnate to the base of the corolla. Ovary superior, 1-celled, 5-angular above; ovule 1, pendulous; style 5, free or connate, stigma bi-lobed. Capsule included within the calyx.

*Plumbago* L., Sp. Pl. 151. 1753


Sub-shrub with glabrous small herbaceous branchlets. Leaves ovate-acute, entire, base cuneate. Flowers white, subsessile in glandular pubescent terminal or axillary spicate racemes; lower bracts leafy; bracteoles ovate-acuminate, shorter than calyx. Calyx free, tubular, covered with shortly stalked glands, persistent. Corolla hypocrateriform; lobes oblong, apiculate. Filaments of stamens equaling corolla lobes, anthers purple. Capsule oblong, apiculate, splitting upwards into 5-valves. Flr. & Frt.: Almost round the year

Grows as wild as well as cultivated in association with Achyranthus sp., Amaranthus sp. etc. Occurrence: Rare.

Vern. name: Agiyasitta (As.), Bakhor (Rabha)

Uses: Roots are medicinal. Leaves and inflorescence are used in preparing

traditional wine cake called "Bakhor" (narcotic).


MYRSINACEAE

Trees or shrubs. Leaves simple, alternate, exstipulate. Inflorescence cymes, racemes or umbels. Flowers actinomorphic, hermaphrodite or polygamo-dioecious. Calyx free, 5-fid, half-inferior or inferior, persistent, often gland dotted. Corolla gamopetalous, deeply divided or polypetalous, lobes 5, sometimes 3-7, gland dotted. Stamens as many as and opposite to the corolla lobes; staminodes sometimes present. Ovary globose or ovoid, superior or semi-inferior, 1-celled; ovules few to many on a free central placenta. Fruit usually baccate.
Fig. *Plumbago zeylanica* Gaertn.
Maesa Forsk., Fl. Aeg- Arab. 66. 1775.

Evergreen shrubs and small trees, sometimes stragglers. Leaves usually pellucid-punctate, sometimes with resinous lines. Flowers 5-merous, often unisexual, dioecious, in axillary or terminal paniced racemes. Calyx half-inferior or nearly free, semi adnate to the fruit. Corolla rotate or campanulate, lobes imbricate. Stamens epipetalous, filaments short, staminodes absent. Ovary partially adnate to the calyx; style short; ovules many. Fruits small, baccate, globose, crowned with persistent style. Seeds many.


Baeobotrys indica Roxb., Fl. ind. 2:230. 1824.

A shrub or sometimes attaining to a small tree. Bark grayish-green. Leaves elliptic-lanceolate or elliptic-oblong, acute or acuminate, remotely or coarsely toothed, glabrous. Flowers white, scented, in axillary racemes, sometimes branched. Calyx minute. Corolla about 4mm across, lobes imbricate. Stamens 5, filaments short, anthers brown, dorsifixed. Ovary half-inferior, ovules many; style short, persistent in fruit, obscurely lobed. Berries small, pinkish-white, succulent when ripe. Flr.: December- March Frt.: June- July

Commonly found along roadsides, near foothills. Occurrence: Common

Vern. name: Sesu (As.) Uses: Ripe fruits are eaten fresh.

Coll. No.: Borah A. 409. Date: 11-2-2005 Locality: Shankarghola
Sapotaceae

Trees or shrubs, generally evergreen, with yellowish milky juice. Leaves entire, usually alternate, coriaceous, exstipulate. Flowers bisexual, axillary, pedicellate, usually clustered. Calyx segments 4-8, imbricate or bi-seriate with outer series valvate, persistent. Corolla tube short, lobes as many as or 2-4 times as many as the calyx-segments. Stamens on the corolla tube, as many as corolla lobes, epipetalous, 1-3-deriate. Ovary superior, sessile, 2-8-celled, ovules solitary in each cell. Fruit 1-8-seeded, baccate. Seeds ellipsoid or compressed.

Key to the genera:

1a. Leaves elliptic, acuminate. Fruits ovoid or ellipsoid ................................ Mimusops

1b. Leaves elliptic-oblanceolate, acuminate. Fruit globose ................................ Manilkara

Manilkara Adans., Fam. Pl. 2:166.574. 1763.


Evergreen tree, trunk and branches rusty grayish, with milky juice. Leaves whorled at the apex of branches, elliptic-oblanceolate, coriaceous. Fruits rusty-grey when young, yellowish when ripe, ca 8 cm across, fleshy with sweet scent. Seeds about 8 cm long, ellipsoid, testa crustaceous. Flr.& Frt: winter.

Cultivated for its edible fruit in homesteads, not common.

Vern. name: Sopeta (As.)


Large evergreen tree. Leaves simple, elliptic, acuminate. Flowers fragrant, starlike, solitary or in fascicles. Fruit usually globose, ovoid or ellipsoid. Seeds ellipsoid, shining.


Large evergreen tree, generally smaller and beautiful in cultivation. Bark grey, fissured. Leaves simple, elliptic, acuminate, coriaceous, shining. Flowers creamy white, fragrant, starlike, solitary or in fascicles. Fruit usually globose, ovoid or ellipsoid, about 2.5cm long, orange yellow. Seeds ellipsoid or compressed, slaty brown, shining. Flr. & Frt.: throughout the year

Cultivated tree, common along roadsides, institutional campus, temple campus etc. Occurrence: common.

Vern. name: Bokul (As.)

Uses: Commonly as shade tree; barks are used as medicine in toothache, Peoria etc. Ripe fruits are eaten, considered medicinal for heart, teeth etc.


OLEACEAE

Trees, shrubs and stragglers. Leaves opposite, simple, trifoliate or pinnate, petiole often articulated. Flowers bisexual, regular, 2-6-merous, sometimes poly- or apetalous, in trichotomous terminal or axillary cymes or panicles. Calyx typically 4,
inferior. *Corolla* lobes usually valvate or imbricate. *Stamens* 2, epipetalous; hypogynous in apetalous species. *Ovary* inferior, 2-celled; stigma 2-lobed on simple style; ovules 1-2 in each cell. *Fruit* drupaceous, capsular, baccate or dry schizocarp. *Seeds* 1 or 2, erect or pendulous.

Key to the genera:

1a. Plants shrubs or scandent shrubs. Fruits baccate .. .. .. .. .. .. *Jasminum*

1b. Plants small tree. Fruits a 2-valved compressed capsule .. .. .. .. *Nyctanthus*

**Jasminum** L., Sp. Pl. 7. 1753.

*Shrubs* or *scandent shrubs*. *Leaves* opposite, 3-foliate or imparipinnate. *Flowers* fragrant, in terminal or axillary cymes. *Calyx-tube* funnel shaped or campanulate, segments 4-9, linear or truncate. *Corolla* white, pinkish or yellow, salver-shaped, lobes 4-10 or more. *Stamens* 2, usually included in the corolla tube, filaments very short. *Ovary* 2-celled; style cylindric, stigma bifid; ovules 2 in each cell. *Berry* globose, ellipsoid or elongate.


An evergreen *shrub*, young parts pubescent. *Leaves* simple, opposite, occasionally ternate, variable in size and shape, usually ovate, acute or acuminate, entire, glabrous above, pubescent beneath. *Flowers* white, very fragrant, about 2.5 cm across, axillary, solitary or 3-flowered cymes. *Calyx* segments 6-8, linear, pubescent. *Corolla* tube about 2 cm long, lobes oblong. *Carpels* black when ripe, surrounded by the enclosed calyx-lobes. Flr.: Autumn- winter
The plant is cultivated as well as found wild.

Vern. name: Duamali / Juti-phul (As.)

Uses: planted as ornamental plant for its beautiful, fragrant flowers.


Small trees, branches 4-angular. Leaves ovate, 5-8 × 3.5 cm, siliceous, entire or toothed, 7-nerved; petioles about 1 cm. Flowers fragrant. Calyx truncate, 5-lobed. Corolla about 2.5 cm across; tube about 7 mm long, red; lobes 5-7, white. Capsules 1.2-2.0 cm across, dehiscent. Flr: August – October. Frt.: October – March.

Generally planted in homestead gardens. Vern. name: Sewali phul (As.)

Uses: Leaves and flowers are eaten as vegetable occasionally. Leaf and Flower extract is prescribed in worm. Powder of dry flower with honey is given in measles.


APOCYNACEAE

Sub-shrubs, shrubs, climbers and trees with milky latex. Leaves simple, opposite or whorled, rarely alternate, entire; stipules 0. Flowers hermaphrodite,
regular, in terminal or axillary cymes; bracts small. *Sepals* 5, rarely 4, connate in an inferior calyx, imbricate, often glandular at the base within. *Petals* 5, rarely 4, connate in a rotate or hypocrateriform *corolla*; lobs spreading, contorted, and often twisted in bud, rarely valvate. *Stamens* 5, rarely 4, on the tube, throat, or mouth of the corolla; filaments usually short; anthers oblong, linear, or sagittate. *Disk* annular, copular or glandular. *Carpels* 2, connate in a 1-celled ovary with 2 parietal or a 2-celled ovary; style simple, or style 2, free at the base but united above; stigma 2-fid; ovules 2 in each carpel or few or many. *Fruit* of a single dry or fleshy drupe, berry or samara or of 2 drupes, berries or follicles. *Seed* polymorphous, often winged or tipped by a tuft of long, silky hairs.

Key to the genera:

1a. Trees or small trees:

2a. Leaves alternate or scattered. Seeds winged ... ... ... ... ... . *Plumeria*

2b. Leaves opposite or whorled. Seeds not winged

3a. Seeds comose:

4a. Leaves whorled. Flowers greenish-white, in compact panicled cymes. Large tree ... ... ... ... ... ... ... ... . *Alstonia*

4b. Leaves opposite. Flowers white, in lax corymbose cymes. Small trees ... ... ... ... ... ... ... ... ... ... ... ... . *Holarrhena*

3b. Seeds with woody mesocarp, separating into 2 valves. ... ... *Cascabela*

1b. Shrubs, undershrubs or scandent shrubs:

5a. Leaves whorled:

6a. Scandent shrub. Corolla yellow. Ovary 1-celled ... ... ... . *Allamanda*
6b. Shrubs or under shrubs. Corolla other coloured. Ovary 2-celled:

7a. Fruit drupaceous. Under shrub or shrubs... ... ... ... ... Rauvolfia

7b. Fruit follicles, connate. Erect shrub. ... ... ... ... ... ... Nerium

5b. Leaves opposite:

8a. Seeds truncate. Under shrub. ... ... ... ... ... ... Catharanthus

8b. Seeds in an orange coloured aril. Erect shrub. ... ... Tabernaemontana

**Allamanda** L., Mant. ii. 146. 1771.

*Scandent shrub. Leaves whorled. Flowers in axillary panicled cymes. Corolla*
tube cylindrical. Fruit spiny.


*Scandent shrub. Leaves whorled, mostly quaternate, ob lanceolate, sub-
 sessile. Flowers yellow in axillary panicled cymes. Corolla about 5 cm long, tube

Cultivates as ornamental plant for its beautiful flowers.

Vern. name: Lota korobi (As.)


*Trees or erect shrubs. Leaves 3-4-nately whorled, rarely opposite. Flowers in*
sub-terminal, corymbose cymes. *Sepals* connate in a short, 5-lobed or 5-partite calyx;
lobes short, usually obtuse. *Petals* 5, connate in a salver-shaped corolla; tube
cylindric; throat naked, annulate or with reflexed hairs; lobes overlapping. *Stamens* adnate near apex of tube, or 0. *Carpels* 2, distinct; ovules numerous. *Fruit* of 2 linear, slender follicles. *Seeds* oblong or linear flattened, peltately attached, often ciliate.


Common throughout the district.

Uses: The latex is applied to ulcers and other skin diseases. Milky juice mixed with small amount of mustard oil is applied in ear-ache. Pieces of bark are worn in jaundice by making a garland. Bark powder is taken in chronic diarrhea, dysentery and in malarial fever. The juice of leaves and of fresh ginger is given to women after childbirth (M. Das, 2007).

Coll. No.: Borah A. 207. Date: 19-3-2002 Locality: Barpara
**Cascabela L., Sylva Tellur. 162. 1838.**

Glabrous shrubs or small tree. Leaves alternate, narrow-lanceolate. Sepals connate in a 5-partite calyx, the base glandular within; lobes acute spreading. Petals 5, connate in a funnel shaped corolla; tube cylindric below, swelling abruptly into a campanulate throat; scales at top of tube; lobes broad, overlapping to the left. Stamens 5, adnate to top of tube. Carpels 2, connate. Ovary 2-celled; ovules 2 in each cell; style filiform; stigma disciform. Fruit a drupe, broader than long, compressed at right-angles to septum; endocarp hard, 2-locular; placentas accrescent, 2-lamellate, dividing each cell into two 1-seeded chambers. Seeds broad, with a thin or almost winged margin; testa thickly membranous; cotyledons fleshy, suborbicular, compressed.


An evergreen shrub or small tree, with milky latex. Leaves linear, glossy-green, spirally arranged, margins recurved. Ovary of 2, more or less connate carpel. Fruit roundish, somewhat longitudinally constricted; fleshy; pericarps breaks into 2 when ripe; mesocarp woody, breaking into 2-valves.

Flr. & Frt.: almost round the year.

Cultivated usually in gardens, parks etc. for its flower. The latex is poisonous.

Vern. name: Korobi phul, Halodhiya korobi (As.)

**Catharanthus** G. Don., Gen. Hist. iv. 95. 1836.

Erect or procumbent *herbs or shrubs* or sub-shrubs. *Leaves* opposite. *Flowers* axillary, solitary. *Sepals* connate in a 5-partite calyx; tube not glandular within; lobes narrow. *Petals* 5, connate in a salver shaped corolla; tube cylindric, usually with reflexed hairs below the stamens; throat constricted. *Stamens* 5, included, adnate above middle of tube. *Disk* of 2 large glands. *Carpels* 2, distinct; ovules 6 or more, 2-seriate in each carpel; style filiform. *Fruit* of 2 slender, erect or spreading follicles. *Seeds* subcylindric, truncate at both ends.


Perennial glabrous *under-shrubs*. *Leaves* oblong or elliptic-ovate, obtusely stipulate, 4-10 × 2-4 cm, acute or cuneate at base, glossy; lateral nerves 10-12 pairs; petioles about 1 cm. *Flowers* 3-4 cm across. *Corolla* tube cylindrical, narrow, about 3 cm long; lobes 5, obtusely apiculate, white or deep rose; style slender, about 3 cm. 

Flr. & Frt.: Round the year

Very commonly cultivated plant, rarely found as an escape.

Vern. names: Noyontara phul, Nayantora (As.)

Uses: Watery extract of leaves is prescribed (about 5 ml once a day) for long time to control diabetes (S. Sarkar, 2007).


*Trees or shrubs. Leaves* membranous, opposite. *Flowers* white, in terminal or sub-axillary, many-flowered, corymbose cymes. *Sepals* connate in a 5-lobed or 5-partite calyx, usually glandular within; lobes small, narrow. *Petals* 5, connate in a salver-shaped corolla; tube cylindric; throat contracted, naked; lobes oblong, overlapping to the left. *Stamens* adnate near base of tube, included. *Disk* 0. *Carpels* 2, distinct; ovules numerous in each cell; style short, filiform; stigma entire or 2-toothed. *Fruit* of 2 terete, elongated, spreading and incurved follicles. *Seeds* linear or oblong, compressed, tipped with a deciduous coma.


Commonly found near foothills. Occurrence: Common

Vern. name: Dudhkhori (A) Bot-matr, mat-mande, Bolmigmu (G)

Uses.: Root- Decoction with black pepper is given as antipyretic. Bark- Sap is given in dysentery. Latex is applied on ringworms (M. Das. 2007).
Coll. No.: Borah A. 248. Date: 19-4-2002. Locality: Bakhra para

Photo No.: 33.1 (plate 33).


Cultivated as ornamental plant in gardens, homesteads etc.

Vern. name: Rakta-korobi (As.)

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*Trees. Leaves* elongated, alternate. *Flowers* large, in terminal, 2-3-chotomous cymes; bracts many, broad, deciduous. *Sepals* connate in a small 5-fid calyx; tube not glandular within; lobes wide, obtuse. *Petals* 5, connate in a salver-shaped corolla; throat naked; lobes overlapping to the left, or occasionally to the right. *Stamens* 5, adnate near base of tube. *Disk* 0, or lining calyx-tube. *Carpels* 2, distinct ovules many –seriate in each; style short; stigma 2-lobed. *Fruit* of linear-oblong or ellipsoid follicles. *Seeds* oblong or lanceolate, plano-convex, winged.
Key to the species:

1a. Flowers white or white-tinged with yellow .. ... .. .. P. alba

1b. Flowers purplish-red or tinged with yellow. .. .. .. .. .. .. .. P. rubra


Small deciduous tree with whitish flowers cultivated for ornamental purposes.

Vern. name: Boga—gulanch (As.), Gulanchi (Beng.)


Small deciduous tree usually with purplish-red flowers, cultivated for ornamental purposes.

Vern. name: Ronga—gulanch (As.), Rakta-gulanchi (Beng.)

**Rauvolfia** L., Gen. pl. 11: 607. 1754

Small shrub. Leaves 3-4-nately whorled, rarely opposite. Flowers in umbelliform cymes, on peduncles, alternate with the terminal leaves, ultimately becoming lateral. Sepals connate in a 5-fid or 5-partite calyx; tube not glandular within; lobes obtuse or acute. Petals 5, connate in a salver-shaped corolla, with cylindric tube and constricted throat, the later usually hairy within. Stamens included, adnate to the middle of the tube; anthers small, acute. Disk large, copular or annular. Carpels 2, distinct or connate; ovules 2 in each carpel; style filiform;
stigma with a broad, calyptrate base and a 2-fid tip. Fruit of 2 distinct or connate, drupe-like ripe carpel, each usually 1-seeded. Seeds ovoid.


An erect evergreen small shrub, about 65 cm high. Leaves simple, whorled, ca 13 cm long and ca 3 cm width, oblong-lanceolate or elliptic-lanceolate, acute or acuminate, glabrous, dark glossy green above, pale beneath, base tapering. Flowers 1.2-2 cm long, in terminal or axillary compact corymbose cymes; pedicels very short. Calyx glabrous, segments lanceolate, red. Corolla tube pinkish, often curved; lobes small, white. Carpels slightly connate. Fruits didynamous or solitary, 0.6 cm across, pointed, smooth, black when ripe.

Flr.: April-October, occasionally in other seasons also. Frt.: July-January

Grows from underground root stock, found in few localities usually on slopes of foothills.

Vern. name: Sarpagandha, Arason tita, Chandor tita (As.)


Note: Vulnerable species.

Uses: Established Medicinal Plant due to containing alkaloids like serpentine, reserpine etc. which are used in life saving drugs. Roots are used locally in snake bite.

Photo No. 33.2 (plate 33).

Trees or shrubs. Leaves opposite. Flowers white, in terminal or sometimes sub-lateral, axillary cymes or solitary. Sepals connate in a 5-lobed or 5-partite calyx; tube usually glandular within; lobes obtuse, imbricate. Petals 5, connate in a salver-shaped corolla; tube cylindric, usually slender, inflated in the middle or at apex. Stamens included, at or above the middle of the tube; filaments short or 0. Disk 0. Carpels 2, distinct; ovules usually numerous and many-seriate in each carpel; style short or long, apex urceolate, ovoid, or clavate; sigma short or long, 2-lobed. Fruit of two ovoid-oblong or reniform, dry or fleshy, smooth or ribbed, 1-many-seeded follicles. Seeds embedded in pulp, ovoid-oblong, subterete or compressed, grooved down one face.


Small tree or shrubs. Cymes axillary or terminal, often flowers solitary. Calyx usually glandular. Corolla lobes imbricating to the left tube- dilated above the middle. Follicle 1-many seeded, fleshy. Fl. & Frts.: through out the year.

Found on foot hills along streams, usually associated with bamboo.

Occurrence: Common. Vern. Name: Kathanda phul (As.).

Uses: As ornamental plant in homesteads, gardens etc.

Coll. No.: Borah. A. 177. Date: 12-10-2001. Locality: Sanyasi pahar

Photo No. 33.3 (plate 33)
ASCLEPIADACEAE

Herbs or shrubs, often twining, with milky latex. Flowers gynandrous. Disc absent. Stamens adnate to pistil forming gynostegium. Pollen grains are united in 1 or 2 pollinia. Carpels 2, united by their styles only, free at the base. Stigma 5-angular. Seeds comose. Endosperm cartilaginous.


Erect perennial herbs. Leaves opposite, alternate, or whorled. Flowers in umbellate cymes. Sepals connate below in a 5-partite calyx tube, glandular within. Petals 5, connate in a rotate corolla; lobes often reflexed, valvate; coronal scales 5, erect, adnate to staminal column, spoon-shaped. Stamens 5, adnate near base of corolla; filaments connate in a short tube; anthers with membranous, inflexed tips. Carpels 2, distinct; stigma depressed, angled. Fruit of 2 turgid, beaked, smooth follicles. Seeds comose.


Cultivated and found as escape near homesteads.

Uses: as ornamental plant in gardens.

Coll. No.: Borah, A. 426. Date:16-11-05 Locality: near Chaprakata Rly stn.
*Calotropis* R.Br., in Mem. Wern. Soc. i. 1809.

Erect herbs, shrubs, or small trees. Leaves opposite, broad, sessile or short-petioled. Flowers medium, in umbelliform or sub-racemose cymes. Sepals connate in a 5-partite calyx, glandular at the base within; lobes lanceolate. Petals 5, connate in a wide-campanulate corolla; lobes, broad, valvate; coronal scales 5, fleshy, laterally compressed, adnate to and radiating from the large staminal column, dorsally spurred. Stamens 5, adnate near base of corolla-tube; filaments connate in a tube. Carpels 2, distinct; stigma depressed, 5-angled or 5-lobed. Fruit of 2 short, thick, acuminate follicles. Seeds comose.


Erect shrub, sometimes like a small tree, with milky latex. Young parts and under surface of leaves covered with white floccose tomentum. Leaves ovate, thick and fleshy, with a powdery mass, apex acuminate or obtuse. Flowers in umbellate or racemose pedunculate cymes. Calyx glandular within. Corolla of 5-scales radiating from the staminal column, lavender lilac or bluish-purple. Anther tips membranous, inflexed. Style apex 5-angled or lobed. Follicles short, recurved, turgid. Seeds ovate.

Flr. & Frt: Throughout the year.

Grows as wild and also cultivated. Vern. name: Aakon. (As.)

Coll. No.: Borah, A 407. Date: 8-3-2007 Locality: Maj gaon

Photo No.: 33.4 (plate 33)
Dischidia R. Br., in Mem. Wem. Soc. i:32. 1809

Herbs or undershrubs, usually epiphytic, rooting and climbing or pendulous. Leaves usually opposite, fleshy. Flowers small, white or red in axillary fascicles, umbels, or racemes. Sepals 5, slightly connate below. Petals 5, connate in an urceolate corolla; corona of 5 membranous, erect scales, adnate to staminal column. Stamens 5, adnate to base of corolla-tube, filaments connate in a very short column; anthers erect, with membranous tips. Carpels 2, stigma flat or conical. Fruit of 2 small, follicles. Seeds minute.


A slender epiphytic herb, rooting on the bark of trees. Leaves small, narrow, oblong or spathulate, fleshy. Flowers white.


Note: Vulnerable species. Not reported from North bank of Brahmaputra earlier.

Hoya R. Br., Asclepiadaceae 26. 1810.

Twining pendulous, or rambling and rooting, often epiphytic shrubs. Leaves opposite, firmly fleshy or thickly coriaceous. Flower in axillary umbels. Sepals connate in a small, 5-partite calyx, 5-glandular at base within. Petals 5, connate in a rotate, fleshy or waxy corolla; lobes often convex or spreading and reflexed; corona of 5 large, membranous, fleshy or horny scales, adnate to the staminal column.
Stamens 5, adnate to base of corolla-tube; filaments connate in a short column. 

Carpels 2, distinct. Fruit of 2 follicles. Seeds very small.

*Hoya parasitica* Wall. ex G. Don, Prodr. 130. 1825; Hook. f., FBI 4: 57. 1882; 


Flr.: March- April Frt.: June- Jully

Commonly found on large and old trees in forests as well as roadsides.

Vern. name: Lohom-pat (As.)

Coll. No.: Borah A. 412. Date: 22-3-2005 Locality: Bhairabchura PRF

*Sarcostemma* Bennet, IF 95:692. 1969

Glabrous, *twining herbs or undershrubs*. *Leaves* opposite, narrow. *Flowers* large, in loose, racemose or umbellate cymes, or solitary; pedicels filiform. *Sepals* connate in a small, 5-fid calyx, with 5 or more glands at the base within. *Petals* connate in a wide, urceolate or campanulate or rotate, 5-angled corolla; lobes ciliate; corona double; staminal of 5 scales adnate to the bases of the staminal tube, with cordate bases, 2- keeled within. *Stamens* 5, adnate near base of corolla; filaments...
connate in a short tube. Carpels 2, distinct; stigma depressed or sub-convex. Fruit of 2 thick, oblique or curved, smooth or narrowly 2-winged follicles. Seeds comose.


Occurrence: Rare.


Photo No.: 33.5 (plate 33)

**PERIPLOCAEACEAE**

**Cryptolepis** R. Br.

in Mem. Wern. Soc. i:69. 1809; on the Asclepiadaceae 1810.


Occurrence: Scarce. Vern. name: Kola-anantamul (As.)

Uses: The plant is highly medicinal in blood diseases, as aphrodisiac, tonic etc.

Coll. No.: Borah A. 442. Date: 26-4-2005 Locality: Khagarpur

Note: Critically endangered species. Earlier report was from Manas National park by Jain and Hajra, 1975. It may be considered as new record of occurrence of the species in lower Assam beyond Manas.

Photo No.: 33.6 (plate 33)
Photo No. 33.1: *Holarrhena pubescens* (Buch.-Ham.) Wall.

Photo No. 33.2: *Rauvolfia serpentina* (L.) Benth. ex Kurz.

Photo No. 33.3: *Tabernaemontana divaricata* (L.) R. Br.

Photo No. 33.4: *Calotropis gigantea* (L.) R. Br.

Photo No. 33.5: *Sarcostemma secamone* (L.) Bennet

Photo No. 33.6: *Cryptolepis buchananii* Roem. ex Schult.
MENYANTHACEAE


Aquatic herbs. Leaves deeply cordate, entire or distantly sinuate, sub-opposite. Flowers peduncled, white or yellow; peduncles fascicled at the nodes. Sepals slightly connate in a 4-5-partite calyx. Petals 4-5, connate in rotate corolla; tube often with glands, sometimes with hirsute throat. Stamens 4 or 5, adnate to corolla tube; filaments short; anthers hastate-oblong. Style short, stigma of 2 lamellae. Capsule ovoid, indehiscent, many seeded. Seeds compressed, orbicular.

Key to the species:

1a. Corolla lobes entire with a longitudinal fold. .. .. .. .. .. N. hydrophyllum

1b. Corolla fimbriate, densely papillose, without a fold . .. .. .. .. N. indicum

Aquatic herbs. Stem floating, rooting at the nodes. Leaves orbicular, deeply cordate. Flowers white, yellow towards base of the corolla within. Corolla lobes entire, fold down the middle. Seeds somewhat scabrous.

Commonly found in the beels forming patches with Trapa nutans, Vallisneria spiralis etc. Flr.: April- May. Frt.: Autumn.

Occurrence: Common. Vern. name: Pani kola (As.), Pan-seuli (Beng.)

Uses: Fruits are eaten fresh


Commonly found in the beels forming patches with Trapa nutans, Vallisneria spiralis etc. Flr.: April- May. Frt.: Autumn.

Occurrence: Common. Vern. name: Pani kola (As.), Pan-seuli (Beng.)

Uses: Fruits are eaten fresh
Coll. No.: 438 Borah, A. Date: 1-5-2005 Locality: Rakhaldubi.
HYDROPHYLLACEAE

Annual or perennial herbs. Leaves radical or alternate, very rarely opposite. Flowers regular, usually in unilateral or dichotomous cymes, sometimes spicate or racemose. Sepal 5, connate in an inferior calyx; lobes imbricate. Petals 5, connate; lobes imbricate, rarely contorted. Stamens 5, adnate to corolla-tube; filaments filiform, often dilated at the base; anthers oblong, versatile. Disc hypogynous, small, or 0. Carpels 2, connate in a superior, 1-locular, or 2-locular ovary; ovules usually many; styles usually 2; stigmas capitate. Fruit a globose or ovoid, loculicidally or septicidally 2-valved or irregularly 4-valved capsule. Seeds minute.

Hydrolea L., Sp. Pl. ed. 2. 1:328. 1762; Gen. Pl. ed. 6. 1764

Hydrolea zeylanica (L.) Vahl., Symb. Bot. (Vahl.) ii. 46. 1791; Prain, Bengal plants 2:711. 1903; Chowdhury et al., Ass. Fl. 244. 2005.

Herbs. Leaves alternate, lanceolate, acuminate, entire; upper gradually smaller, sessile or shortly petioled. Flowers in short, terminal racemes or cymes, regular. Sepals connate in a deeply 5-partite calyx, hairy. Petals 5, connate in a widely sub-rotate corolla, deep bluish-purple with a greenish centre; lobes ovate, imbricate. Stamens 5, adnate to corolla-tube, alternate with its lobes; filaments filiform, often dilated at the base. Carpels 2, connate in a completely 2-celled ovary; ovules in each cell numerous; styles 2, distinct; stigmas capitate. Fruit a globose or ovoid, septicidal or irregularly 4-valved capsule. Seeds minute. Flr.: November-December. Frt.: March onwards.

A swamp weed commonly found in rice fields.
Occurrence: common. Vern. Name: Leheti-bon (As.)
Coll. No.: Borah, A. 97. Date: 2-11-2001 Local: Deuripara.

**EHRETIACEAE**

*Shrubs* or *trees*, often with cystoliths or hispid hairs. *Leaves* alternate, extipulate. *Flowers* pentameric, hermaphrodite, in corymbs or 3-chotomous panicles. *Calyx* often persistent. *Corolla* often with scales in throats. *Stamens* epipetalous. *Disc* annular, hypogynous. *Ovary* superior of 2 carpels, 2-celled or 4-celled by a septum; style terminal or gynobasic, often 2-forked. *Fruit* drupe.

Key to the genera:

1a. Petals 4-8. Calyx teeth accrescent in fruit .............................................. *Cordia*
1b. Petals 5. Calyx teeth not accrescent in fruit. ............................................ *Ehretia*

**Cordia** L., Sp. Pl. 190. 1753.

*Trees* or *shrubs*, sometimes *sub-scandent*. *Leaves* alternate, rarely subopposite. *Flowers* polygamous, in dichotomous corymbs or clusters; hermaphrodite corymbs much fewer-flowered than the male inflorescence; bracts 0. *Sepals* connate in a tubular or campanulate calyx; teeth very short, often irregular, accrescent in fruit. *Petals* 4-8, connate in a funnel-shaped corolla; lobes white or orange, spreading or recurved. *Stamens* 4-8, adnate to corolla-tube; filaments often hirsute at base; anthers oblong or linear, sagittate or hastate, shortly exerted. *Carpels* connate
in a 4-celled ovary; ovules in each cell solitary; style terminal, simple below, long, 2-partite, the branches again 2-partite, linear or sub-spathulate. Fruit an ovoid or ellipsoid drupe.


A deciduous tree with drooping branches. Leaves variable, broad-ovate, orbicular or elliptic oblong, entire, sinuate or crenate, acute or acuminate, coriaceous. Flowers white, fragrant in corymbose or paniced cymes. Calyx accrescent. Corolla tube hairy within. Fruit conical when young, yellow and glossy when ripe, ovoid, 1-seeded, filled with a viscid sweetish pulp.

Flr.: March- April. Frt.: June- August.

Occurrence: Common. Vern. name: Kotra, Bowal, Gobarkhuta (As.)

Uses: The viscid pulp of the fruit are used as adhesive by village people.


**Ehretia** L., Syst. Nat. ed. 10. 936. 1759.

Shrubs or trees. Leaves alternate. Flowers small, white, in axillary or terminal panicles or corymbs. Sepals connate in a small, 5-partite calyx; lobes narrow open, or wider imbricate. Petals 5, connate in a shortly tubular or cylindric corolla; lobes imbricate, spreading or reflexed. Stamens 5, adnate to corolla -tube, usually exserted; filaments filiform; anthers ovate or oblong. Carpels connate in a 2-celled ovary; ovules 2 in each cell; style terminal, cylindric, 2-fid or 2-partite; stigmas
small, capitate. *Fruit* a small, sub-globose drupe, with one 4-celled, two 2-celled or four 1-celled Pyrenes, 1-3 by suppression.


*Tree* with fluted stems and grey, vertically fissured, long fibrous bark. *Leaves* elliptic, elliptic-oblong, acuminate, acute, sharply serrate, chartaceous, glabrescent. *Flowers* white with an unpleasant smell, in terminal dense pyramidal panicle. *Calyx* small, ciliate. *Corolla* tube short. *Drupe* small, 0.3- 0.4 cm in diameter, ellipsoid with 2-celled pyrenes, 4-seeded.


Vern.; name: Poroja, Pojar, Uzal, Gual (As.), Bojo (Bodo), Bol-artok (Garo)


**HELIOTRACEAE**


*Heliotropium* L., Sp. Pl. 129. 1753

Annual or perennial, villous or scabrid *herbs* or *undershrubs*. *Leaves* alternate. *Flowers* small, white or pale purple, in terminal or axillary dichotomous
cymes, with often long, scorpioid branches; bracts small or 0, sometimes bracts leafy. Sepals connate in a 5-lobed or 5-partite calyx. Petals 5, connate in a tubular corolla. Stamens 5, adnate to corolla-tube; filaments very short. Carpels connate in a 4-celled ovary; ovules solitary in each cell; style terminal, with a flat or conical apical disk. Fruit dry, indehiscent, 4-lobed, or four more or less free nulets. Seeds straight or curved.

*Heliotropium indicum* L., Sp. Pl. 129. 1753; Clarke in FBI 4: 152. 1883; Prain, Bengal Plants 2:716. 1903; Chowdhury *et al.*, Ass. Fl. 245. 2005.

A diffuse branching annual herb. Leaves petioled, ovate-elliptic, dark green above, pale beneath, rough hairy, subserrate. Flowers in helicoid or scorpioid cymes. Calyx lobes narrow, not enveloping the fruit; spikes persistently bracteate. Petals white. Fruit separating into two nutlike, 2-seeded pyrenes. Flr.& Frk: April- June.

Usually grows in wastelands, roadsides etc. in association with *Polygonum* spp., *Scoparia dulcis*, *Cynodon dactylon*, *Grangea maderaspatana* etc.


**CONVOLVULACEAE**

*Herbs or shrubs, twining or rarely erect. Leaves alternate exstipulate. Flowers regular, hermaphrodite, cymose, rarely solitary; bracteate, bracteolate. Sepals 5, imbricate, occasionally slightly connate at base, often persistent, sometimes accrescent. Petals 5, connate in a campanulate or funnel-shaped, rarely sub-rotate*
corolla. *Stamens* 5, adnate to corolla-tube, anthers oblong. *Carpel* 2, rarely 3 or more, connate in a superior ovary, the base often encircled by an annular or lobed disk; ovules 2 in each carpel; stigma capitate, 2-lobed, or 2-fid. *Fruit* an indehiscent berry or capsule.

Key to the genera:

1a. Corolla tube usually not uniformly enlarged from base to apex; the 5 bands on the lobes clearly defined by 2 prominent lines. Pollen grains spinulose:

2a. Fruit dehiscent. Ovary 1-3-celled, rarely 4-celled. ... ... ... ... ... *Ipomoea*

2b. Fruit indehiscent. Ovary 4-celled. ... ... ... ... ... ... ... ... ... ... ... *Argyreia*

1b. Corolla tube usually uniformly enlarged from base to apex; the 5 bands on the lobes rarely clearly defined by 2 prominent lines. Pollen grains not spinulose:

3a. Small herbs. Styles 2, free. ... ... ... ... ... ... ... ... ... ... ... *Evolvulus*

3b. Spreading climbers. Style entire:

4a. Capsules with circumscissiled. Stem winged. ... ... ... ... ... *Operculina*

4b. Capsule 4-valved. Stem not winged. ... ... ... ... ... ... ... ... *Merremia*

*Argyreia* Lour., Fl. Cochinch. 95: 134. 1790

*Climbing*, rarely suberect *shrubs*. Leaves cordate to lanceolate, pubescent or silky. *Flowers* axillary, usually in many flowered cymes, often capitate; bracts often conspicuous. *Sepals* 5, in fruit leathery, little enlarged, often red within. *Petals* 5, connate in a rose-purple, funnel-shaped corolla; limb plicate, more or less hirsute externally, shortly lobed. *Stamens* 5, included; anthers oblong, straight. *Disk* annular.
**Carpels** connate in a 4-celled ovary; ovules 4; style filiform; stigma 2- globose. **Fruit** a dry, hard berry. **Seeds** 4 or fewer, embedded in mealy pulp.


Woody climber. **Lamina** Ca 18×20 cm, acute, coriaceous, lateral nerves 8-12 on either side. **Peduncles** Ca 3 cm long. Bracts numerous, ovate acute, wooly beneath. **Calyx** elliptic oblong. **Corolla** purplish white. **Flr. & Frt.**: July- October.

Grows in moist shady places along with grasses, *Leucas plukentii* etc.

Occurrence: Common.


(Plate 34.)

**Evolvulus** L., Sp. Pl. ed. 2. 391.1762

Small herbs or undershrubs, prostrate or erect, never climbing. **Leaves** small, entire, often distichous. **Flowers** small, white or bluish, in axillary, few- flowered, peduncled or subsessile cymes. **Sepals** 5, small, subequal, not enlarged in fruit. **Petals** 5, connate in a small funnel shaped or sub-rotate corolla; limb plicate, sub- entire. **Stamens** 5, included or exserted; filaments slender. **Carpel** connate in a 2- celled, or rarely 1-celled ovary; ovules 4; styles 2, free from the base, each cleft into 2 linear or sub-clavate stigmas, papillose on the inner face. **Fruit** a 4-valved, less often 2-valved, 2- or 1-celled capsule. **Seeds** 4 or 2, rarely solitary.
Fig. *Argyreia nervosa* (Burm.f.) Bojer

(i) A flowering branch  (ii) Splitted open flower

Prostrate herbs, stems rooting at nodes. Leaves almost orbicular, rounded at base, petiolate, pilose beneath. Flowers 0.3-0.4 cm long, in axillary peduncled cymes, white. Bracts 2, 0.1 cm long, hairy. Calyx 5. connate, 0.2-0.3 cm long, hairy at the margin. Corolla 5, funnel shaped, 0.4-0.5 cm long. Stamens- 5, epipetalous, shorter than corolla tube. Ovary 2-celled, styles 2; 2-clefts. Fruits 4 seeded. Flr. & Frts.: Throughout the year.

Commonly found in sunny places along with grasses, Phyllanthus fraternus, Justicia japonica etc. Occurrence: Common


(Plate 35)

Ipomoea L., Sp. Pl. 159. 1753 & Gen. Pl. ed. 5. 76. 1754

Herbs, rarely shrubs, twining or prostrate, less often suberect or erect. Leaves alternate, entire, lobed or divided. Flowers axillary, solitary, or cymose; cymes rarely paniculate or in terminal spikes; bracts various. Sepals 5, ovate or linear, equal or unequal. Petals 5, connate in a campanulate or funnel-shaped corolla; limb plicate, very slightly lobed. Stamens 5, included or rarely exserted; filaments filiform or dilated below, often somewhat unequal; anthers straight or contorted; pollen spinulose. Carpels connate in a 1-3-celled, rarely 4-celled ovary; ovules 4,
Fig. *Evolvulus nummularius* (L.) L.  
(i) Habit  
(ii) A flower  
(iii) Calyx  
(iv) Splitted open corolla with androecium  
(v) Gynoecium
rarely 6; style filiform; stigma capitate, entire or 2-3-globose, rarely stigmas 2-linear. Fruit a 4-6-valved capsule, rarely indehiscent. Seeds 4 or 6, rarely 1, glabrous or uniformly velvety or woolly.

Key to the species:

1a. Erect Sub-shrub. Stem fistular. ... ... ... ... ... ... I. cornea ssp. fistulosa

1b. Climbing or trailing herbs. Stem not conspicuously fistular:

2a. Root tuberous, storage. Terrestrial. ... ... ... ... ... ... I. batatas

2b. Root not tuberous, non storage. Terrestrial or Aquatic:

3a. Leaves hastate, entire. Aquatic ... ... ... ... ... ... I. aquatica

3b. Leaves pinnately dissected. Terrestrial ... ... ... ... ... ... I. quamoclit


... A glabrous aquatic herb with milky juice. Stem floating or trailing, rooting at the nodes. Leaves hastate or cordate, entire, rarely angularly lobed. Flowers pale rosy, about 5 cm long. Flr. & Frt.: mainly during summer.

Grows in wetlands. associated with *Nymphaea* sp., *Trapa* sp. etc.

Occurrences: Common. Vern. name: Kolmou (As.)

Uses: Tender shoots, leaves and fruits are eaten as vegetable.


A prostrate trailer on ground with milky juice and storage root tubers. Commonly cultivated for its edible tubers which are eaten fresh, cooked and simply boiled.

Vern. name: Mitha alu, Goria alu (As.), Mita-alu (Beng.).

Two varieties are found in the area: one with red or purplish red tubers, the other whitish.


*Shrubby* with fistular stem, milky juice present. *Leaves* 4- 13 × 1-5 cm ovate to oblong, acuminate, cordate. *Flowers* 5-6 cm long, large, pink. *Sepals* sub-equal. *Stamens* 5; filaments hairy at base. *Carpel* 1. *Capsules* ovoid.

*Frl. & Frt.*: September-December.

Grows in marshy places covering large area of edges of *beels*, ponds, drains etc.

Vern. Name.: Bor Kolmou, Bih-kolmou (As.).

Uses: The plant is usually planted in river embankment to prevent soil erosion.

Coll. No.: Borah, A. 172. Date: 11.10.2001 Locality: Konora beel


Flr. & Frt.: August-October.

Cultivated and almost naturalized. Occurrence: Common.

Uses: Ornamental.

Vern. name: Kunja-lota (As.)

Coll. No.: Borah, A. 212. Date: 14-8-2002. Locality: Shankarghola

*Merremia* Dennst., Schlussel Hortus Malab. 34. 1818.

Climbing, rarely prostrate or erect sub-shrubs or herbs. Leaves alternate, entire, lobed or divided. Flowers axillary, usually long peduncled, solitary or in few-flowered, rarely many-flowered cymes; bracts small. Sepals 5, sub-equal, elliptic or lanceolate-acuminate, rarely rounded or truncate, convex, usually slightly enlarged and thickened in fruit. Petals 5, connate in a campanulate corolla, white, less often yellow or orange, the 5 vertical bands each usually marked by 5 dark violet lines; limb plicate, margin slightly lobed. Stamens 5, unequal, included or exserted; filaments filiform; anthers usually twisted; pollen usually with longitudinal folds, never spinulose. Carpels connate in a 2-celled or sometimes 4-celled ovary 4; style filiform. Seeds 4, rarely fewer, dull, glabrous, rarely puberulous.


An extensive twinner, hairy. Leaves sub-orbicular or broadly ovate, usually palmately 5-7-lobed, deeply cordate, lobes acute or acuminate, toothed, more hairy above than beneath. Inflorescence few flowered cymes, pedunculate, hairy. Calyx

Grows generally in partially shaded damp soil.

Occurrence: Rare. Vern. name: Digi-lewa (As. & Bodo)

Coll. No.: Borah, A. 401. Date: 9-3-2001 Locality: Mahadevhillock

*Operculina* Manso., Enum Subst. Bras. 16. 1836

Large *climbing herbs*; stem, peduncles and petioles winged. *Leaves* large, entire or lobed, rarely peltate. *Flowers* showy, axillary, solitary usually. *Sepals* 5, ovoid, glabrous, increasing and thickening in fruit, at length splitting irregularly from the tip. *Petals* 5, connate in a funnel-shaped corolla. *Stamens* 5, filaments filiform, anthers large. *Carpels* connate in a 2-celled ovary; ovules 4; style filiform; stigma 2-globose. *Fruit* a capsule. *Seed* 1, black, smooth.


A large perennial herbaceous *climber* with milky juice. *Stem* much twisted, softly pubescent, angled, 3-4-winged. *Leaves* usually 5-10 cm × 2.5-7.5 cm, ovate-oblong, upper ones often longer, more or less pubescent, cordate or truncate. *Flowers* in axillary in few flowered cymes. *Corolla* white. *Capsule* globose. Flr.: October-December. Frt.: January- February.
Grows in scrub forests, edges of forests usually in moist places.

Occurrence: Rare.

Coll. No.: Borah, A 402. Date: 9-3-2005. Locality: Kakoijana RF

CUSCUTACEAE

Twining, parasitic herbs. Leaves reduced to scales. Flowers small, white or rose-coloured, fascicled, sessile or shortly pedicelled; bracts small or 0. Sepals 5 or 4, sub-equal, free or shortly connate at the base. Petals 5 or 4, connate in an ovoid or campanulate corolla, usually with a ring of fimbriate or lobed scales; lobes short, imbricate. Stamens 5 or 4, adnate near throat of corolla; filaments short. Carpels connate in a 2-celled ovary; ovules 4; styles 1 or 2; stigmas 2. Fruit a globose or ovoid, dry or succulent, capsule.

(monogeneric family)


Cuscuta reflexa Roxb., Fl. ind. 1:446. 1824; Hook. f., FBI 4: 225. 1885; Prain, Bengal Plants 2:723. 1903; Kanjilal et al., FA 3:362. 1939; Chowdhury et al., Ass. Fl. 246. 2007.

A yellowish green glabrous twining parasite; stem fleshy, usually forming dense masses on low trees and shrubs. Flowers white, waxy, about 0.7 cm long, solitary or in irregular cluster. Calyx deeply 5-partite, lobes ovate, whitish. Corolla tube slightly ventricose towards the top with 5 oblong fimbriate incurved scales which are connate at the base; lobes 5, reflexed. Stamens 5, inserted at the throat of

Vern. name: Roghumala, Subornalota, Swarna lota (As.)


**SOLANACEAE**

*Herbs* and *Sub-shrubs* or rarely *small trees*. *Leaves* alternate, often in unequal pairs, entire lobed, or pinnate; stipules 0. *Flowers* regular, hermaphrodite, in terminal or lateral axillary or extra axillary cymes, or on solitary or clustered pedicels; bracts 0; bracteoles 0. *Sepals* connate in an inferior calyx; limb 5, rarely 8-7-lobed or toothed, usually persistent in fruit, often accrescent. *Petals* connate in a funnel-shaped, campanulate, or rotate, often plicate corolla; lobes 5, rarely 10, or limb sub-entire. *Stamens* 5, adnate to corolla tube; anthers ovate or oblong. *Carpels* usually 2, connate in a 2-celled or imperfectly 1-celled or 4-celled ovary; ovules many. *Fruit* a berry or a circumscissile or valved capsule, usually 2-celled, always many seeded. Seeds compressed, discoid, or sub-reniform.

Key to the genera:

1a. Fruit berry, indehiscent:

2a. Calyx enlarged in fruit, overtopping the berry... ... ... ... ... ... *Physalis*

2b. Calyx not enlarged in fruit:

3a. Flowers 1-3, axillary. Filaments longer than the anthers ... ... ... *Capsicum*

3b. Flowers cymose, usually extra-axillary. Filaments shorter than the anthers:
4a. Leaves pinnatisect. Anthers dehiscing by longitudinal slits... 

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**Datura** L., Sp. Pl. 179. 1753

Coarse, annual or perennial shrubby herbs, glabrous or minutely pubescent. *Leaves* large, entire, sinuate or deeply toothed. *Flowers* large, purple or white, solitary, pedicelled. *Sepals* connate in a long, tubular calyx; mouth 5-toothed, deciduous. *Petals* 5, connate in a long, tubular corolla, with funnel-shaped throat and spreading, plaited limb, entire or shortly 5-or lobed. *Stamens* 5, adnate to near base of corolla-tube; filiform; anthers included, linear. *Carpels* connate in a 2-celled or spuriously 4-celled ovary; ovules many; style filiform; stigma 2-lobed. *Fruit* an ellipsoid, 4-celled, spinescent capsule, 4-valved or irregularly bursting near the apex. *Seeds* very many, compressed, rugose.

Key to the species:

1a. Capsule prickly, spines blunt; opening irregularly near apex. ... ... ... ... *D. metel*

1b. Capsule spines sharp; opening by 4 valves to the base ... ... ... ... *D. stramonium*


Grows wild, also cultivated near temples. Occurrence: Rare.

Vern. name: Dhatura (As.), Dhutra (Beng.)
Uses: Flowers are used in worshiping God / Goddess. Seeds, leaves, and fruit juice are narcotic, poisonous.

Coll. No.: Borah, A. 484. Date: 20-6-2005. Locality: Sanyasi pahar


A coarse annual herb. Leaves variable in size, ovate-acute, sinuate, obtusely lobed or toothed, sparingly hairy on the nerves beneath. Calyx tubular, 5-angled. Corolla usually purple, or white, lobes acuminate. Capsule prickly, usually erect.

Flr. & Frt.: Winter.

Grows wild, also cultivated near temples. Occurrence: Rare.

Vern. name: Dhatura (As.), Dhutra (Beng.)

Uses: Flowers are used in worshiping God / Goddess. Seeds, leaves, and fruit juice are narcotic, poisonous.


*Lycopersicon* Mill., Gard. Dict. ed. 8. n. 2. 1768

Tall, pubescent herbs. Leaves pinnate; pinnae lyrate or toothed. Flowers in lax, few-flowered cymes. Sepals connate in a 5-partite, rarely 6-partite calyx; lobes narrow. Petals 5, rarely 6, connate in a rotate, short tubed corolla; limb plicate in bud. Stamens 5, rarely 6, adnate to corolla throat; filaments very short. Carpels connate in a 2-3-celled ovary; style cylindric; stigma small, capitate. Fruit a fleshy berry, globose, pyriform or lobed. Seeds many; compressed, papillose.

A commonly cultivated pubescent herb with irregularly pinnate leaves. Fruits fleshy berry, eaten as vegetable, in salad, chutney, curry, pickle etc.

Vern. name: Bilahi (As.), Gur-begun (Beng.)


Viscidly pubescent herbs or shrubs. Leaves alternate, entire or sinuate. Flowers in terminal panicles or subterminal racemes. Sepals connate in a 5-fid, ovoid or tubular calyx; lobes narrow. Petals 5, connate in a funnel shaped or campanulate corolla. Stamens 5, adnate to lower part of corolla-tube; filaments filiform; anthers ovate; dehiscence longitudinal. Carpels connate in a 2-celled ovary; ovules many; style filiform; stigma shortly 2-fid. Fruit a capsule, 2-celled or occasionally imperfectly 4-celled. Seeds very many, small, hardly compressed.


Grows in waste lands, road sides in association with *Cynodon dactylon*, *Cleome rutidosperma* etc. Occurrence: Frequent. Vern. name: Ulu-lai (As.)

Coll. No.: Borah, A. 395. Date: 17-3-2004 Locality: Bongaigaon town

(plate 36)


Annual or perennial herbs. Leaves alternate, entire, sinuate, or shortly lobed. Flowers solitary, pedicelled. Sepals connate in a campanulate, 5-fid calyx, much accrescent in fruit, limb then ventricose, loosely enclosing the fruit; teeth small, connivent. Petals 5, connate in a campanulate lurid-yellow corolla, some times with purple spots in the base. Stamens 5, adnate near base of corolla. Carpels connate in a 2-celled ovary; style linear; stigma obscurely 2-lobed. Fruit a globose berry, enveloped in the bladder like calyx. Seeds many.


A pubescent annual herb; stem purplish-green or purplish striated. Leaves ovate-entire, sinuate or shallowly lobed, acute or acuminate. Calyx faintly angular, nerves purplish, veins prominent, lobes acute, enlarged and loosely cover the fruit. Corolla yellow. Fruit berry, globose, yellow when ripe with sweet pulp.

Flr.& Frt.: Winter.

Grows in rice fields, open areas like roadsides etc. along with grasses.

Occurrence: Common. Vern. name: Pokmou (As.), Bon-tipariya (Beng.)

Uses: Ripe fruits are eaten fresh, sweet.

Fig. *Nicotiana plumbaginifolia* Viv.

(i) Habit  (ii) A flower  (iii) Calyx  (iv) Corolla with androecium

*Herbs, shrubs, or small trees* unarmed or prickly. *Leaves* alternate or sub-opposite, in equal pairs, entire or lobed or pinnatifid. *Flowers* in dichotomous or racemose, lateral or terminal cymes. *Sepals* connate in a 5-10-lobed, rarely 4-lobed or sub-entire calyx, accrescent or not in fruit. *Petals* usually 5, rarely 4 or 6, connate in a rotate, rarely campanulate corolla with short tube; lobes plicate in bud. *Stamens* 5, rarely 4 or 6, adnate to corolla-throat; filaments short; anthers oblong, narrowed upwards. *Carpels* connate in a 2-celled ovary, rarely in cultivated forms 3-4 celled; style columnar; stigma small. *Fruit* a small or large, globose or elongated berry. *Seeds* very many, discoid.

Key to species:

1a. Unarmed. Calyx not enlarged in fruit. Flowers white or blue:
   
   2a. Roots mixed with tubers. Leaves pinnatifid. ... ... ... ... ... *S. tuberosum*
   
   2b. Roots not mixed with tubers. Leaves sinuately lobed. ... ... ... ... ... *S. nigrum*

1b. Armed with prickles. Calyx enlarged in fruit. Flowers white, violet or bluish:
   
   3a. Leaves pinnatifid. Calyx-tube inflated ... ... ... ... ... *S. sisymbrifolium*
   
   3b. Leaves not pinnatifid. Calyx-tube not inflated:
       
       4a. Flowers blue. Berry globose or elongated:
           
           5a. Racemes few flowered. Berry large, elongated, purple or violet.
               
               Few prickles on nerves or unarmed ... ... ... ... ... ... *S. melongena*
           
           5b. Racemes many-flowered. Berry small, globose:
               
               6a. Leaves serrate or obtusely lobed. Berry yellow ... ... ... ... *S. anguivi*
6b. Leaves pinnatifid. Young berry variegated or green ....... *S. surattense*

4b. Flowers white. Berry globose ........................................................ *S. torvum*


A *sub-shrub* with curved prickles; young parts and inflorescence thickly stellate-tomentose. *Leaves* ovate or oblong, serrate or obtusely lobed; lobes acute, stellate-tomentose, green above, grey and dirty tomentose beneath. *Flowers* bluish-purple, 1.2-1.8 cm across, in extra-axillary cymes; pedicel and peduncle often prickly. *Calyx* ca 0.5 cm long, stellate-pubescent outside, usually prickly. *Corolla* ca 0.8 cm long, tomentose outside, lobes reflexed. *Stamens* 0.5 cm long, alternate the corolla lobes; filament short; anthers yellow. *Style* hairy, stigma bi-lobed. *Berry* globose, smooth, ca 0.8 cm in dia., yellow to reddish yellow. Flr.: September-November. Frt.: winter.

Grows in scrub forests, road sides etc. Occurrence: Rare.

Vern. name: Tit-bhekuri, Tita-bhekuri, Bhekuri, Bhot-bengena (As.)

Uses: Fruits are eaten as vegetable, considered medicinal for worms and skin diseases. Leaves are used in fermenting liquor.

Coll. No.: Borah, A. 239. Date: 14-10-2002. Locality: Barpara


The cultivated brinjal of commerce, which is much used as vegetable.

In cultivated condition the fruit become larger, elongated sometimes show colour variation. Vern. name: Bengena (As.), Bengon (Beng., As.)

Low shrubby herb up to 75 cm or more in height, with shallow rooted tap root, stem fleshy with glands, glabrous, greenish. Leaves alternate or sub opposite, entire, ovate, entire, sinuate-toothed or lobed, acute or acuminate, thin, glabrous. Flowers white, small in sub-umbellate cymes, hypogynous, actinomorphic, bisexual. Sepals 4, connate in a corolla with short tube and adnate to the throat. Corolla glabrous outside, rotate, 5-lobed. Filaments short, long anther oblong, ovary 2-celled, ovule numerous in a central placenta. Berry globose, black, seeds numerous, discoid. Flr. & Frt.: Nov. onwards.

Grows in moist shady places associated with *Drymaria cordata*, *Stellaria media*, *Pouzolzia indica* etc.

Occurrence: Common.

Vern. Name: Laskosi, Koisi (As.).

Use: tender plants as vegetable, leaves in burn.

Coll. No.: Borah, A. 238. Date: 14-10-2002   Locality: Barpara


A viscid sub-shrub, armed with prickles. Leaves pinnatifid or twice pinnatifid, armed with prickles. Flowers white or violet in racemed clusters. Calyx tube inflated, cup-shaped, accrescent and enclosing the berry, ultimately the segments are reflexed. Flr. & Frt.: winter.
Grows on open areas as weed. Occurrence: Common along railways.


A perennial _herb_ with straight prickles, pubescent. _Leaves_ pinnatifid, with straight prickles on both surfaces. _Flowers_ blue, 2.5-3.7 cm in across, in few flowered cymes. _Calyx_ lobes recurved, scarcely accrescent. _Berry_ globose, about 2.5 cm in dia., variegated or green when young, yellow when ripe.

Flr. & Frt.: December-February.

Grows on open areas near water bodies or damp soil. Occurrence: Rare.

Vern. name: Birkuli tita, Kantakari (As.)

Uses: The fruits are eaten as vegetable, bitter in taste; expectorant and diuretic.


Armed _sub-shrub_, sparsely stellate pubescent. _Leaves_ 5-15 cm × 3.2-12.5 cm, ovate, serrate or lobed, shortly acuminate, membranous, sparsely stellate-pubescent above, more closely beneath. _Flowers_ white, about 1.7-2.5 cm across, in dense lateral extra axillary cymes. _Calyx_ unarmed abruptly apiculate. _Corolla_ stellate pubescent outside; lobes spreading, linear, oblong or lanceolate. _Berry_ globose, 1.2-1.3 cm in dia., seated on a persistent calyx.

Flr. & frt.: September-October.

Vern. name: Hati-bhekuri, Bhiti-tita (As.), Konthai-raja (Bodo).


The most common vegetable, potato. Vern. name: Alu (As.)

Different varieties of potato are in cultivation in the area; some with reddish tuber, some with whitish tuber, in some the tubers are large etc.; many hybrid varieties are also in cultivation.

**SCROPHULARIACEAE**

*Herbs or sub-shrubs. Leaves* small, or the lower only, opposite, rarely all alternate or whorled, occasionally all radical, subroseulate; stipules 0. *Flowers* hermaphrodite, usually irregular. *Inflorescence* centripetal or composite. *Sepals* connate in an inferior calyx, sometimes only shortly united, generally persistent; lobes 5, rarely 4. *Petals* connate in a hypogynous, more or less 2-lipped or occasionally personate 4-5-lobed corolla. *Stamens* usually 4, didynamous or subequal, with or without a staminode; anthers variously shaped; dehiscence longitudinal. *Disk* annular, copular, or glandular. *Carpels* 2, connate in a 2-celled, superior ovary; ovules many, rarely few or only 2 in each cell; style simple; stigma simple, capitate or dilated, or 2-lobed or 2-lamellate. *Fruit* a capsule, or berry. *Seeds* small, various in shape.
Key to the genera:

1a. Corolla with 2-gibbous throat. Anther-cells divaricate. Mazus

1b. Corolla with throat not 2-gibbous. Anther-cells distinct:

2a. Leaves dissected or multifid. Aquatic. Limnophila

2b. Leaves not dissected or multifid. Terrestrial:

3a. Corolla lobes 5. Prostrate or diffuse herbs:

   4a. Calyx winged. Capsule not exceeding the calyx. Torenia

   4b. Calyx not winged. Capsule exceeding the calyx. Lindernia

3b. Corolla lobes 4. Undershrub with twiggy branches. Scoparia


*Herbs*, often paludine or aquatic. *Leaves* with transparent dots, opposite or whorled, toothed or cut, often multifid in submerged species. *Flowers* axillary, solitary, sessile or pedicelled, passing into terminal spikes or racemes; bracts leafy. *Sepals* connate in 5-partite calyx, lobes narrow, equal or the upper largest. *Petals* 5, connate in a bilabiate corolla. *Stamens* 4, didynamous, included. *Ovary* bicarpellary, 2-celled, ovules numerous in each cell. *Fruit* ovoid or oblong capsule.

Key to the species:

1a. Stem usually hirsute. Leaves all whorled, lobulate or pinnate. Flowers all axillary, solitary. Calyx lobes long acuminate. *L. sessiliflora*

1b. Stem usually glabrous. Leaves, 2 uppermost opposite, below whorled, the lowest submerged multifid. The uppermost flowers usually in leafy spike. Calyx shortly acuminate. *L. heterophylla*
**Limnophila heterophylla** (Roxb.) Benth., Scroph. Ind. 25. 1835; Hook. f., FBI 4:270.1884; Chowdhury et al., 248. 2005. **Columnea heterophylla** Roxb., Fl. ind. 3:97. 1832. **L. heterophylla** var. reflexa (Benth.) Hook.f., FBI 4:270. 1884.

Aquatic herb. Leaves with 3-5 nerves running from the base to the apex, lower leaves whorled, the two uppermost usually opposite, crenulate, lowest submerged multifid with capillary segments. Flowers sessile, very shortly pedicelled; sometimes the uppermost flowers in a leafy spike. Calyx lobes ovate, shortly acuminate. Flr. & Frt.: August-September.

Grows in shallow water bodies having sandy bottom. Occurrence: Common.

Vern. name: Sial-bhobora, Khar-bon (As.)


**Limnophila sessiliflora** (Vahl.) Bl. in FBI 4:270. 1884; Prain, Bengal Plants 2:764. 1903; Chowdhury et al., 248. 2005.

An aquatic herb, stem slender. Leaves usually all 3-6-nately whorled, lobulate or pinnate, very rarely the two uppermost opposite, entire. Flowers axillary, solitary. Calyx tubes long acuminate.

Grows in shallow water bodies having sandy bottom. Occurrence: Common.

Vern. name: Potol-khar, Khar-bon (As.)

Coll. No.: Borah, A. 488. Date: 11-7-2005 Locality: Doloni beel.

**Lindernia** Allioni

Bonnaya Link., Et Otto. Icon. pi. Select. 25. t. 11. 1820; Hook. f., FBI. 4: 284.1884;
Kanjilai et al., FA. 3: 380. 1939.

*Herbs*, glabrous or pubescent. *Leaves* opposite, often toothed, usually penninerved. *Flowers* small, axillary or racemose; bracteoles 0. *Sepals* 5, almost free to the base or connate in a campanulate calyx. *Petals* 5, connate in a 2-lipped corolla; tube cylindric; upper lip outermost, erect, concave, notched or 2-fid; lower wider, 3-lobed, spreading. *Stamens* 4, didynamous, 2 posterior adnate to corollatube, 2 anterior adnate to corolla throat; anthers divaricate. *Carpels* connate in a 2-celled ovary; ovules in each cell numerous; style slender; stigma 2-lamellate. *Fruit* a globose or ovoid, or long cylindric, septicidal capsule. *Seeds* many, rugose.

Key to the species:

1a. Leaves sessile, obscurely toothed. Flowers long pedicelled ..........

1b. Leaves petiolate, sparsely serrate. Flowers short pedicelled ........ L. crustacea


*Stem* diffuse; glabrous, ca 18 cm high. *Leaves* sessile or shortly petiolate; ovate; cuneate; serrate. *Flowers* axillary; solitary; white, pale blue or pale violet. *Capsules* about twice the length of calyx, narrowly oblong; acute. Flr. & Frt.: March-September.
Found growing moist shadow places. Occurrence: Common.


Grows on moist shady places with *Rorippa indica*, *Cyperus* sp. etc.
Occurrence: Rare. Vern. name: Kanchi-deria bon.(As.)

(Plate 37)

*Mazus* Lour., Fl. Cochinch. 385. 1790

Fig. *Lindernia crustacea* (L.) F. Muell.

(i) Habit  (ii) Flower  (iii) L.S. of corolla  (iv) Fruit

A prostrate, small **herb** with somewhat angled branches. **Leaves** opposite, radical, margin serrated, base cordate or round. **Flowers** in terminal racemes or solitary, long pedicelled. **Calyx** lobes leafy, covering fruit. **Corolla** white with violet base outside. **Capsule** loculicidal. **Flr. & Frt.**: August- September.

Grows on moist partially shady places in association with *Rorippa indica*, *Cynodon dactylon*, *Centella asiatica* etc. **Occurrence**: Common.

Coll. No.: Borah, A. 298. **Date**: 16-9-2003  **Locality**: Barpara

**Scoparia** L., Sp. Pl. 116. 1753

**Herbs** or **undershrubs**. **Leaves** opposite or whorled, glabrous or pubescent, entire or toothed, punctate. **Flowers** small, white or yellow, axillary, solitary or 2-nate; bracteoles 0. **Sepals** connate in a 4-5 partite, small calyx; lobes imbricate. **Petals** 4, connate in a rotate corolla; throat densely bearded; lobes obtuse, subequal. **Stamens** 4, subequal; filaments filiform; anthers sub-sagittate. **Carpels** connate in a 2-celled ovary; ovules in each cell numerous; style sub-clavate; stigma notched or truncate. **Fruit** a small, globose or ovoid, septicidal capsule. **Seeds** many, obovoid, angled.

Herbs, about 70 cm in height, stems terete below, branches quadrangular. Leaves simple, opposite, about 2.3 cm long, cranate, sessile or subsessile. Flowers in axillary fascicles, white; pedicels about 0.4 cm in flowers and about 0.8 cm in fruits. Capsules about 3 cm across, orbicular, brown. Flr.: May – July. Frt.: July – October

Common weed along roadside and agricultural fields.

Vern. name: Madhumehari, Bon-chini (As.), Saktibindu (Char area).

Uses: Fresh leaves (4-5 nos) are pounded and mixed with table salt. This is given to take in diabetes (one time in the morning daily) till the disease is cured.

Coll. No.: Borah, A. 240 Date: 27-10-2002 Locality: Barpara


Herbs, glabrous or pubescent. Leaves opposite, entire, crenate or serrate. Flowers often showy, axillary, or in terminal or pseudo-axillary racemes or umbels; bracteoles 0. Sepals connate in a 2-lipped or 3-5-toothed, 3-5 winged or-folded or keeled calyx. Petals 5, connate in a 2-lipped corolla; tube cylindric, somewhat curved, dilated upper, outer lip erect, concave or pinched, notched or 2-fid; lower larger, spreading, 3-lobed. Stamens 4, didynamous, 2 upper adnate to corolla tube, 2 lower adnate to throat; anthers in contact or connate in pairs. Carpels connate in a 2-celled ovary; ovules in each cell numerous; style slender; stigma 2-lamellate. Fruit a linear or oblong, included, septicidal capsule.


Grows on moist places in scrub jungle amidst other herbs.

Occurrence: Rare.

Coll. No.: Borah, A. 494. Date: 16-12-2005 Locality: Manikpur.

**LENTIBULACEAE**

*Herbs*, aquatic or palustrine. *Leaves* radical, rosulate, or when submerged, capillary-multifid, sometimes obsolete. *Flowers* irregular, hermaphrodite, on 1-many-flowered, simple or branched scapes; bracts small, sometimes 0; bracteoles under calyx 2 or 0. *Sepals* connate in an inferior, 2-5-lobed calyx. *Petals* shortly connate in a 2-lipped, spurred corolla; upper lip usually the smaller, entire or emarginated; lower 3-5 lobed. *Stamens* 2, adnate to base of corolla; filaments wide-curved. *Carpels* 2, connate in a superior, globose, 1-celled ovary; ovules many; style short; stigma unequally 2-lobed. *Fruit* a globose, 2-4 valved. *Seeds* very many, minute.

**Utricularia** L., Sp. Pl. 18. 1753.

*Herbs*, floating or palustrine, or on wet rocks. *Leaves* in floating species multifid, with capillary segments, in erect or twining species entire, frequently with
minute bladders. *Flowers* in simple or branched scapes, racemes few or many flowered; bracts and 2 bracteoles distinct. *Sepals* connate in 2-partite calyx; lobes entire or sub-entire, often accrescent. *Petals* 5, connate in a 2-lipped corolla; upper lip entire or emarginated; lower larger, 3-6-lobed; tube with a straight or curved spur. *Stamens* 2, adnate to base of corolla, alternate with lobes of lower lip; filaments broad; anthers ovate, 2-celled or almost 1-celled. *Carpels* connate in a globose, 1-celled ovary; ovules many; style short; stigma unequally 2-lobed. *Fruit* a globose, regularly 2-4 valved or irregularly opening capsule. *Seeds* many.


Aquatic herb, usually free floating, sometimes produce root in mud. *Leaves* submerged, divided into capillary segments and mostly interspersed with bladders. In rooting condition the multifid capillary leaves absent. *Flowers* 1-3, 0.5 cm across, yellow; peduncles with few obscure scales, slender; spur of corolla longer than the lower lip. *Capsule* globose. Flr.: September-October

Grows in *beels*, ponds etc. Occurrence: Rare

Vern. name: Jhanji (As., Beng.)


Note: Insectivorous plant, hence of botanical curiosity.
BIGNONIACEAE

*trees or shrubs*, very rarely climbing, or herbs. *Leaves* usually opposite, odd-pinnate. *Flowers* hermaphrodite, irregular, usually showy, in racemes or panicles, usually terminal, rarely on short, lateral branches or from the old wood; bracts 0. *Sepals* connate in a 2-5 lobed calyx. *Petals* connate in a tubular ventricose, 2-lipped corolla; lobes 5, subequal, imbricate in bud. *Stamens* 4, didynamous, with often a rudimentary fifth, inserted to corolla-tube; filaments glabrous or hairy at base; anthers 2-celled. *Disk* usually thick or annular. *Carpels* 2, connate in a 2-celled ovary; ovules many; style long, glabrous; stigma elliptic, 2-lobed. *Fruit* a loculicidally or septicidally 2-valved capsule, usually elongated; septum enlarging in fruit, deciduous. *Seeds* compressed, discoid.

Key to the genera:

1a. Leaves pinnate. Ovary 2-locular. Fruit capsule:

   2a. Perfect stamens 5. Capsule septifragally dehiscent. ... ... ... ... *Oroxylum*
   2b. Perfect stamens 4. Capsule loculicidally 2-valved. ... ... *Stereospermum*

1b. Leaves alternate. Ovary 1-locular. Fruit berry. ... ... ... ... ... *Crescentia*

*Crescentia* L., Sp. Pl. 626. 1753.


Vern. Name: Ruti goch, Bilati-bel (As., Rabha, Garo).

Use: Musical instrument especially “Dotora” is prepared from the woody epicarp after removal the pulp.

Coll. No.: Borah A. 440. Date: 14-4- 2003 Locality: Manikjhora.

Photo No.: 38.1 (plate 38)

Note: Exotic tree, originated in Tropical America, naturalized in Assam.

**Oroxylum** Vent., Gen. Nov. 8. 1808

A glabrous tree. Leaves large, opposite, 2-3 pinnate, leaflets entire, ovate. Flowers in long, terminal recemes. Sepals 5, connate in a large, coriaceous, campanulate calyx; limb truncate or obscurely toothed. Petals 5, connate in a large, campanulate, purplish or white corolla; lobes round, crisped, toothed, subequal. Stamens 5, adnate to the corolla-tube, exserted, 4 subequal, the fifth rather shorter; anthers 2-celled. Disk wide. Carpels connate in a subsessile, 2-celled ovary, contracted below; ovules numerous, many-seriate; style long; stigma 2-lobed. Fruit a very large, linear capsule, compressed parallel to the septum, 2-valved, opening septifragally. Seeds many, thinly discoid, with a broad, hyaline wing.


Commonly grows on hill slopes near streams, also in moist plains.

Vern. name: Ding-dinga, Bhat-ghila (As.), Kharong-khandai (Bodo), Khiring (Garo).

Uses: Flowers are eaten cooked as vegetable. Roasted leaves, flowers and young shoots are eaten in stomach disorder and jaundice. Leaf decoction is given in sour mouth and tongue, paste is applied on abscesses.


Photo No.: 38.2 (plate 38)

**Stereospermum** Cham., Linnaea 7: 720. 1833.

*Trees. Leaves* opposite, imparipinnate. *Flowers* large, terminal, in simple lax panicles with decussate branching. *Calyx* campanulate, truncate or shortly lobed. *Corolla* curved, tubular campanulate, bilabiate; lobes 5, subequal, imbricate, often crisped toothed or laciniate. *Stamens* 4, didynamous, anthers divaricate. *Disc* fleshy,
more or less copular. *Ovary* sessile, elongated, 2-celled, ovules numerous. *Capsule* 4-angled or terete, loculicidally 2-valved.


A large deciduous tree with spreading branches. *Leaves* imparipinnate, 30-45 cm long; leaflets 7-11, 5-18 × 2.5-7.5 cm, sides unequal, elliptic, elliptic-oblong, caudate-acuminate, entire or sometimes serrulate, coriaceous, glabrous. *Flowers* fragrant in lax terminal panicles. *Calyx* purplish, campanulate, irregularly toothed. *Corolla* about 2.5 cm long, villous inside, the tube yellowish with purplish tinge and veined, lobes rounded. *Filaments* bearded at the base. *Capsule* 37-50 cm long, curved, compressed, obscurely 4-angular, more or less spirally twisted. *Seeds* winged, wings straight. *Flr.* April-June. *Frt.*: July – January.

Grows in forests along slopes of foot hills. Occurrence: Rare.

Vern.name: Paroli (As., Rabha), Bolsel (Garo).

Uses: Wood is used in housing purposes.


Photo No.: 38.3 (plate 38).

**PEDALIACEAE**

*Herbs* or *undershrubs*. *Leaves* opposite or the upper alternate, entire, toothed or lobed; stipules 0. *Flowers* irregular, solitary or rarely clustered or racemose,
usually axillary; pedicels short; bracts 0 or minute. *Sepals* 4-5, slightly connate below. *Petals* connate in a tubular-ventricose corolla; limb 5-lobed, obscurely 2-lipped; lobes imbricate. *Stamens* 4, didynamous, rarely 2. *Carpels* 2, connate in a 2-celled, rarely 1-celled ovary; ovules many or few, superposed; style filiform; stigma shortly 2-lobed. *Fruit* hard, indehiscent, or a 2, less often a 3-4 valved capsules. *Seeds* wingless, oily.

**Sesamum** L., Sp. Pl. 634. 1753

Erect or prostrate herbs. *Leaves* opposite below, alternate above, entire, toothed, lobed or divided. *Flowers* axillary, solitary in few and fascicled, shortly pedicelled. *Sepals* connate in a small, 5-partite calyx. *Petals* 5, connate in a 2-lipped corolla, tube ventricose, lobes rounded, those of the upper lip usually rather smaller than the others. *Stamens* 4, didynamous, included; anthers sagittate. *Carpels* connate in a 2-celled ovary; often 4-celled due to a false septum; ovules many, 1-seriate in each chamber; style filiform; stigma 2-lobed. *Fruit* an oblong or ovoid capsule, usually 4-angled and 4-grooved, loculicidally 2 valved, 4-chambered. *Seeds* many, obliquely oblong, somewhat compressed, foveolate.


Annual herb with purplish flower and capsular fruit extensively cultivated for its seeds which contain oil.

Vern. name: Til (As.), the ginger oil plant / gingerly or sesame.
PLATE 38

Photo No. 38.1: *Crescentia cujete* L.

Photo No. 38.2: *Oroxylum indicum* (L.) Vent.

Photo No. 38.3: *Stereospermum personatum* (Hassk.) Chatterjee

Photo No. 38.4: *Callicarpa arborea* Roxb.

Photo No. 38.5: *Clerodendrum indicum* (L.) O. Kuntze

Photo No. 38.6: *Clerodendrum viscosum* Vent.
Use: The seeds are used in making "pitha" (Assamese cake); oil is considered medicinal in hair fall. Seeds are also used in various Hindu religious purposes.

**ACANTHACEAE**

*Herbs or Shubs. Leaves* opposite, usually entire, occasionally pinnately lobed; extipulate. *Flowers* hermaphrodite, usually irregular, in cymes, racemes, or spikes, rarely solitary; bracteate or ebracteate; bracteoles usually 2, sometimes 4 under the individual flowers, free or connate in an epicalyx. *Sepals* 5 or 4, the upper abortive, free or connate below; rarely connate multifid. *Petals* 5, connate in a 2-lipped, less often subequally 5-lobed corolla, lobes inbricate or twisted in bud. *Stamens* 4 or 2, adnate to corolla-tube; anthers 2 or 1-celled; cells sometimes remote. *Disk* often conspicuous. *Carpels* 2, connate in a superior, 2-celled ovary; ovules 1 or more in each cell, if more than one, 1-seriate or 2-seriate; stigma usually 2-lobed. *Fruit* a loculicidal capsule, the septum splitting, the seeds borne on each half. *Seeds* usually hard, attached to recurved, subacute supports (jaculator or retinacula), ovoid or compressed, smooth or rugose rarely hispid.

Key to the genera:

1a. Corolla lobes imbricate in bud:

2a. Ovules 3-10 in each cell. Flowers minute. Capsule 4-6-seeded, compressed...

   ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ...

   *Andrographis*

2b. Ovules 2 or 1 in each cell. Flowers conspicuous. Capsule 4 or fewer seeded:

3a. Corolla usually 5-lobed, lobes subequal:

4a. Perfect stamens 2. Sepals 4, two large...

   ... ... ... ... ... ... ... ... ... ... ... ... ...

   *Barleria*
4b. Perfect stamens 4. Sepals 5, one large... Phaulopsis

3b. Corolla distinctly 2-lipped:

5a. Placenta separating elastically from the valves. Seeds tuberculate.

Flowers in unilateral spikes... Rungia

5b. Placenta not separating elastically from the valves. Seeds orbicular, verrucose. Flowers in spikes or racemes... Justicia

*Andrographis* Wall., *Plantae Asiaticae Rariores* 3:77. 1832

Annual *herbs* or *sub-shrubs*. *Leaves* opposite or alternate, entire. *Flowers* in lax, often panicled or dense, axillary and terminal racemes, sometimes reduced and 1-flowered, often unilateral; bracts small; bracteoles minute or obsolete. *Sepals* 5, narrow, shortly connate below. *Petals* 5, connate in a small, tubular, 2-lipped corolla, white or pink, with dark purple lower lip, pubescent. *Stamens* 2; filaments ciliate or setulose; anthers 2-celled, exserted; subequal, bearded at base. *Carpels* connate in a 2-celled, sparingly hairy ovary; ovules-3-6 in each cell; style slender; stigma shortly 2-lobed. *Fruit* an oblong-linear or elliptic capsule, compressed at right angles to septum. *Seeds* 6-12, sub-quadrate or oblong, on retinacula.


Well branched *undershrubs*; branches tetraquatrous; glandular hairy; glabrous below. *Leaves* lanceolate, acuminate or acute, glabrous; 3-8 ×1-2 cm. sub-
sessile or the base attenuate. *Flowers* pedicillate, pubescent. *Bracts* foliaceous, ca 1 mm long. *Calyx* ca 3 mm long. *Corolla* ca 5 mm long, bilipped, 2+3 lobed, purplish white. *Capsules* oblong, ca 1.2 × 0.3 cm glandular hairy; yellowish brown; retinacula curved upward. *Flr & Frt*: Through out the year.

Found growing in moist shadow places along with *Lindernia* sp., *Peperomia pellucida* etc. Occurrence: Common.

Vern. name: Kalmegh, Chirota (As.)

Uses: Decoction of the leaf & twig is prescribed in typhoid, malaria, worm infection and common fever.

Coll. No.: Borah, A. 202. Date: 17-6-2002 Locality: Mahadev hillock

Note: Vulnerable species.


Small *shrubs* or *undershrubs*, sometimes armed. *Leaves* opposite, entire. *Flowers* showy, sessile, solitary or in dense or rather lax spikes; bracts and bracteoles large, leafy, or small or obsolete. *Sepals* 4, in opposite pairs. *Petals* 5, connate in a funnel-shaped corolla; tube long; lobes 5, sub-equal, ovate or elliptic, imbricate in bud. *Stamens* 2, perfect, with oblong, 2-celled anthers; usually 2 or 3 small, rudimentary stamens also present. *Disk* large, copular. *Carpels* connate in a 2-celled ovary; ovules 2 in each cell; style long; stigma 2-fid or subentire. *Fruit* an ovoid or oblong capsule, with 2 or 4 seeds below the middle. *Seeds* compressed, ovate, beset with hairs.

An undershrub with adpressed pubescent branches. Leaves variable, oblong-elliptic oblong, acute or acuminate, membranous, lanceolate, pubescent specially along nerves beneath. Flowers white, rose or purplish blue, about 2.5 cm in across, solitary or paired or in short spikes. Calyx segments 1.5-2 cm long, prominently reticulate, bristle-toothed; inner segments lanceolate, about 7 mm long. Corolla 2.5-5 cm long, pubescent outside; lobes ovate-oblong. Stamens 2. capsule about 1.5 cm long, ellipsoid, tapering at 4 ends, 4-seeded. Flr.: September-December. Frt.: Winter.

Grows in open and scrub forests, also cultivated as ornamental plant in gardens. Occurrence: Rare

Coll. No.: Borah, A 495. Date: 16-12-2005 Locality: Shankarghola

Justicia L., Sp. Pl. 15. 1753 et gen. Pl. ed. 5:10. 1754

Herbs or shrubs. Leaves entire. Flowers sessile or subsessile, spiked or panicled, rarely solitary, usually small; bracteate; bracteoles narrow or obsolete. Sepals 5 or 4, narrow, slightly connate below. Petals 5, connate in a 2-lipped corolla; upper lip 2-lobed or subentire, lower 3-lobed. Stamens 2; filaments often dilated, hairy near the base; anthers 2-celled; appendaged. Carpels connate in a 2-celled ovary; ovules 2 in each cell; style filiform; stigma shortly 2-fid. Fruit an ovoid or ellipsoid capsule. Seeds 4, ovoid, more or less compressed, tuberculate.
Key to the species:

1a. Flowers in terminal spikes. Plants sub-shrubs:

2a. Branching opposite-alternate. Leaves lanceolate, glabrous. Corolla
   white with purple spot inside ........................................... J. gendarussa

2b. Branching alternate or opposite. Leaves elliptic, pubescent. Corolla
   white, throat with 2 purple lines ................................................... J. adhatoda

1b. Flowers in panicles. Herbs.

3a. Bracts elliptic, subscute, broad, clothed with glistening jointed hairs,
   ovate or oblong ........................................................................... J. japonica

3b. Bracts linear-lanceolate, hairy, smaller than above ................ J. procumbens

A. vasica Nees in PAR 3:103. 1832; Clarke in FBI 4:540. 1885; Kanjilal et al., FA
3:455. 1939.

Grows in waste lands, scrub forests, forest margins etc., also cultivated in homesteads. Occurrence: Common

Vern. name: Boga-bahak, Baska tita, Bahak-tita (As.)

Uses: Leaf is used to cure cough, cold and asthma. The leaves are given as febrifuge in malarial fever.

Coll. No.: Borah A. 616. Date: 23-11-207. Locality: Barsangaon. (Plate 40)


An undershrub of about 5 ft high. Stem green or purplish-green, smooth, nodes swollen, branching opposite-alternate. Leaves lanceolate, bluntly acuminate, undulate or crenulate, pubescent when young, glabrous on maturity. Flowers in interrupted spikes often forming terminal panicles. Bracts linear. Calyx segments linear. Corolla about 1.2 cm long, white with purple spot inside. Capsule 1.2 cm long, glabrous. Flr. & Frt.: February-May.

Cultivated and naturalized. Occurrence: Common.

Vern. name: Bishalya-karani (As.).

Uses: As hedge plant; leaf decoction as medicine in gastric trouble.

Coll. No.: Borah, A. 37. Date: 2-3-2002 Locality: Rabhapara.


A slender erect or prostrate herb; stems and branches tetragonal with swollen nodes. Leaves petioled, 3-4 cm long; ovate or elliptiv; oblong lanceolate.
Flowers in dense axillary and terminal spikes; 1-4 cm long. Bracts as long as the calyx, elliptic, hairy, margins ciliated with jointed hairs. Corolla purple, hairy outside, tube equaling the limb. Filaments hairy at their insertion. Apex of the ovary and bare of the style is hairy, seed rugose. Flr & Frt.: January – May.

Found growing in damp shady places in association with Boreria articulare, Evolvulus mammularius, Ageratum conyzoides etc.

Occurrence: Common.


(Plate 40)

Justicia procumbens L., Sp. Pl. 15. 1753; Kanjilal et al., 455. 1939; Chowdhury et al., 253. 2005.


Grows in scrub forests or forest edges along streams. Occurrence: Rare


Phaulopsis Willd.


Prostrate herbs. Leaves opposite, ovate, entire or obscurely crenate. Flowers in dense, unilateral spikes; bracts orbicular, closely imbricate, each usually 3-flowered; bracteoles 0. Sepals 5, shortly connate below, one large, ovate, nerved, the other linear, bract like. Petals 5, connate in a small corolla; tube cylindric; lobes
Fig. A. *Justicia adhatoda* L.  
A(i) A flowering twig  
A(ii) A flower  

B. *Justicia japonica* Thumb.  
B(i) A flowering twig  
B(ii) A flower
slightly unequal, rounded. **Stamens** 4, didynamous; anthers 2-celled, parallel. **Carpels** connate in a 2-celled ovary, ovules 2 in each cell; style long, hairy; stigma simple, linear. **Capsule** clavate, compressed. **Seeds** 4, separating elastically from the base of the capsule.


Plant softly glandular hairy. **Leaves** 1.5-6.0 × 1.5-4.0 cm elliptic ovate; obliquely acute at base; long petiolate in unequal pairs. **Spikes** ca 2.5 cm long. **Bracts** 2, reniform; ca 1 cm across; closely imbricate. **Flowers** white. **Capsules** oblong ca 1 cm long; ciliate, 4-seeded, seeds orbicular. Flr. & Frt: November- March

Found growing in damp shady soils in association with *Justicia japonica*, *Cyperus brevifolius*, *Ludwigia* sp. etc.


Large herbs or shrubs. **Leaves** entire or faintly crenate. **Flowers** in terminal thyrses or narrow panicles, rarely in axillary racemes or cymes; bracts small; bracteoles 0. **Sepals** 5, connate in a deeply lobed calyx; segments very narrow. **Petals** 5, connate in a curved corolla; tube narrowly funnel-shaped; limb more or less 2-lipped; lobes ovate or oblong, connivent, spreading or recurved in flower, imbricate in bud. **Stamens** 2, with occasionally 2 additional rudimentary; anthers 2-celled,
oblong, muticous, glabrous. **Carpels** connate in a 2-celled ovary; ovules 5-8 in each cell; style filiform; stigma subsimple. **Fruit** an elongated capsule, slightly 4-angled, seed-bearing from the base.


**Phlogacanthus thyrsiflorus** (Roxb.) Nees. in PAR 3:99. 1832; Clarke in FBI 4:693. 1885; Kanjilal *et al.*, FA 3:443. 1939.

Evergreen *shrub* of about 7-8 ft high; branches quadrangular. **Leaves** large, oblanceolate, elliptic-oblong, acute or acuminate, entire, chartaceous, closely punctuate, dark glossy green above, pale beneath, base tapering to the petiole. **Inflorescence** about 1 ft long, pubescent. **Bracts** pubescent, more than 1 cm long, linear, apiculate, caducous. **Corolla** orange coloured, sometimes yellowish. **Capsule** up to 3 cm long, dilated at top. **Seeds** 12-14. **Flr.**: December-February. **Frt.**: February-April.

Grows in edges of forests, hill slopes, waste land etc., also cultivated in homesteads. **Occurrence**: Common. **Vern. name**: Tital phul (As.)

**Uses**: Flowers are eaten fried as vegetable, especially with small fishes. Leaves and flowers are used as medicine in cough, asthma and in worm infection.

**Coll. No.**: Borah A 256. **Date**: 11-12-2003. **Locality**: Mahadev hillock.

**Rungia** Nees, in Wall., Pl. As. Rar. 3:77. 1832.

**Herbs** or **sub-shrubs**. **Leaves** entire. **Flowers** in dense terminal or axillary, 1-sided spikes; bracts 2-rowed or 4-rowed with 2 of the rows often flowerless,
Fig. *Phlogacanthus thrysiformis* (Hardow.) Mabb.
flowering bracts often with scarious margins; bracteoles like bracts or narrower. 

**Sepals** connate in a small, deeply 5-lobed calyx; segments linear-lanceolate. **Petals** 5, connate in a small white or blueish 2-lipped corolla; upper lip emarginated, lower longer, 3-lobed. **Stamens** 2; anthers 2-celled, parallel, subequal, or often superposed, the lower cell muticous or with a white, basal appendage. **Disk** annular or shortly copular. **Carpels** connate in a 2-celled ovary; ovules 2 in each cell; style filiform; stigma minutely 2 fid. **Fruit** an ovoid or oblong, shortly stipitate capsule; placentas with retinacula elastically separating from base of capsule after dehiscence to scatter the seeds. **Seeds** 4, compressed, orbicular, glabrous.


A diffuse, procumbent *herb*, 1-2 ft high. **Leaves** ovate, scabrid; petiole slender. **Flowers** in terminal and axillary unilateral spikes. **Calyx** 5-lobed. **Corolla** 2-lipped, lower lip longer, purplish-blue, marked with white veins. **Stamens** 2, anthers spurred. **Capsule** ovoid, glabrous. Flr.: September onwards.

Grows in forest edges, scrub forests, usually in moist places, associated with *Phlogocanthus thyrsiformis, Chromolaena odorata, Phaulopsis imbricata* etc. Occurrence: Common.

Coll. No.: Borah, A. 140. Date: 9-92001 Locality: Kakoijana RF.

**THUNBERGIACEAE**

Climbers. **Leaves** opposite. **Flowers** axillary, solitary or paired. **Bracts** leaf like; **bracteoles** large. **Sepals** toothed. **Petals** 5, connate. **Stamens** didynamous. **Carpels**
connate. Fruit a capsule, globose below, suddenly narrowed to a barren, sword-shaped beak. Seeds 2 in each cell, ovoid or dorsally compressed.

_Thunbergia_ Retz., Physiographiska Sallskapets Handlingar 1(3):163. 1780

_Climbers._ Leaves opposite, usually caudate, hastate or angular. Flowers axillar, solitary or paired or racemose; bracts leaf-like; bracteoles large, margins connate, at least when young. _Sepals_ connate in a small, annular, or 10-16-toothed calyx, or obscure. _Petals_ 5, connate in a conspicuous corolla; tube swollen, curved; limb oblique, with rounded lobes, twisted to the left in bud. _Stamens_ 4, didynamous, adnate near base of corolla-tube. _Disk_ annular or cushion-like. _Carpels_ connate in a 2-celled ovary; ovules 2 in each cell; style long; stigma funnel-like, 2-lobed or style 2-fid with capitate stigmas. Fruit a capsule, globose below, suddenly narrowed to a barren, sword-shaped beak. Seeds 2 in each cell, ovoid or dorsally compressed.

_Thunbergia grandiflora_ (Roxb. ex Rottl.) Roxb., Pl. Cor. 1:47. 5.67. 1795; Clarke in Hook. f., FBI 4:390. 1884; Kanjilal et al., FA 3:410. 1939; Jain and Hajra, BBSI 17(1-4):83. 1975; Chowdhury et al., Ass. Fl. 254. 2005.

A large _climber._ Leaves ovate or orbicular or lanceolate towards the extremity, sub-entire, often angularly toothed, membranous, scaberulous above, pubescent beneath; lower leaves often deeply cordate. Flowers large, bluish, axillary from the uppermost leaves or in dense flowered racemes; _bracteoles_ conspicuous, elliptic, falcate. _Corolla_ 5-7.5 cm long. bluish-white. _Anthers_ bearded, spurred._Capsule_ about 3.7 cm long, up-curved with 4-quetrous beak, pubescent. _Flr._: April-July. _Frt._: Winter.
VERBENACEAE

_Herbs, shrubs, or trees. Leaves_ opposite or whorled, simple or digitate, very rarely pinnate; _exstipulate_. _Flowers_ hermaphrodite or polygamous, almost irregular, in cymes, racemes, or spikes, simple or compound; _bracts_ various. _Sepals_ connate in a 5- or 4, very rarely 6-8 toothed, persistent _calyx_. _Petals_ connate in a tubular _corolla_, with a 2-lipped or sub-equally 5-lobed _limb_, occasionally lobes more than 5. _Stamens_ 4, didynamous, rarely 5 or 6. _Carpels_ 2, connate in a superior, 2-4 _celled_, very rarely 8-celled or almost 1-celled _ovary_, entire or 4-lobed; ovules two or solitary in each cell; _style_ terminal; stigma entire, rarely 2- or more-lobed. _Fruit_ usually a _drupe_, rarely sub-capsular, 2-4- or 1-celled, cells 1-seeded.

Key to the genera:

1a. Inflorescence of racemose or dense spikes; _flowers_ centripetal:

2a. _Drupe_ with two or one 1-seeded _pyrenes_. Inflorescence _spikes_:

3a. Spikes capitate, ovoid or cylindric. _Stamens_ 4:

4a. Calyx truncate or densely toothed. _Fruit_ succulent .. .. .. .. _Lantana_ 

4b. Calyx 2-4-fid. _Fruit_ dry .. .. .. .. .. .. .. .. .. .. .. .. .. .. _Lippia_

3b. Spikes long, slender. Perfect _stamens_ 2. .. .. .. .. .. .. _Stachytarpheta_

2b. _Drupe_ fleshy, with 2-seeded _pyrenes_. Inflorescence racemose .. .. .. _Duranta_

1b. Inflorescence _cymose_; _flowers_ centrifugal:

5a. Corolla regular. _Stamens_ _isomerous_. _Leaves_ simple:
6a. Calyx unaltered in fruit. Corolla purple or red. Drupe with four 1-seeded pyrenes. Callicarpa

6b. Calyx less accrescent in fruit. Corolla white. Drupe with one 4-celled pyrene. Tectona

5b. Corolla 2-lipped; stamens didynamous. Leaves simple or digitate:

7a. Drupe with one 4-celled pyrene:

8a. Leaves simple, entire or toothed:

9a. Flowers and fruits large. Gmelina

9b. Flowers small. Trees or shrubs:

10a. Leaves alternate or opposite. Trees. Premna

10b. Leaves rosette. Small shrubs. Pygmaeopremna

8b. Leaves digitate. Vitex

7b. Drupe with four 1-seeded pyrenes:

11a. Calyx campanulate or tubular or suburseolate, truncate, 5 toothed or deeply 5 fied. Clerodendrum

11b. Calyx petaloid. Holmskioldia


Tree or shrubs; young shoots stellately hairy. Leaves opposite or alternate, toothed or subentire. Flowers in axillary cymes, shorter than the leaves; bracts linear, very minute or obsolete. Sepals 4, connate in a very small, campanulate, minutely 4-lobed calyx. Petals 4, connate in a small, subsymmetric, tubular, purple or red corolla; lobes subquadrate, spreading. Stamens 4, equal; anthers exserted, 2-celled,
glandular. Carpels connate in an imperfectly 2-celled ovary; ovules 2 in each cell; style linear; stigma dilated, obscurely 2-fid. Fruit a small, globose drupe; pyrenes 4, or fewer by suppression, 1-seeded.


A *small tree* about 4 m height; bark grey, younger branches coriaceous, quadrangular, thickly stellate tomentose. *Leaves* simple, extipulate, petiolate, opposite, decussate; lamina large, as large as 24 × 10.7 cm across, broad lanceolate, caudate, margins nearly serrated, upper surface thickly stellate tomentose, appearing grayish green; lateral nerves 13-14 on either half, thickly stellate tomentose, tertiary nerves usually parallel; petiole thick, 3-4 cm long, thickly, stellate tomentose, grooved, articulated basally. *Inflorescence* axillary, paniculate cyme, long peduncled, sub globular, pink; peduncle around 7 cm long, thickly stellate tomentose appearing grey. *Flowers* small, in large number, pink with protrandry stigma. Flr. & Frt.: May-July.

Grows along moist slopes of the hillock associated with *Chromolaena odorata*, *Mikania micrantha* etc. Occurrence: Rare.

Vern. name: Machkoita, Bon-mola, Gan-mola (As.)


Photo No.: 38.4 (Plate 38)
Clerodendrum L., Sp. Pl. 2: 637. 1753

Trees or shrubs. Leaves opposite, rarely 3-4-nate, simple, occasionally lobed, entire or toothed. Flowers in axillary cymes or terminal panicles, leafy below; bracts conspicuous or small; bracteoles 0. Sepals 5, connate in a campanulate calyx; limb truncate or 5-toothed or almost 5-partite, persistent, often accrescent, sometimes coloured. Petals 5, connate in a slender, cylindric, usually long, filiform corolla; limb more or less oblique; lobes spreading. Stamens 4, didynamous, far exserted, adnate under corolla-throat; anthers ovate or oblong. Carpels connate in an imperfectly 4-celled ovary; ovule solitary in each cell; style filiform; stigma shortly 2-fid. Fruit a globose, succulent, very rarely almost dry drupe, 4-grooved and separating into 4 pyrenes of which 1-3 often suppressed.

Key to the species:

1a. Corolla salver-shaped. Panicles axillary:

2a. Leaves entire, obovate or elliptic. Calyx minutely toothed, embracing the base of the berry. Fruit spongy. ... ... ... ... ... ... ... ... ... ... C. inerme

2b. Leaves ovate, sinuate or serrate. Calyx lobed half way down, almost covering the berry. Fruit somewhat succulent:

3a. Calyx very shortly 5-lobed; bracts large. Leaves serrated, acuminate, base narrowed ... ... ... ... ... ... ... ... ... ... C. serratum

3b. Calyx large, deeply 5-lobed, segments acute. Leaves entire or serrulate, acuminate, base cordate or obtuse... ... ... ... ... ... ... C. viscosum

1b. Corolla narrowly funnel-shaped. Panicle terminal, elongated. Leaves narrowly lanceolate, subsessile, subentire... ... ... ... ... ... ... C. indicum.

An erect shrub with fluted hollow stem, usually unbranched. Leaves in whorls of 3-6, narrow-lanceolate or oblong-lanceolate or linear, entire or serrate, acuminate, glabrous; lateral nerves meeting in a continuous line inside the margin, base tapering. Flowers white or cream, drooping on opposite or whorled few flowered cymes forming large rigid panicle. Calyx deeply partite, green, 1 cm across in flower and 2-3 cm in fruit, red. Corolla tube very slender, lobes acuminate. Drupe bluish of 4 connate drupels, seated on the enlarged calyx. Flr.: October- May. Frt.: December- August.

Grows on scrub forests, road sides, in grasslands etc. Occurrence: Common.

Vern. name: Akal bih, Akla brikh (As.).

Uses: Ornamental; leaves medicinal in skin disease.


Photo No.: 38.5 (plate 38)

**Clerodendrum inerme** Gaertn., Fl. Ind. 3:58. 1832; Clarke in FBI 4:580. 1885; Prain, Bengal plants, 2:835. 1939; Chowdhury et al., Ass. Fl. 255. 2005.

A straggling shrub. Cultivated as hedge or ornamental plant in homestead gardens.

Tall shrubs, 2-4 m high. Leaves oblong-ovate or oblanceolate, serrate, acute or shortly acuminate, 12-30 × 3-12 cm; petioles 0.5-1.0 cm long. Flowers Ca 1 cm long and in terminal pubescent panicles. Calyx copular, shallowly 5 toothed, Ca 0.6 mm long. Corolla hairy inside. Stamens Ca 2.5 cm long. Drupes 0.8-1.0 cm across; black. Flr. & Frt.: Through out the year.

Grows in secondary forests along hilly tracts. Occurrence: Common.

Vern. Name: Nangal Bhanga (As.).

Use: Young leaves, shoots and flowers are eaten cooked as vegetable.

Coll. No.: Borah, A. 51. Date: 3-4-2001   Locality: Mahadev hillock. (Plate 41).


A shrub or under shrub with foetid smell, often gregerious; sometimes covered with large raised warts. Leaves 7-22 × 7-17 cm, broadly ovate, acuminate, pubescent, petiole 1.2-12.5 cm long. Flowers white, pink fragrant in large lax terminal, pyramidal panicles or cymes. Bract elliptic, acuminate. Calyx deeply 5 partite, pubescent, 1 cm long in flowers. Corolla white, tube slender, pubescent. Stamens declinate. Style much extended. Fruit drupe, bluish black. Flr. & Frt.: February- May.
Fig. Clerodendrum serratum (L.) Spreng.
(i) A flowering twig  (ii) A flower  (iii) Calyx
(iv) Corolla with androecium  (v) Stamen  (vi) Gynoecium
Occurrence: Common along damp road side. Vern. name: Bheto-mali (As.)

Uses: Young leaves and roots are used in fermenting liquor by Bodos. Tender leaves are considered as medicinal for high blood pressure, tonic, vermifuge and antiperiodic.

Coll. No.: Borah, A. 35. Date: 24-2-2001 Locality: Barpara

Photo No.: 38.6 (Plate 38)

**Duranta** Jacq., Sp. Pl. 637. 1753.

Glabrous or tomentose shrubs. Leaves opposite or whorled, toothed or entire. Flowers in long terminal, or shorter axillary racemes, alternate on the rachis, short pedicelled. Sepals connate in a tubular or subcampanulate, truncate or minutely 5-toothed calyx, enlarged in fruit, embracing but free from the drupe. Petals 5, connate in a short corolla; tube cylindric; limb oblique or not; lobes spreading. Stamens 4, didynamous, included. Carpels connate in a more or less completely 8-celled ovary; ovules 1 in each cell; style short; stigma oblique, unequally 4-lobed. Fruit a succulent drupe, enveloped in the calyx which is open or closed at the mouth; pyrenes 4, each 2-celled and 2 seeded.


A beautiful shrub; leaves often golden yellowish-green. Mostly planted as hedge in household and institutional gardens. Vern. name: Duranta (As.)

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Trees or shrubs, unarmed or spinous, shoots usually tomentose. Leaves opposite, entire, toothed or lobed. Flowers large, yellow or brownish, often tomentose, in small or panicked cymes; bracts usually narrow, rarely leafy; bracteoles 0. Sepals 5, connate in an irregular corolla; tube narrow below, swollen upwards; limb oblique; lobes equal or the 2 upper connate in a lip, and limb 4-fid. Stamens 4, didynamous; anthers with oblong pendulous, more or less discrete cells. Carpels connate in a 4-celled ovary; ovules solitary in each cell; style slender; stigma shortly 2-fid. Fruit a succulent drupe, with undivided, 4-celled or 2-celled bony endocarp; calyx in fruit persistent.

Gmelina arborea Roxb., Fl. ind. 3:84. 1834; Kanjilal et al., FA 3: 467. 1939; Jain and Hajra, BBSI 17(1-4):83. 1975; Chowdhury et al., Ass. Fl. 255. 2005.

Deciduous trees. Leaves opposite, broadly ovate-acuminate, 8-20× 5.5-15 cm, acuminate at apex, subcordate or truncate or abruptly cuneate at base; lateral nerves 6-10 on either half. Flowers ca 2.5 cm across. Corolla brownish yellow, pubescent. Drupes turning yellow with age, ovoid or pyriform. Flr. & Frt.: February- July.

Found grow in the forest and open places; often cultivated.

Vern name: Gomari, Gameri (As.).

Coll. No.: Borah A 192. Date: 30-10-2001 Locality: Shankarghola.
*Holmskioldia* Retz., Obs. vi. 31.1791.

**Straggling or climbing shrubs.** Leaves opposite. Flowers in short cymes, in leaf-axils or aggregated at ends of branches; bracts small; bractecoles 0. *Sepals* 5, connate in a widely obconic, subtruncate, membranous red calyx. *Petals* 5, connate in an oblique corolla; tube cylindric curved; lobes short. *Stamens* 4, didynamous; anthers ovate, exserted. *Carpels* connate in an obtuse or obscurely depressed ovary, becoming ultimately 4-celled; ovules 1 in each cell, laterally attached; style terminal; stigma shortly 2-fid. *Fruit* an obovoid drupe, included in the accrescent calyx, divaricately 4-lobed about half way down; pyrenes 1-4.

*Holmskioldia sanguinea* Retz., Obs. vi. 31. 1791; *H. sanguinea* Willd.: Roxb., Fl. ind. 480.1832; Hook. f., FBI. 4: 596. 1885; Prain, Bengal plants 2: 624, 1903; Kanjilal et al., FA. 3: 493.1939.

A perennial, terrestrial scandent shrub; stem woody, angular. Leaves opposite, decussate, exstipulate, ovate, acuminate, margin sparingly toothed or aggregated at the end of the branches in short cymes. Flowers bisexual, hypogynous, pentamemrous, completely zygomorphic, reddish, showy, ± 1cm long, bracts 2, pubescent. *Sepals* 5, connate, membranous, valvate ± 2.5 cm long. *Carpels* 2, syncarpous, 4 celled, ovary superior, styles terminal, stigma shortly bifid. *Fruit* drupe. Flr. & Frt.: October- April.

Growing on dry edges of the forest on hillock in association with *Lantana camera* var. *aculeuta*, *Dioscorea alata* etc. Occurrence: Common

Vern. Name: Manukata phul, Chatra-puspa (As.), Ladies umbrella (Eng.).

Coll. No.: Borah, A 374. Date: 18-2-2005 Local: Mahadev hillock. (Plate 42)
Fig. *Holmskiöldia sanguinea* Retz.

(i) A flowering twig  
(ii) A flower  
(iii) Corolla with androecium

Rambling or scandent, pubescent or glabrous shrubs; branches 4-angled, sometimes prickly. Leaves opposite, simple, petioled, crenate, often rugose. Flowers in peduncled, capitate, ovoid or cylindric spikes; bracts conspicuous, longer than the calyx; bracteoles 0. Sepals connate in a small, membranous, truncate or sinuately 4-5 toothed calyx. Petals 4 or 5, connate in a cylindric corolla with slender tube; lobes of limb spreading. Stamens 4, didynamous, included; anthers broadly oblong. Carpels connate in a 2-celled ovary; ovules solitary in each cell; style short; stigma oblique. Fruit a fleshy or nearly dry drupe, with 2 bony, 1-celled pyrenes.


A straggling or scandent aromatic shrub with small recurved prickles on most of the branches. Leaves ovate, oblong, serrated with cordate or sub cordate base. Flowers varied in colour- orange yellow or pink, flowers in axillary, long peduncled, spicate heads. Bracts distincts. Fruits drupe, black at maturity. Flr. & Frt: Through out the year.

Low shrub growing by the road side along with Cassia spps., Chromolaena odorata etc., often form patches in waste land, railway sides etc. Occurrence: Common.


Fig. Lantana camera L. var. aculeata (L.) Mold.

(i) A flowering twig   (ii) A flower   (iii) L. S. of flower

Shrubs or undershrubs, rarely herbs. Leaves opposite or ternately whorled, rarely alternate, simple, entire or serrated or lobed, smooth or rugose. Flowers in elongate, slender, or dense spikes, or in small heads; bracteate, ebracteolate. Sepals connate in a small, membranous, ovoid campanulate or compressed and 2-ridged calyx; limb 2-fid or 4-fid or 4-toothed. Petals 4-5, connate in a somewhat 2-lipped corolla; tube cylindric, straight or curved; limb oblique, upper lobe wider, emarginated or slightly 2-lobed, lower lobes wide, often retuse. Stamens 4, didynamous, included; antherse ovate or broadly oblong. Carpels connate in a 2-celled ovary; ovules in each cell solitary; style short; stigma obliquely subcapitate. Fruit small, dry, separating into two 1-seeded pyrenes.


A gregarious, strongly aromatic shrub, branches obscurely 4-angled, hairy. Leaves ovate, lanceolate, or lanceolate, crenulate or crenate, serrate, acute, rugose, hairy and punctuate above, pubescent beneath. Flowers pink, scented, in dense peduncled cylindric spikes; bracts ovate-acuminate, white, villous. Calyx silky. Corolla hairy, yellowish. Stamens 4, didynamous, enclosed. Ovary 2-celled, ovules solitary in each cell. Fruit small, with a dry epicarp splitting into 1-2-seeded pyrenes. Flr. & Frt: February- March or throughout the year.
Grows in open areas along water bodies in association with *Vetivaria* sp., *Conocephalus* sp., *Croton caudatus* etc.

Occurrence: Common. Vern. name: Pichas bon (As.).

Uses: Leaves are used in fermenting traditional wine by Bodos, Rabhas etc., eaten as vegetable by Garos.

Coll. No.: Borah A. 475. Date: 22-4-2006. Locality: Majpara.

**Premna** L., Mant. 2. 154. 1771.

*Trees or tall shrubs*, sometimes *climbing*. *Leaves* opposite, entire or toothed.

*Flowers* cymose, often polygamous, small, greenish or yellowish white, the cymes corymbose or panicked, sometimes thyrsoid, pubescent; bracts small, narrow; bracteoles 0. *Sepals* 5, connate in a small, cup-shaped calyx; limb sub-entire or minutely 2-5 toothed, sub-equal or 2-squad. *Petals* 5, connate in a small corolla; tube short; throat hairy; limb 2-lipped, 5-lobed, or subequally 4-lobed. *Stamens* 4, didynamous. *Carpels* connate in a 2-celled or 4-celled ovary; ovules 4; style linear; stigma shortly 2-fid. *Fruit* a small drupe, embraced below by the calyx, globose or oblong obovate; endocarp hard, undivided, 1-4-celled, and 1-4 seeded.

**Premna bengalensis** Clarke in FBI 4:574. 1885; Prain, Bengal Plants 2:831. 1903; Kanjilal *et al.*, FA 3:474. 1939; Jain and Hajra, BBSI 17 (1-4): 83. 1975; Chowdhury *et al.*, Ass. Fl. 256. 2005.

A semi-evergreen *tree* often with fluted trunk. *Bark* grayish white, exfoliating in thin corky papery flakes; young parts stellately tomentose. *Leaves* ca 25 cm long and ca 10 cm width, ovate-oblong or elliptic, entire acuminate, thinly coriaceous,

Grows in plains and hill-slopes in moist areas. Occurrence: Rare.

Vern. name: Gohora (As.), Dhauli (Bodo), Bolgoppo (Garo).

Coll. No.: Borah, A. 422. Date: 20-6-2005. Locality: Shankarghola


A small sub-shrub from a woody root stock; shoots herbaceous up to 12 cm high. *Leaves* sessile, 2.5- 12 × 2-7.5 cm., often in rosettes near the ground, obovate, coarsely toothed, obtuse, membranous, glabrescent above, puberulous along the nerves beneath. *Flowers* about 3 mm in across, white or greenish-yellow, in terminal corymbose panicles. *Calyx* copular, 4-toothed, slightly accrescent in fruit. *Corolla* 5 mm long, obscurely 2-lipped, 4-lobed, throathairy. *Drupe* globose, about 6 mm across, glossy. Flr.: January- April. Frt.: May- July.

Grows in moist area amidst grasses, prefers red soil. Occurrence: Rare.

Vern. name: Mati-fesua (As.).
Fig. *Pygmaeopremna herbacea* (Roxb.) Mold.

(i) Habit  (ii) Rootstock  (iii) Flower  (iv) Sepals  (v) Petals  (vi) Stamen  (vii) Carpel
Uses: Leaves are eaten as vegetable; medicinal in fever, jaundice, sleeping sickness and bodyache. Application of leaf paste over forehead cures giddiness and drowsiness.


**Stachytarpheta** Vahl., Enum. 1: 205.1804. (nom cons.)

*Herbs or shrubs. Leaves* opposite or alternate, toothed, often rugose. *Flowers* in terminal spikes, bracts small, narrow, adpressed or ovate or lanceolate, imbricate; bracteoles 0. *Sepals* 5, connate in a tubular, membranous or herbaceous somewhat 5-ribbed calyx. *Petals* 5, connate in a narrow, oblique corolla; tube cylindric; lobes of limb spreading, equal or unequal, obtuse or retuse. *Stamens* 2, anterior only perfect, adnate to middle of corolla-tube, included; anthers divaricated; posterior staminodes small. *Carpels* connate in a 2-celled ovary; ovules solitary in each cell; style long; stigma terminal, subcapitate. *Fruit* dry, included in the calyx, separating into two hard, 1-seeded pyrenes.


Perennial *herbs*, branches mostly dichotomous. *Leaves* 2.5-9 × 1.2- 4.0 cm, elliptic-ovate, crenate-serrate, acute, glabrous; petioles Ca 2 cm long; spikes 10-30 cm long, 4-5 mm across, erect. *Flowers* blue, sessile, 7-10 mm long, immersed in the rachis; bracts lanceolate, adpressed. *Stamens* 2, perfect; staminodes 2, included. *Fruits* 5-6 mm long, dry and enclosed in calyx. Flr. & Frt.: Round the year.

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Growing along hilly tracts in association with *Ageratum conyzoides, Melastoma malabathricum*, etc. Occurrence: Rare.


*Tectona* L. f., Suppl. Pl. 20, 151. 1782.

*Trees*; branches stellate-tomentose. *Leaves* large, petioled, entire, opposite or whorled. *Flowers* numerous, in dichotomous cymes, disposed in large, terminal panicles; bracts small, narrow. *Sepals* connate in a campanulate, shortly 5-6 lobed calyx, in fruit enlarged, ovoid or urceolate. *Petals* 5-6, connate in a small, short, tubular corolla; limb equally lobed; lobes spreading. *Stamens* 5 or 6, adnate near base of corolla. *Carpels* connate in a 4-celled ovary; ovules solitary in each cell; style linear; stigma shortly 2-fid. *Fruit* a 4-celled drupe with a bony endocarp, enclosed in the calyx.


Cultivated tree, deciduous. Vern. name: Segun (As.), Teak (Eng.). Largely cultivated on hill slopes for timber. Wood is good for furniture, housing and instruments.


*Trees or shrubs*; young shoots hairy or tomentose. *Leaves* opposite, digitately 3-5-foliolate. *Flowers* in peduncled or sessile cymes, forming terminal and axillary
or wholly axillary panicles or corymbs; bracts small. Sepals 5, connate in a campanulate calyx; limb truncate or shortly 5, rarely 3-toothed. Petals 5, connate in a 2-lipped corolla; tube short; limb 5-lobed, central lobe of lower lip usually largest. Stamens 4, didynamous, usually exserted; anther-cells divaricated, often twisted so that their bases become suberect. Carpels connate in a 2-celled or 4-celled ovary; ovules 4; style filiform; stigma shortly 2-fid. Fruit a globose or obovoid drupe, resting on the somewhat enlarged calyx; endocarp bony. 4-celled or, by suppression, 3-1 celled.

Key to the species:

1a. Flowers lavender to blue; stamens exserted. Aromatic shrub .. V. negundo

1b. Flowers yellow; stamens up curved. Tree .. .. .. .. .. .. .. V. peduncularis

Vitex negundo L., Sp. Pl. 641. 1753; Clarke in FBI 4:586. 1885; Prain, Bengal Plants 2:833; Kanjilal et al., FA 3:480. 1939; 1903; Chowdhury et al., Ass. Fl. 256. 2005.

A strongly scented deciduous shrub or sometimes like a small tree. Leaves digitately 3-5-foliate, petiole 2.5-5 cm long. Leaflets up to 12 cm long, lanceolate or narrow lanceolate, acuminate or acute, entire, crenulate or coarsely toothed, membranous, glabrescent above, base cuneate; terminal leaflet having longer petiolule. Flowers lavender to blue, 5 mm across, in opposite cymes, arranged on an elongated panicle of about 1 ft long. Calyx small, campanulate, 5-toothed. Corolla about 1 cm long, pubescent outside, 2-lipped, upper 2-lobed, lower 3-lobed; middle lobe longest, crenulate. Stamens exserted, ovoid. Drupe small, slightly ribbed. Flr: April- August. Frt.: winter.
Grows on roads sides especially near drains, sometimes cultivated by village traditional healing practitioners. Occurrence: Common.

Vern. name: Posotiya (As.). Uses: Leaves as febrifuge and tonic.


\textit{Vitex peduncularis} Wall. ex Schauer in DC., Prodr. 11:687. 1847; Clarke in FBI 4:587. 1885; Prain, D., Bengal Plants 2:833; Kanjilal \textit{et al.}, FA 3:484. 1939; 1903; Chowdhury \textit{et al.}, Ass. Fl. 256. 2005.

\textit{Tree}, young shoots pubescent. \textit{Leaves} 3-foliate, petiole up to 10 cm long, scarcely winged on maturity. \textit{Leaflets} 5-15 cm long, lanceolate or narrow-elliptic, entire, long acuminate, glabrous, minutely yellowish gland dotted beneath. \textit{Flowers} pale yellow, small, in axillary panicked cymes, exceeding the leaves. \textit{Calyx} very minutely toothed, crimson brown, pubescent with golden or light yellow resinous dots. \textit{Corolla} small, yellow near base and hairy with close-set yellow glands. \textit{Stamens} up curved, arching over the throat of the corolla. \textit{Anther} lobes purple. \textit{Drupe} obovoid, about 1 cm in across. Flr.: April- June. Frt.: July- September.

Grows on hill slopes on the edge of forests. Occurrence: Rare.

Vern. name: Ahoi, sila-tita, Khoidoi (As.), Ashot (Beng.).


\textbf{LAMIACEAE}

\textit{Herbs}, rarely \textit{shrubs}; usually gland-dotted; \textit{stems} usually 4-angled. \textit{Leaves} opposite or whorled; stipules 0. \textit{Flowers} irregular, solitary, 2-nate or fascicled and axillary, or in verticillaster. \textit{Sepals} connate in a persistent, sub-regular or irregular, 4-
5 cleft, or distinctly 2-lipped calyx. Petals 5, connate in a gamopetalous, hypogynous corolla; limb 4-5-lobed or usually distinctly 2-lipped. Stamens adnate to corolla tube, 4, didynamous. Disk prominent. Carpels 2, each 2-celled, forming a deeply 4-lobed ovary; style simple; stigma usually 2-fid; ovules solitary in each cell. Fruit of 4 dry or rarely fleshy, 1-seeded nutlets Seed small.

Key to the genera:

1a. Stamens declinate:

2a. Lower lip of corolla somewhat declinate, flat or very slightly concave, not or slightly longer than the 4-lobed upper lip .. ... ... .. ... .. ... Ocimum,

2b. Lower lip of corolla deflexed, concave, much elongated than upper lip:

3a. Upper lip of corolla very short; lower lip much elongated .. ... .. Coleus

3b. Upper lip of corolla flat, as long as lower lip; lower lip deflexed. .. Hyptis

1b. Stamens erect, or spreading or ascending:

4a. Corolla lobes 4-5, flat, sub-equal or similar, the lowest somewhat unlike others but limb not 2-lipped. Stamens subequal, diverging .. .. .. Pogostemon

4b. Corolla 2-lipped; stamens didynamous:

5a. Anther cells parallel. Calyx 5-toothed .. .. .. .. .. .. .. .. Leonurus

5b. Anther cells divergent. Calyx 6-10-toothed:

6a. Lower lip of corolla longer than hood .. .. .. .. .. .. .. .. Leucas

6b. Lower lip of corolla shorter than hood .. .. .. .. .. .. .. .. Leonotis
Coleus Lour., Fl. Cochinch. 2:872. 1790.

Herbs. Flowers in lax or close, panicled or racemed, 6-8 flowered cymes. Sepals 5, connate in a 2-lipped calyx, enlarged in fruit, upper lobe the widest, not decurrent. Petals 5, connate in a 2-lipped corolla; tube exserted decurved; throat equal or obliquely swollen; upper lip short, broad, 4-fid, recurred, lower much longer, entire, boat-shaped, stipitate or narrow at base. Stamens 4, didynamous, declinate; filaments simple, shortly connate below in a sheath separate from the corolla; anther-cells confluent. Disk enlarged in front. Carpels connate in a 4-partite ovary; style subequally 2-fid. Fruit of 4 orbicular or ovoid, smooth dry, nutlets.


A herb, commonly cultivated in gardens for its beautiful leaves mottled with deep purple or sanguine.

Hyptis Jacq., Collect. 1:101. 1786

Herbs or shrubs. Inflorescence various, often capitate. Sepals connate in an ovoid, campanulate or tulular, subequally 5-toothed tube cylindric or slightly connate, in slightly 2-lipped corolla; equal, erect or spreading; lowest lobe abruptly deflexed, saccate, contracted at the base. Stamens 4, didynamous, declinate; anther-cells confluent. Disk entire or glandular in front. Carpels connate in a 4-partite ovary; style shortly 2-fid or sub-entire at the tip. Fruit of 4 dry, ovoid or oblong nutlets.

A rigid annual 2-3 ft. height; *stem* hairy. *Leaves* petiolate, 5-8 cm very variable, broadly ovate, sinuate and serrulate, pubescent, villous or tomentose, lower cordate. *Peduncles* racemose, equaling the globose head. *Bracts* minute, setaceous, calyx striate, mouth villous, teeth erect subulate. *Heads* second, fruiting ½ in long sometimes reduced to a fine flowers. *Fls.* & *Frt.*: September-February.

Growing on foot hills associated with *Melastoma malabathricum, Chromolaena odorata* etc. *Occurrence*: common.

*Uses*: Leaves as healer for small cuts and wound and skin disease.


*Herbs* or *shrubs*. *Flowers* rather large, scarlet or yellow; whorls axillary, densely many-flowered; bracteoles numerous, slender, *Sepals* connate in a 10-nerved calyx; tube often in curved; mouth oblique, with 8-10 rigid teeth, the upper tooth largest. *Petals* 5, connate in a 2-lipped corolla; tube exserted; upper lip long, concave, with villous crown; lower very small, spreading, concave, the middle lobe largest. *Stamens* 4, didynamous, lower pair longer, ascending; anthers connivent; cells divaricate. *Disk* equal. *Carpels* connate in a 4-partite in a 4-partite ovary; style subulate, upper lobe very short. *Fruit* of 4 oblong or ovoid, dry tri-quetrous, obtuse or truncate, glabrous nutlets.

A tall, stout annual *herb*, 4-6 ft. high. Stem hairy. *Leaves* long petiolate, ovate, acute or acuminate, margin serrate, hairy. Verticillaster large, in all branches. *Flowers* 1.5×0.4 cm across, tube 1 cm long, often curved. *Corolla* 2-lipped, upper lip long. *Flr. & Frt:* December- March.

Grows in wastelands and degraded land, road sides in association with *Amaranthus spinosus, Cannabis sativa* etc. Occurrence: Rare.


Note: Exotic plant, naturalized in India. Not reported from Assam in Ass. Fl. by Chowdhury *et al.*, 2005. So it is a new record of occurrence of the species in Assam.

**Leonurus** L., Sp. Pl. 2:584. 11753; Gen. Pl. ed. 5. 1754.


An annual herb, 3-5 ft. high, stem erect, bluntly quadric angular, softly pubescent. Leaves sub membranous, long petiolate, linear, glabrous or glabrescent above, pubescent to tomentose beneath, lower ones pinnately partite in linear in cized segments. Inflorescence dense flowered. Bracts subulate. Calyx 5 mm long. Corolla ca 1 cm long, purpole red, tube straight, upper lip tomentose, erect and entire; did lobe of lower lip pubescent, obcordate. Butlets smooth; small truncate. Flr. & Frt.: February- June.

Grow along road side on damp places in association with Solanum nigram, Centella asiatica etc. Occurrence: Common

Vern. name: Ronga dron (As.)

Coll. No.: Borah, A. 208. Date: 13-3-2002  Locality: Barpara.  (Plate 45).


Herbs or undershrubs. Flowers usually white; whorls axillary, usually distant. Sepals connate in a striate, 10-nerved calyx; mouth equal or oblique, equally or unequally 5-10-toothed. Petals 5, connate in a 2-lipped corolla; tube included, annulate or naked within; upper lip erect, concave, externally villous; lower lip spreading, 3-fid, mid-lobe very large. Stamens 4, didynamous, the lower pair longer; filaments ascending; anthers connivent. Disk entire or lobed, equal or glandular in front. Carpel connate in a 4-partite ovary; style subulate at apex. Fruit of 4 ovoid, triquetrous, obtuse, dry nutlets.

Annuals with much branched stem quadrangular, hispid. Leaves sub sessile, lanceolate distantly serrate, 4-8 × 7-1.2 cm in size; bracts equaling the calyx, 0.8 cm, linear, tubular, curved, contracted at the mouth, glabrous below, ribbed, teeth 10-12, unequal, corolla bilabiate; tube annulate, lower tip trifid, white, size 12-17 mm. Stamens 4, didynamous, ascending, upper pair shorter; anther connivent, ultimately confluent. Disc entire, style bifid, upper lobe minute or obsolete. Nutlets smooth brown. Flr. & Frt.: September-February.

Growing on open fields, in association with *Sida rhombifolia*, *Cassia tora*, *Amaranthus spinosus* etc. Occurrence: Common.

Vern mane: Doron, Kansisa (As.), Danda-kolosh (Beng.)

Uses: The plant is used as vegetable, the leaf extracts used as medicine for treatment of sinusities, snake bite etc.


**Mentha** L., Sp. Pl. 576. 1753.

A prostrate aromatic herb with particular scent when bruised. Stem greenish or sometimes purplish. Leaves opposite alternate, elliptic or elliptic-ovate, serrate. Flowers white.

The following species are frequently cultivated for their medicinal uses; usually prefer damp, partially shady place; sometimes running wild.
Fig. *Leomurus sibiricus* L.

(i) A flowering twig  (ii) A flower
Fig. Leucas phuketii (Roth) Spreng.
**Mentha arvensis** L., Sp. PI. 577. 1753. vern. Podina (As.)

**M. piperata** Stokes, Bot. Mat. Med. lii. 315. 1812.

Vern. Podina (As.), the peppermint (Eng.)

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Aromatic herbs, under-shrubs, or shrubs. Flowers small, in 6-10 flowered whorls, spicate or racemose, tips of pedicels recurved; bracts minute, caducous. **Sepals** 5, connate in an ovoid or campanulate calyx, deflexed in fruit; upper tooth broadest decurrent, 2 lowest teeth acuminate. **Petals** 5, connate in a 2-lipped corolla, tube short, upper lip subequally 4-fid; lower hardly longer, declinate, entire. **Stamens** 4, didynamous, declinate, exserted; filaments free or the lower pair connate below, naked, or the upper toothed or hairy below; another-cells confluent. **Disk** entire or 3 4-lobed. **Carpels** connate in a 4-partite ovary; style-lobes subulate or flattened. **Fruit** of 4 dry, smooth or subrugose nutlets, mucilaginour when moist; basal scare small.

Key to the species:

1a. Plants herbaceous; calyx hairy within; corolla cream white ... ... **O. basilicum**

1b. Plants under shrubs or shrubs.


   ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... **O. tenuiflorum**

2b. Calyx hirsute. Corolla without cream ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... **O. gratissimum**

An erect, herbaceous plant 0.6-1 m tall. Leaves ovate-lanceolate, entire or toothed, up to 4-2.5 cm. Flowers whitish pink or purplish in whorls on simple or branched racemes ca 0.5 x 0.4 cm; bisexual, hypogynous, pentameric, completely zygomorphic, bracteate, ca 0.2 cm long; hairy. Sepals 4, ca 0.2 cm long. Petals 5, gamopetalous, bilabiate, connate in 2-lipped corolla tube, included, annulate or naked within; upper lip erect, concave, externally villous, lower lip spreading, 3 fid, equal, 0.4 cm in length. Stamens 4, didynamous, filament ascending, anthers basifixed, epipetalous. Carpels 0.4 cm long, connate in a 4-partite ovary; style bifid at the apex; style arise from depressed ovary, hypogynous. Nutlets black, pitted. Flr. & Frt.: All round the year.

Found in association with Lantana camera, Chromolaena odorata etc.

Vern name: Ram Tulshi (As.). Occurrence: uncommon

Coll. No.: Borah, A. 392. Date: 126-12-2003 Locality: Gossaipara


Sub-shrubs, ca 70 cm high; branches hispid and terete. Leaves sub-membranous, oblong to oblanceolate, serrate or obtusely denticulate, pubescent, obtuse or acute, base truncate, acute or cuneate, petioles Ca 2 cm long. Bracts ovate, acuminate, nearly as long as calyx. Calyx 5 lobed, purplish green. Corolla cream, purplish within. Nutlets minute, smooth. Flr. & Frt.: Mostly in August-March.
Commonly cultivated in homesteads but found wild also as escape on open field in association with *Catharanthus roseus, Cynodon dactylon* etc. Occurrence:

Vern. Name: Tuloshi (As.).

Uses: Leaf extracts medicinal in cough and cold. Plant is sacred to Hindus.


Perennial shrubs, about 1.5 m in height. Leaves elliptic, lanceolate, acute or acuminate, serrate, pubescent, about 12 × 5 cm, base cuneate; petioles about 2 cm long. Flowers shortly pedicellate, bracts lanceolate, sessile. Calyx hirsute, upper lip broad, roundly acute, recurved in age; lowers spinulose, much shorter. Corolla usually twice as long as calyx, pubescent, without cream. Nutlets globose, rugose, about 1 mm in diameter. Flr. & Frt.: October – December

Grows wild as well as cultivated for medicinal purposes.

Vern. name: Ramtulsi, Tuloshi (As.)

Uses: Leaves are chewed with betel nut as freshener, leaf juice with honey as medicine in cough and mouth ulcer and leaf extract in skin diseases.

Coll. No.: 253 Borah, A. Date: 21-10-2002. Locality: Shankarghola


Herbs and shrubs, aromatic. Flowers small, in whorls or cymes, arranged in spikes or racemes. Calyx subequally 4-5-toothed. Corolla tube exserted or included, 2-lipped; upper lip 3-lobed; the lower narrow and longer. Stamens 4, exserted,

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straight or decinate; filaments usually bearded; anther cells confluent. Disc subentire, style bifid. Nutlets ovoid or ellipsoid.


Large branching aromatic shrub; branches often dark purple; young parts pubescent. *Leaves* 5 - 15 × 2.5- 7.5 cm ovate or ovate-lanceolate, acute or acuminate, doubly serrate, rather sub-coriaceous, sometimes pubescent, generally glabrescent. *Flowers* white or pale pinkish, in capitulate whorls or pubescent panicled terminal and axillary spikes. *Bracts* foliaceous, ovate-acuminate, glandular, exceeding the flower buds, usually tinged pinkish, villous. *Calyx* glandular hairy; shorter than the tube. *Corolla* about 0.5 cm long. *Stamens* bearded with light purple hairs. *Nutlets* minute, dark brown. Flr.: Winter. Frt: Summer.

Grows on open and waste lands in groups along with *Amaranthus spinosus*, *Acalypha* sp. etc.

Occurrence: Rare in nature; often cultivated in homestead gardens.

Vern. name: Sukloti (As.)

Uses: Tender shoots and leaves are eaten as vegetable & medicine for internal injury especially after child birth.

NYCTAGINACEAE

*Herbs, shrubs, or trees. Leaves usually opposite, entire; exstipulate. Flowers hermaphrodite, rarely unisexual, regular, sometimes dimorphic, solitary or in terminal and axillary, panicked or corymbose cymes, rarely racemose, sometime umbellate or capitate; bracts often involucrate. Perianth usually small, petaloid, segments connate in an inferior monophyllous, persistent, campanulate, funnel shaped, or salver shaped tube; limb 3-5-lobed. Stamens 8-30, sometimes unilateral; filaments usually unequal, inflexed in bud. Carpel sessile or stipitate, often somewhat elongated, forming a membranous, included, 1-locular ovary; ovule solitary. Fruit membranous, indehiscent, enclosed in the coriaceous perianth-base.*

Key to the genera:

1a. Herbs; leaves opposite; stigma capitate:

2a. Flowers involucrate; bracts connate ........................................... *Mirabilis*

2b. Flowers paniculate or umbellate; bracteolate .................................. *Boerhavia*

1b. Climbing shrubs; leaves alternate; flowers in threes, attached to midrib of large, coloured bracts ........................................... *Bougainvillea*

*Boerhavia* L., Sp. Pl. ed. 1. 3. 1753.

*Herbs, often divaricately branched. Leaves opposite, often in unequal pairs. Flowers small, in panicked, umbellate, or capitate, inflorescence; bracteoles minute. Perianth-tube short, ovoid below, narrowed above the ovary; limb funnel shaped, with a 5-lobed margin; lobes plicate, spreading, deciduous. Stamens 1 or 2-5, connate below, exserted; filaments capillary, unequal; anthers didymous. Ovary*
stipitate, oblique, narrowed to a slender style. Fruit enclosed in the perianth-base, round, 5-ribbed, or 5-angled, with small or large sticky glands; utricle oblong.


A diffuse herb with stout fusiform root, stem ascending or prostrate, thickened at the nodes. Leaves are in unequal pair, ovate or orbicular-ovate or rounded, 1.5-3.0 × 1.0-2.0 cm, usually cordate at base, rounded or acute at apex; petioles 0.5-1.0 cm long. Flowers very small, dark pink, sessile. Perianth glandular outside, 5-lobed. Stamens usually 2. Fruit small, 5 ribbed, glandular.

Flr. & Frt.: February- June.

Grows in open areas, waste land and railway tracts. Occurrence: Common

Vern : Purnanava (As.), Laije (Bodo)

Uses : Young leaves are eaten cooked as vegetable other wise the plant has much valued as medicinal. Generally used in treatment of dropsy and urinary disorders.

Coll. No.: Borah, A. 133. Date: 12-7-2001. Locality: Bongaigaon Railway Station.


Shrubs, often climbing, usually armed with spines. Leaves alternate, petioled, entire. Flowers bracteate; bracts in threes, large, leafy, coloured. Perianth tube slightly curved, narrow, fusiform below the middle, above narrow, funnel shaped,.
and at length twisted; limb shortly 5-6-lobed. *Stamens* 7-8, included; filaments capillary, unequal, connate below; anthers didynamous. *Ovary* narrow fusiform, stipitate; ovule solitary; style short, lateral, filiform; stigma elongated, one sided. *Fruit* enclosed in the perianth-base; utricle stipitate, cylindric or clavate.

Key to the species:

1a. Leaves and branches glabrous. Flowers throughout the year ... .. .. *B. glabra*

1b. Leaves and branches softly pubescent. Flowers only winter ... .. *B. spectabilis*


A *climbing shrub* with recurved spines; *bracts* petaloid, reddish, pink, white or variegated, cultivated commonly in gardens as ornamental plant.

Vern.: Kagaz phul, Bagan-bilas (As, Beng.)


A *climbing shrub* with recurved spines; *bracts* petaloid, dark purple or magenta, cultivated commonly in gardens as ornamental plant.

Vern.: Kagaz phul, Bagan-bilas (As, Beng.)

Note: Both are introduced species, native of Brazil.


*Herbs*, 2-3-chotomously branched, nodes swollen. *Leaves* opposite, the lower petioled, the upper sessile. *Flowers* rather large, in branched, usually dense,
involucrate cymes, the involucres 1 or more-flowered, calyx-like, 5-lobed, with erect, acuminate, imbricate segments, not enlarging in fruit. Perianth tube elongated, narrowed above the ovary; limb spreading, 5-lobed, plicate, deciduous. Stamens 5-6, exserted; filaments unequal, incurved, connate below; anthers didymous. Ovary ellipsoid or ovoid; style filiform, exserted; stigma capitellate. Fruit enclosed in a papery, ribbed, persistent perianth-base; utricle obovoid.


A large herb with soft stems and swollen joints. Leaves broadly ovate-acuminate, basal ones petioled, upper ones sessile. Flowers solitary and in few-flowered cymes, red to white or yellow, nocturnal. Seeds rugose, black.

Commonly cultivated in homestead gardens, temple premises for ornamental purpose; also running wild.

Vern. name: Godhuli-gopal phul (As.)


**AMARANTHACEAE**

Annual or perennial herb. Leaves alternate or opposite, simple, exstipulate. Flowers bisexual or often unisexual, actinomorphic, bracteate; perianth uniseriate, 3-5 free or partially connate, pistil 2-3 ovary superior, unilocular. Ovule solitary and basal, style 1-3 with same number of stigmas. Fruit a capsule or more frequently a utricle or nutlet.
Key to the genera:

1a. Leaves alternate or alternate mixed with opposite or fasciculate:

2a. Ovary 2- many-ovuled:

3a. Climber or Shrub; fruit a berry .. .. .. .. .. .. .. .. .. .. Deeringia

3b. Herbs; fruit membranous .. .. .. .. .. .. .. .. .. .. . Celosia

2b. Ovary 1-ovuled:

4a. Flowers unisexual .. .. .. .. .. .. .. .. .. .. .. .. .. .. . Amaranthus

4b. Flowers perfect .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. . Aerva

1b. Leaves opposite, not fascicled:

5a. Anthers 2-celled:

Flowers perfect; stamens with interposed staminodes .. .. .. . Achyranthus

5b. Anthers 1-celled:

6a. Staminal tube short; stigma capitate, subsessile .. .. .. . Alternanthera

6b. Staminal tube long; stigma 2-fid, style long .. .. .. . Gomphrena


Herbs, sometimes woody below. Leaves opposite, petioled, entire. Flowers hermaphrodite, in slender, simple and panicked spikes, soon deflexed; bracts membranous; bracteoles 2, diverging. Perianth of 4-5 rigid, ribbed, sepaline segments, connate below. Stamens 2-5; filaments filiform, subulate, connate at the membranous base; anthers 2-celled, oblong or didynamous. Carpels forming an oblong, subcompressed, 1-celled ovary; ovule solitary, pendulous from along, basal
funicle; style filiform; stigma capitellate. Fruit an oblong or ovoid utricle; apex rounded or areolate.

Key to the species:

1a. Leaves rather rigid, velvety tomentose or glbrate, orbicular obovate or elliptic, obtuse or acute, not acuminate; rachis of spike rigid; a weed of road sides and waste places . . . . . . . . . . . A. aspera

1b. Leaves membranous, large, wide elliptic, acuminate, sparingly pubescent or glabrous; rachis of spike slender; a straggling, sub-scandent herb in forest undergrowth . . . . . . . . . . . A. porphyristachya


A perennial coarse erect herb; wholly at base, branches pubescent, striate. Leaves variable, opposite, cauline, sub sessile, simple, ex-stipulate, herbaceous. Inflorescence terminal simple spike with pendent apex. Flowers bracteates and bracteolate, sessile, complete, monochlamydous, zygomorphic. Bract 1, membranous, persistent; bracteoles 2, spinescent, persistent. Perianth sepaloid, tepals 5, inferior, acute, membranous, greenish. Stamens 5, united at the base; filaments 5, perfect, shorter, alternating 5 staminodes. Carpels 2, united, ovary ovate, style 1, slender, simple, erect, terminal; stigma simple, capitate.

Flr. & Frt.: Almost round the year
Fig. Achyranthes aspera L.
Fig. *Achyanthes porphyristachya* Wall. ex Moq.
The plant has been found on the road side in association with *Cynodon dactylon*, *Solanum myriacanthum* etc.

Occurrence: Common weed in exposed and waste land

Vern. name: Obhat kanta, Uvoti-soth, Bioni-sakuta, Bonsoth (As.).

Use: As medicine in scorpion sting.


A straggling, sub-scandent herb in forest undergrowth. Leaves membranous, large, wide elliptic, acuminate, sparingly pubescent or glabrous. Rachis of spike slender. Flr. & Frt.: Round the year

Grows in forest floor, usually in damp shady places associated with *Cynodon dactylon*, *Commelina forsklei*, *Cleome rutidosperma* etc.

Occurrence: Common


(Plate 48)

*Aerva* Forssk., Fl. Aeg.-Arab. 170. 1775.

*Herbs* or *undershrubs*. Leaves alternate or opposite or whorled. *Flowers* minute, hermaphrodite, or polygamous, in solitary or panicled spikes, bracteate, bracteolate. *Perianth* short, sepaline, membranous or papery, 5 or 4-lobed, inner three segments wooly. *Stamens* 5, filaments connate with a staminode, anthers 2-
celled, didynamous. *Carpels* forming an ovoid, 1-celled *ovary*; ovule solitary, pendulous form a long, basal funicle; stigma 2. *Fruit* a membranous utricle.


*Achyranthus lanata* Roxb., Fl. ind. 2:227. 1832.


Commonly found in the road sides and waste lands. Occurrence: Common

Vern. name: Obhat kanta, Astama boidya (As.)

Uses: Considered medicinal in various diseases.


*Alternanthera* Forssk., Fl. Aeg.- Arab. 28. 1775.

Decumbent or prostrate *herbs*. *Leaves* opposite or entire. *Flowers* hermaphrodite, small, white, in axillary, often clustered heads, bracteate and bracteolate. *Perianth* segments 5, sepaline, unequal, anterior and 2 posterior flattened, lateral 2 inmost, concave. *Stamens* 2-5, filaments short, connate in a short cup, with or without interveining staminodes; anthers short, 1-celled. *Carpel* 1, ovary orbicular; ovule solitary, pendulous from a basal funicle; stigma subsessile, capitulate or 2-fid. *Fruit* a compressed, ovoid orbicular utricle.
Fig. *Aerava lanata* (L.) Juss.

Key to the species:

Decumbent herb; leaves with a sharp mucro at apex .................. A. philoxeroides
Prostrate herb; leaves without mucro at apex .......................................... A. sessilis


Prostrate and erect herb; internodes hairy along two longitudinal grooves on two sides, upto 15 cm long. *Leaves* acute or rounded with a sharp mucro at apex, base cuneate or attenuate, about 6 × 1.5 cm; *petioles* upto 0.8 cm long. *Spikes* globose, about 1.5 cm in diameter; peduncles upto 3 cm long. *Tepals* 4–6 ×1-2 mm, ovate-oblong; filaments about 3 mm long. *Anthers* about 1.2 mm. Flr.& Frt.: January – September.

Commonly found in damp areas, drains, on the bank of water bodies etc.

Occurrence: Common. Vern. name: Senchi (As.)

Uses: Leaf extract is given once daily for one week in gonorrhoea by char area people. The preparation is also believed to be efficacious in poxes, syphilis and nervousness (Sarkar, S. 2007)


*Alternanthera sessilis* (L.) R.Br. ex Roem., Syst. 5: 554. 1819; Hook. f., FBI. 4:731. 1885; Rao *et Rabha*, BBSI 8:301, 1966; Jain *et Hajra*, BBSI 17:84, 1975; Deb, FTS

A perennial, prostrate, branched, glabrescent herb rooting at nodes. Leaves linear-oblong, lanceolate, much variable, acute, elliptic, crenulate. Flowers in gomerulous, white, bisexual, subtended by chaffy bracts, 3 bracteoles, utricles indehiscent, obcordate. Fl. & Frt.: March – August

It grows on moist shady places, usually on sides of local drains, in association with Rumex sp., Oxalis corniculata etc. Occurrence: Common.

Vern. Name: Matikaduri (As.)

Use: Used as vegetable and medicine for anaemia.


Annual, erect or decumbent herbs. Leaves alternate, narrowed at the base, entire or lobed. Flowers small, monoecious, in axillary clusters or dense, terminal panicles; bracts herbaceous, often pesisitent; bracteoles 2. Male flower: perianth of 5, rarely 1 or 3, membranous. Stamens 5, rarely 1-3; filaments free, filiform; anthers oblong or linear, 2-celed. Female flower: perianth-segments oblong or spatulate, in fruit erect, sometimes coriaceous or usually persistent. Carpel 1; ovary compressed, one celled; ovule solitary, erect; stigmas 2-3. Fruit an utricle.

Key to the species:

1a. Tepals 3; stem brown, pink or purplish tinged with green; not spiny:

2a. Bracts subs equaling or exceeding tepal segments; robust herbs; stem
reddish pink. \ldots A. tricolor

2b. Bracts shorter than tepal segments; low herbs; stem brown or pink tinged green:

3a. Stem brownish purple; leaf apex slightly notched \ldots A. viridis

3b. Stem greenish tinged with yellow; leaf apex deeply notched .. ..

\ldots A. polygonoides

1b. Tepals 5; stem green and spiny\ldots \ldots A. spinosus


Stem prostrate, branches erect. Up to 50 cm high, glabrous, greenish. Leaves 3-5 \times 2.50-4.0 cm. obtusely bilobed with a short, mucronate apex, decurrent or alternate at base, glabrous, green; petioles 3-5 cm long. Spikes paniculate, up to 14 cm long, green. Flowers 1-2 cm across. Utricles rugosa, brownish, \textit{ca} 1-2 cm across.

Seeds yellowish brown. Fl. \& Frt.: Round the year

Common in association with \textit{Amaranthus viridis}, \textit{Centella asiatica} etc.

Vern. Name: Khutura, Khuduna (As.), Kudra sak (Beng.)

Use: Tender shoots and leaves are used as vegetable


An erect herb with sharp axillary spines. Leaves ovate, lanceolate or rhomboid cuneate. Flowers unisexual, greenish on axillary clusters and also in long terminal and axillary more or less spreading paniculate spike; with chaffy bracts and three bracteoles. Perianth 5; stamens 5. Utricles ovoid; circumsessile; seeds dark purple shining. Flr. & Frt: Round the year

A weed of vegetable fields and often found in road sides.

Occurrence: Common Vern. Name: Hati Khutura / Kanta Khuduna (As.)

Use: Tender stems and seedlings are used as vegetable.


Robust annuals 1-2 m high; reddish pink or purple leaves up to 20x15 cm size; petioles 5-8 cm. panicles 8-12 cm long, reddish brown. Flowers 4.0-5.5 x 3-4 m. Utricles ca 2 x 1.5 m, slightly rugosa, purplish green; seeds shining black.

Flr. & Frt.: April- December.

Found growing as weed in vegetable fields, also cultivated.

Occurrence: common Vern. Name: Datha / Ronga Morissa (As.)

Use: Stem and leaves are used as vegetables; considered good for anaemia patients.


Found in association with *Cynodon dactylon*, *Evolvulus numularius*, *Hydrocotyle sibthorpioides* etc.; mostly in shady places near drains. Common weeds in agricultural field. Also found to grow along road side and homestead.

Flr. & Frt.: Throughout the year. Occurrence: Common

Vern. Name: Khutura / Khuduna (As.)

Use: As vegetable.


Annual herbs. *Leaves* altermate, usually petioled. *Flowers* hermaphrodite, in dense terminal and axillary spikes, sessile or shortly pedicelled, white or coloured; bracts scarious, bracteoles 2, scarious. *Perianth* of 5 segments, connate below, scarious, oblong or lanceolate, obtuse or acute, striate, erect in fruit. *Stamens* 5, connate below in a membranous hypogynous cup; anthers 2-celled. *Carpels* connate in 1-celled, ovoid or subglobose ovary, ovules 2 or more, funicles long; style absent or short, sometimes elongating in fruit; stigmas simple or 2-3, susbulate. *Fruit* a circumscissile capsule, ovoid or globose. *Seeds* black, shining.

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PLATE 50.

Fig. A. *Amaranthus spinosus* L.  
B. *Amaranthus viridis* L.
Key to the genera:

1a. Plants of 1-3 feet high; inflorescence terminal slender spike.

   Flowers white, glistening ...................................................  *Celosia argentea*

1b. Plants of 2-3 feet high; inflorescence slender or flat spike.

   Flowers pink, rose or yellow .............................................  *Celosia cristata*


An erect glabrous annual up to 1 - 3 ft. height. Leaves lanceolate to oblong. Spikes subcylindric, scarious; generally white or pink in colour. Nectary with five, short toothlets, alternate with long antheriform divisions. Seeds small, black.

It a common waste land weed comes out during February - March when most of the paddy field are ploughed. Flr.: August-November.

Vern. name: Boga kukura phul (As.)

Uses: Young shoots and leaves are used as pot herb and very suitable vegetable. Seeds considered medicinal against diarrhoea.


Annual erect herb, 2-3 ft. high. Leaves oblong-ovate, peduncled, round, striated. Spikes oblong, red, pink or rose.

Cultivated but often found as escape.
Commonly cultivate in the gardens, best in summer and winter.

Vern. Name: Kukura joba (As.)

Coll. No.: Borah A. 231. Date: 4-2-2003. Locality: Deuripara

_Deeringia_ R. Br., _Pordr._ 413.1810

Climbing undershrubs. Leaves alternate, petioled. Flowers small, in simple or panicked spikes, hermaphrodite or polygamdioecious; bracts and 2 bracteoles scarious. Perianth segments 5, sepaloid, membranous, spreading in fruits, free and almost equal. Stamens 4-5, connate below in a hypogynous cup. Carpels 2 or 4, connate in a subglobose ovary, ovules many or few with elongated funicles. Fruit a small globose berry or a capsule.


Common throughout the state ascending up to 3000 ft.

Vern: Methak thoka / Rangoli lota / Men meni (As.), Monbir (Bodo)
Uses: Tender leaves are eaten cooked as vegetable

Coll. No. Borah A. 178. Date: 12-12-2002 Locality: Manikpur


*Herbs*, hirsute or villous, with usually thickened nodes. *Leaves* opposite, entire. *Flowers* small, white, hermaphrodite, usually capitate. bracts scarios, bracteoles winged or crested. *Perianth* compressed or not, of 5 sepaloid, lanceolate, acuminate, nearly equal segments. *Stamens* 5, filaments united below. *Carpels* forming a subglobose, 1-celled ovary; ovule solitary, pendulous from a long basal funicle. *Fruit* a compressed utricle.


Flr. & Frt.: October-December.

Occurrence: Common. Found amidst grasses in wet places and as weed in rice fields.

Uses: Tender plants are eaten as vegetable.

Coll. No. Borah. A. 82. Date: 01-11-2001 Locality: Shankarghora
**CHENOPODIACEAE**

Annual or perennial *herbs*. Leaves alternate, rarely opposite, simple, usually entire, flat, membranous or fleshy, sometimes obsolete; stipules 0. *Flowers* small, almost always green, hermaphrodite or unisexual, usually regular, often dimorphic; bracts 1 or 0; bracteoles 0 or 2. *Perianth* simple, sepaline, of 3-5 free or connate segments, imbricate in bud; in & flowers often 0. *Stamens* usually 5, filaments almost always free, occasionally with intervening staminodes; anthers didymous or sagittate, 2-locular. *Disc* 0 or annular. *Carpels* connate in a superior, 1-celled ovary, free or enclosed in the perianth-base; ovule solitary; style terminal, short or long; stigma capitate, 2-3-lobed, or styles 2-3, or stigmas 2-5, free or slightly united, sessile. *Fruit* a small, membranous, coriaceous, or fleshy utricle.

Key to the genera:

1a. Root red, swollen, fleshy; stem very short. .... .... .... .... .... Beta

1b. Root normal; stem short long:

2a. Leaves simple, alternate. Tall herb .... .... .... .... .... Chenopodium

2b. Leaves deltoid or pinnatifid. dwarf herb .... .... .... .... .... Spinacia

**Beta** L., Syst. Nat. 1735; Sp. Pl. 222. 1753.

*Herb* with fleshy, swollen red root. *Leaves* oblong, ovate or rhomboid-ovate, obtuse; base decurrent on the petiole. *Flowers* bisexual, in clusters, with narrow bracts arranged in leafy panicled spikes.


*Beta vulgaris* L., Sp. Pl. 222. 1753. The well known beet root, vegetable. Cultivated in the area for its edible root of commercial value.

Vern. name: Beetpaleng (As., Beng.)


Erect herbs. Leaves alternate, entire or lobed or toothed. Flowers minute, hermaphrodite, in axillary fascicles or cymes; bracts 0; bracteoles 0. *Perianth* usually 5, rarely fewer-lobed; segments concave, incurved. *Stamens* 5 or fewer, hypogynous or almost perigynous; filaments sometimes connate below; anthers didymous or oblong, 2-celled. *Disc* 0 or annular. *Ovary* depressed-globose, rarely ovoid; ovule solitary, subsessile; style usually 0; stigmas 2-5. *Fruit* a membranous utricle, enclosed in the perianth.

Key to the species:

1a. Stem glandular-hairy; strongly smelling undershrub ....... *C. ambrosioides*

1b. Stem and leaves coated with mealy substance; herb ..... *C. album*


An erect herb ca 1.0 m tall usually coated with mealy substance, stems and inflorescence sometime tinged with purple or red. *Leaves* variable, smaller upwards, lower one attaining 8-10 cm in length, pale green, oblong-lanceolate or rhomboid
lanceolate, more or less toothed or lobulate. *Flowers* minute, bisexual, green in spikes. *Sepals* keeled. *Seeds* smooth. Frl. & Frt.: February to March.

It is a common weed in cultivation. Occur mainly during winter.

Vern: Bathua (As. & Beng), Jilmil (As.)

Uses: The leaves are eaten as pot herb, with fishes etc. It is rich in minerals and other nitrogenous compounds.

Coll. No.: Borah, A. 259. Date: 18-4-2002  Local: Boitamari


An erect branchy strong smelling *undershrub* or *perennial herb* up to 4 ft. height. *Leaves* smaller upwards, lower ones attaining average 6 cm in length, variable, oblong or lanceolate, obtuse, sinute-toothed, upper entire. *Flowers* minute, sessile, clustered in axillary and terminal panicked spikes in the axils of foliaceous bracts, which increase in size downwards, the whole of the upper portion of the plant being converted into a leafy panicle when flowering. *Perianth* segments usually 4-5, rarely 6, elliptic acute, connate below, incurved. *Stamens* 4-6. *Ovary* globose, stigmas 3-5, very minute. *Fruit* utricles, enclosed in persistent perianth. Frl. & Frt.: through out the year.

Common in agriculture field, homestead vegetable garden as weed.

Vern: Bathua (As. & Beng), Jilmil (As.)

Uses: Young leaves & shoots are eaten cooked as vegetable.

Coll. No.: Borah, A. 154. Date: 16-10-2001  Local: Barpara

Herb with deltoid, ovate or pinnatifidly lobed leaves. Flowers ebracteate, dioecious. Fruit prickly or smooth; utricle adnate to the perianth.


Commonly cultivated vegetable, the spinach.

Vern. name: Paleng sak (As., Beng.).

BASELLACEAE

Herbaceous twinner, stem cylindrical to flat, solid. Leaves ovate or orbicular, shining. Flowers bisexual, in peduncled spikes, bracteate, bracteolate. Fruit an utricle, included within the fleshy perianth.


Fleshy twinner; stem often tinged with red, sometimes become flat. Leaves 5-12 cm, broadly ovate or orbicular, shining. Flowers red or white, in lax peduncled spikes; bracts minute, caducous; bracteoles 2, connate in a 2-lipped cup, and adnate to the perianth. Perianth sepaline, fleshy, 5-fid; lobes short, incurved, ultimately accrescent and berry-like. Stamens 5, adnate to mouth of perianth-tube; filaments short, anthers versatile. Ovary globose; ovule subsessile; styles 3; stigmas linear-clavate, papillose within. Utricle about 0.5 cm across.

A glabrous climber with fleshy twinning stems often tinged with red. Leaves 5-12 cm, broadly ovate or orbicular, shining. Flowers red or white, in lax peduncled spikes of 2.5-15 cm long; bract 1, bracteoles 2, fleshy. Utricle size of a small pea.

Key to the varieties:

1a. Stem purplish-red. Leaves tinged with purple-red along veins . . . . var. rubra

1b. Stem green. Leaves tinged or not with purple-red along veins . . . . var. alba


vern. name: Boga puroi, Boga pui sak (As., Beng).

Cultivated as vegetable, also running wild.


Cultivated as vegetable, also found in wild as escape.

Vern. name: Ronga puroi, Ronga pui sak (As.).

**POLYGONACEAE**

*Herbs, Subshrubs* or rarely shrubs. Leaves alternate, rarely opposite, entire or serrulate; stipules scarious or membranous (ochreae), usually sheathing the stem. Flowers hermaphrodite, rarely polygamous, regular, solitary or fascicled within the bract, fascicles axillary or cymose or racemed; bracts copular, ochreate or involucrate. *Perianth* simple, inferior, sepaline or petaloid; lobes or segments 3-6, free or connate. *Stamens* 5-8, rarely more or fewer, opposite the perianth segments; filaments filiform, free or connate, below in a ring; anthers 2-celled, usually versatile *Disc* annular, glandular, or 0. *Carpels* connate in a superior, 1-celled ovary,
compressed or 3-gonous, rarely 4-gonous; ovule solitary; style 3 or 2, rarely 4, free or connate; stigmas capitate, peltate or fimbriate. *Fruit* a small, hard nut, 3-gonous, compressed, or rarely 4-gonous, enclosed in the perianth.

Key to the genera:

1a. Herbs or subshrubs, erect, if climber, the inflorescence not ending in tendrils:

2a. Perianth segments 3-5:

3a. Stamens 5-8 or fewer; nut slightly extruded ............... *Persicaria*

3b. Stamens 8; nut much extruded. ................... *Fagopyrum*

2b. Perianth segments 6; stamens 6 .................... *Rumex*

1b. Climbing sub-shrubs; the rachis of the inflorescence ending in tendrils ........

........... *Corculum*


Climbing subshrubs. Leaves alternate, cordate or deltoid, with stem clasping petioles; stipules minute or obsolete. *Flowers* fascicled in the axils of a small bract. *Perianth* of 5 coralline segments, persistent, membranous-scarious in fruit; the 2 outer crispate, wide cordate, the third semi cordate, crispate on outer, even on inner edge, the two inner oblong. *Stamens* 7-8. *Ovary* 3-gonous; ovule solitary. *Fruit* a sharply 3-gonous nut enclosed in the persistent perianth.

A large climber with showy panicles of pink flowers. Cultivated in gardens for ornamental purpose.

**Fagopyrum** Mill., Gard. Dict. Abr. ed. 4. 495. 1754.


A glabrous annual attaining about 3 ft.height. *Leaves* small, triangular, cordate. *Flowers* white or pink in dense subcapitate cyme.

Although it is cultivated but in most cases runs into wild.

Uses: Young leaves and shoots are eaten cooked as vegetable.

Coll. No.: Borah, A 183. Date: 25-12-2001 Locality: Atu gaon.


*Herbs*, rarely undershrubs erect, rarely climbing. *Leaves* alternate, entire, rarely lobed; stipules tubular, membranous. *Flowers* hermaphrodite, small or minute, axillary or terminal, clusters, sessile or in spiciform, capitate or panicked racemes;
pedicels short, usually jointed under the perianth; bracts and bracteoles membranous, ochreate. Perianth simple, green or coloured, 4-5, rarely 3-cleft, the 2 outer segments usually smaller than the others. Stamens 5-8, rarely 1-4, perigynous. Ovary compressed or 3-gonous; ovule solitary. Fruit a compressed or 3-gonous nutlet, covered or nearly covered by the persistent perianth.

Key to the species:

1a. Plants unarmed:

2a. Flowers in racemes or spikes:

3a. Nutlets biconvex; bracts glabrous . . . . . . . . . . . . . . P. glabrum

3b. Nutlets trigonous:

4a. Racemes stout, spicate with closely imbricating bracts . . . . P. barbatum

4b. Racemes filiform, long, with more or less distinct bracts .. P. hydropiper

2b. Flowers clustered in heads:

5a. Peduncle corymbose or panicled; climber or rambling subshrub .. .. .. P. chinense

5b. Peduncle axillary; a herb of 2-3 ft. with woody root stock .. . .. . .. P. microcephalum

1b. Plants armed along the angles with recurved prickles .. .. . .. . . P. strigosum


*Stem* prostrate at the base, ascending, about 1 m tall. *Leaves* linear or elliptic-lanceolate, 6-12 × 1-2 cm, rounded or acute at base, acute or acuminate at apex, ochreae 1-2 cm long, strigose, cilia equaling the tube. *Racemes* terminal, 3-6 cm long. *Flowers* greenish white to white. *Bracts* obconical, ciliate. *Styles* 3. *Achenes* trigonous. *Flr. & Frt.: June – August.

Generally grows in marshy places and amidst grasses.

Occurrence: Common.


A *subshrub* with herbaceous shoots & woody base often scrambling the bushes. *Stem* generally reddish coloured. *Leaves* variable, ovate or obleng to lanceolate, deltoid-ovate, elliptic, base truncate, rounded or subcordate; sometimes amplexicaul, acute or acuminate at apex, ochreae 1-2 cm long. *Inflorescence* of peduncled heads arranged in panicles, 3-5 cm across. *Flowers* white or pink. *Perianth* segments 5. *Nutlets* trigonous, fruiting perianth fleshy or dry. *Flr. & Frt.: April – January.

Commonly found on bank of river, shady places with moist sand.

A stout erect herb with woody root stock. Leaves 7-14 cm long, lanceolate or linear-acuminate, tapering at the baser, glabrous; stipules not ciliate, tubular. Flowers pink or white in glabrous panicled racemes. Stamens 6-8. Style usually 2, sometimes 3-cleft. Nuts biconvex, usually trigonous. Seeds round.

Flr. & Frt.: April- January.

Grows on shady moist places. Occurrence: common.

Vern. : Bonriya Ghehu (As.)

Uses: Tender leaves and shoots are eaten as vegetable.

Coll. No.: Borah, A. 295. Date: 11-7-2002 Locality: Jogighopa

Photo No.: 52.1 (Plate 52).

Herb of about 40-70 cm tall, stem glabrous, erect or ascending. Leaves lanceolate to oblong-lanceolate, 1.5-6.0×0.5-1.5 cm, acute at base, acuminate at apex, ochreae 1-2 cm long, shortly ciliate. Racemes slender, lax, decurved, interrupted. Perianth pinkish green. Styles three. Nutlets trigonous.

Commonly grows on marshy places.

Coll. No.: Borah, A. 283. Date: 12-9-2002 Locality: Gossaipara. (Plate 51)


A glabrous or sparsely hairy herb attaining 3 ft. height with a woody perennial root stock. Leaves hastately ovate, lanceolate, abruptly narrowed to the winged petiole, which is auricled at the basic. Flowers in small heads in axillary or subterminal slender peduncles. Perianth 5 cleft; stamens 8. Styles 2-3, connate at base. Nutlets 3-gonous. Flr.: June- July Frt.: August to September

Grows in moist shady places along with grasses, *Oxalis* spp., etc.

Occurrence: Rare Vern: Madhusuleng (As.)

Uses: shoot apex along with leaves are eaten as vegetable, suitable with small fishes.

Coll. No.: Borah, A. 264. Date: 2-7-2002 Locality: Bakharapara

Fig A. *Persicaria chinensis* (L.) H. Gross var. *chinensis*
B. *Persicaria hydropiper* (L.) Spach.
Prickly herbs, ca 1 m tall, ascending or often almost climbing. Leaves linear or linear-oblong, 4-8×0.5-1.0 cm, truncate at base, acute or acuminate at apex, petioles 1-2 mm long; petioles and nerves beneath with prickles; leaves somewhat reddish-purple in colour. Ochreae 1.0-1.5 cm long, cilia 2-5 mm long. Racemes oblong or subglobose; peduncles prickly. Flowers pink. Stamens 6-8. Nuts black. Flr. & Frt.: June-November.

Grows on marshy places like drains, swamps etc. Occurrence: Rare.

Vern. name: Mou-sarali (As.)

Uses: Tender leaves are used as medicine in dysentery of domesticated animals.


Perennial or annual herbs. Leaves mostly radical or cauline, alternate, entire or toothed; stipules hyaline, ochraceous, often ultimately disappearing. Flowers hermaphrodite or, by abortion, monoecious, in axillary clusters or in whorls, arranged in simple or panicked racemes. Perianth simple, sepaline, segments 6, rarely 4, the inner accrescent, entire or toothed, midrib or disk often enlarged or tubercled. Stamens 6; filaments short. Carpels connate in a 3-gonous ovary; ovule solitary; style 3; stigmas fimbriate. Fruit a small nut, enclosed in the usually enlarged, inner perianth-segments.
1983; Chowdhury et al., Ass. Fl. 262. 2005.


Generally grows on marshy, abandoned places.

Vern. name: Tor-boura (As.)

Uses: Sometimes leaves are eaten as vegetable in mixing with others.

Coll. No.: Borah, A. 119. Date: 18-3-2001 Locality: Barpara

Photo No.: 52.2 (Plate 52).


Cultivated as vegetable.

Vern. Name: Chuka paleng, Chuka sak. (As.)

ARISTOLOCHIACEAE

(Monogeneric family)

_Aristolochia_ L.


Large climbers. Leaves broadly ovate to ovate-lanceolate, 20-25× 15-16 cm, cordate at base, acuminate or acute at apex, clothed with long adpressed silky hairs beneath; lateral nerves 5-6 on either side; petioles 5-8 cm long. Perianth yellowish-white, with purple veins, clothed with hairs outside. Capsules linear-oblong, softly tomentose, 6-ribbed. Flr. & Frt.: April- June.

Grows in the forest; also cultivated as medicinal plant by local herbal practitioners. Occurrence: Rare.

Vern. name: Ishwarmul (As., Beng.)

Uses: As medicine for liver and urinary problems.


Photo No.: 52.3 (plate 52).

**PIPERACEAE**

_Herbs, shrubs, or climbers_, usually aromatic. Leaves alternate or opposite or whorled, often gland-dotted; stipules 0 or 2, connate or adnate to petiole, usually palmately veined. Flowers minute, hermaphrodite or unisexual, in axillary or terminal, catkin-like spikes, subtended by a peltate bract. Perianth 0. Stamens 2-6,
rarely 7-8, hypogynous; anthers often jointed on the filaments. Carpels 3-4, forming a sessile or rarely stipitate ovary, free or connate at the base, each carpel many ovuled, less often ovary 1-locular, 1-ovuled. Fruit small, indehiscent in the 1-celled species, or of cocci or follicles in the several-carpelled. Seeds globose, ovoid, or oblong.

Key to the genera:
1a. Annual or perennial herbs; flowers hermaphrodite; fruit minute .. **Peperomia**
1b. Scandent or erect shrubs; flowers dioecious; fruit conspicuous .. .. .. **Piper**


Annual or perennial herbs, generally succulent. Leaves opposite or whorled, less often alternate, quite entire, pellucid-punctate; stipules 0. Flowers minute, hermaphrodite, sessile or sunk in the rachis, often whorled, erect, bracteate, in terminal or leaf opposed, rarely axillary, solitary or fascicled spikes; bracts sessile, sometimes peltately attached. Perianth 0. Stamen 2; filaments very short, anther cells confluent. Carpels forming a small obtuse or acute or beaked 1-celled ovary; ovule solitary. Fruit a minute, indehiscent, almost dry berry or nutlet; seeds minute.


Weak, procumbent annual herb, Ca 20 cm long. Leaves sub transparent; membranous when dry; alternate, ovate-cordate to sub orbicular, shortly acuminate, 5-7 nerved from base, pale green; petioles up to 1 cm long. Spikes slender, leaf
opposed, solitary or paired, 2.5 to 5.5 cm long. *Flowers* greenish white. *Berries* reticulate; seeds minute, black. *Flr. & Frt:* August - November

Found growing in shaded and damp environment, in association with *Cleome viscosa*, *Mosses*, *Drymaria cordata* etc., appears in April.

*Occurrence:* Common. *Vern. name:* Ponounoua (As.)

Coll. No.: Borah, A 135. Date: 12-5-2002. Locality: Barpara


*Shrubs,* rarely *herbs,* erect or scendent, often glandular or aromatic; branches with swollen nodes. *Leaves* entire, often oblique; stipules various. *Flowers* dioecious, minute, spiked, in the axil of a bract, with or without bracteoles; bracts peltate or copular and adnate to rachis, sometimes decurrent. *Perianth* 0. *Stamens* 2-4, rarely 5 or more; filaments short; anthers 2-celled; cells parallel distinct or terminal divaricate. *Carpels* connate in a 1-celled ovary; ovule solitary, erect; style short, conic, beaked, or 0; stigmas 2-5. *Fruit* a small ovoid or globose, 1-seeded berry. *Seed* usually globose.

*Key to the species:*

1a. Bracts orbicular, peltate; fruits small, crowded, sessile in dense cylindric or oblong spikes:

2a. Fruits small, fruiting spikes longer than broad:

3a. Leaves 5-7-nerved, coriaceous; ovate-oblong or ovate-cordate; basal lobes often unequal  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  P. betle

3b. Leaves 7-nerved; ovate-cordate; basal lobes equal  ...  ...  ...  P. longum
2b. Bracts orbicular, peltate; fruits in spikes, pendent or erect ... \textit{P. hamiltonii}

1b. Bracts adnate to rachis or with free margin. Fruit separate, usually in long solitary spikes ... ... ... ... ... ... ... ... ... ... ... ... ... \textit{P. nigrum}


Most commonly cultivated throughout the province.

Vern. Name: Pan (As., Beng., Bodo)

Uses: Leaves are used as masticatory with lime, Areca nuts etc; also used in religious and social approaches and in medicines. The petiole of ripe leaf with coconut oil is inserted to the anus to treat constipation of children.


A glabrous \textit{scandent shrub}; stem rooting at the nodes, basal stem woody.

Leaves 7.5 -12.5 \times 2.5- 5 \text{ cm}, ovate-oblong or elliptic-oblong, acuminate, membranous, 5-nerved, often with pairs of supra basal nerves; base truncate or shallowly cordate, often oblique; petiole 1.2- 5 \text{ cm long}. \textit{Flowers} dioecious; male spikes slender, ca 7.5 \text{ cm long}; bracts orbicular, peltate. Flr. & Fr.: October- March.

Grows in shady, damp, humus rich soil in plains. Occurrence: Rare.

Coll. No.: Borah, A. 421. Date: 09-3-2005. Locality: Near Bageswari temple

Photo No.: 52.5 (plate 52).

Creeping *herbs*, branches grooved; on grounds, also climbing on trees. *Leaves* ovate, 7-9× 6-8 cm, cordate at base, acuminate at apex, 7-nerved at base; petioles 5-7 cm long. Upper leaves oblong, sessile, amplexicaul. *Male spikes* slender, 3-7 cm long, yellowish. *Female spikes* 1.5-2.0 cm long, fleshy. *Flowers* dioecious; bracts stalked, peltate. *Berries* globose, 2-3 mm in diameter.

Flr. & Frt.: June- November.

Grows in shady places, moist areas of forests. Occurrence: rare.

Vern. name: Pipoli, Pipul (As.)
Uses: It is used in many medicines, but chief use as condiments.

Coll. No.: Borah, A 501. Date: 1-6-2006 Locality: Sidly


A stout glabrous climbing shrub, cultivated for its fruits which are economically important as spice, condiment and medicine.

Vern. name: Gol-morich, Jaluk (As.), Kala-Morich (Beng.)

**SAURURACEAE**

Photo No. 52.1: *Persicaria glabra* (Willd.) M. Gomes

Photo No. 52.2: *Rumex maritimus* L.

Photo No. 52.3: *Aristolochia indica* L.

Photo No. 52.4: *Peperomiapellucida* (L.) H. B. K.

Photo No. 52.5: *Piper thomsonii* (C. DC.) Hook. f.

Photo No. 52.6: *Houttuynia cordata* Thunb.


A perennial herb with creeping root stock. Stem angular. Leaves ovate-acuminate, membranous, 5-7-nerved, approximate near the base, gland dotted, pubescent on the nerves when young.; base deeply cordate, sheathing, narrowed into the petiole in dense flowered spikes, subtended by an involucre of 4-6 white, partially connate bracts. Perianth 0. Stamens 3, combined with ovary to some extent; stigmas recurved. Fruit subglobose; seeds globose. Flr. & Frt.: April- July.

Grows in partially shaded damp places, sometimes cultivated.

Occurrence: common. Vern. name: Mosundori (As.), Maisundri (Bodo).

Uses: Eaten as vegetable, especially along with small fishes; considered medicinal for stomach problem.


Photo No.: 52.6 (Plate 52).

LAURACEAE

Shrubs and trees, often aromatic, evergreen. Leaves alternate or opposite, often crowded at the ends of branches, simple, extstipulate. Inflorescence axillary or lateral cymes, racemes or panicles. Flowers regular, small, hermaphrodite or dioecious, usually trimerous. Perianth free or connate; tepals 4, 6 or 9; imbricate.
Stamens usually 2-4 series of 3 each one of which is reduced to staminode; filaments usually flattened. Ovary 1-locular, usually superior; ovules pendulous; styles short; stigma simple or 3-fid. Fruits usually baccate.

Key to the genera:

1a. Flowers hermaphrodite, rarely polygamous:

   2a. Leaves opposite and terminal. Perianth tube persistent. ... \textit{Cinnamomum}

   2b. Leaves alternate. Perianth segments persistent; pedicels enlarged:

      3a. Perianth segments reflexed. ... ... ... \textit{Persea}

      3b. Perianth segments erect, clasping the base of the fruit. ... ... \textit{Phoebe}

1b. Flowers dioecious. Leaves alternate or sub-opposite. ... ... \textit{Litsaea}

\textit{Cinnamomum} Bl., Bijdr. 568. 1826.

Evergreen trees or shrubs. Leaves opposite or alternate, usually 3-nerved. Flowers small, hermaphrodite or, by abortion, polygamous, in axillary and sub-terminal panicles; female flowers usually rather larger and sometimes with fewer parts. Perianth-tube short; lobes of limb 6, sub-equal. Stamens 9, perfect or, by abortion, fewer; those of two outer series with eglandular filaments and introrsely 4-celled anthers; of third row with filaments glandular, anthers extrorsely 4-celled, less often 2-celled; of fourth row replaced by staminodes. Ovary sessile, free from the perianth, narrowed into a style; stigma discoid or obscurely 3-lobed. Fruit a berry, resting on the spreading, more or less enlarged perianth with wholly or partly deciduous segments, less often persistent and entire.
Key to the species:

1a. Perianth-lobes deciduous in fruit; stamens and ovary villous. ... ... C. tamala

1b. Perianth-lobes rounded, persistent in fruit. :

2a. Leaves 20-3- cm long, secondary nervation very faint .. ... C. bejolghota

2b. Leaves 12-17 cm long, distinctly reticulate beneath. .. ... C. zeylanicum


Trees, 6-12 m tall. Leaves elliptic-oblong or elliptic, 20-45 ×8-17 cm, acute or obtuse at base, obtuse, acuminate or acute at apex, very coriaceous; basal nerves 3; petiole 7-22 mm long. Panicle 8-14 cm long, long peduncled, subterminal. Perianth about 0.6 cm long, lobes silky, persistent in fruit. Stamens and ovary pubescent. Fruits ellipsoid or subglobose. Flr.: winter. Frt.: summer.

Grows in evergreen patches of moist areas in the forest. Occurrence: rare.

Vern. name: Patisunda (As.).

Coll. No.: Borah, A. 522. Date: 22-12-2006 Locality: Kalamati. (Plate 53)


A medium sized much branched tree, aromatic. Leaves alternate, subopposite or opposite, ovate-oblong or elliptic to oblong-lanceolate, acuminate with the tip, pink when young, base triplinerved. Flowers in panicles, about 0.75 cm across.
Fig. Cinnamomum bezolghota (Buch-Ham.) Sweet.
Perianth silky, segments sub-equal. Stamens villous. Ovary free, villous. Drupe black when ripe, supported by persisting perianth.


Usually cultivated but found wild also. Occurrence: Common in cultivation.

Vern. name: Tejpat (As.)  Uses: Leaves as spice & condiment.


The cinnamon of commerce. It is cultivated in household gardens for domestic use as spice & condiment.

Litsaea Lamk., Encycl. 3:574. 1791.

Trees or shrubs. Leaves alternate, rarely opposite or nearly so. Flowers small, dioecious, umbellate or capitulate; umbels 4-6, rarely more-flowered, sessile of short-peduncled; bracts involucrate, 4-6, rarely more to an involucre. Perianth-tube ovoid, campanulate, or very short; lobes of limb 6 or 4, rarely fewer or more. Stamens 9 or 12 in 3-merous, 6 in 2-merous flowers, sometimes by abortion fewer than 6, rarely more than 12; glandular or egladular. Staminodes 9 or 12, or in 2-merous flowers 6. Ovary minute, enclosed in perianth-tube or free; style short or long stigma usually irregularly lobed. Fruit a drupe or berry, resting on the unchanged perianth or partly clasped at the base by the often much enlarged, discoid or copular perianth-tube. Seed with thin testa.
Key to the species:

1a. Tree. Leaves obovate-oblong. Stamens 9-13 ......... *L. monopetala*

1b. Shrub or small tree. Leaves narrow-lanceolate. Stamens 6-7. .... *L. salicifolia*


Common in semi-evergreen forests and homesteads.

Vern. name: Soalu, Jharua (As.)

Use: As timber. Muga silk worms are reared in this tree.


*Large shrubs or small trees*, 2-6 m tall. *Leaves* narrow, elliptic-lanceolate, 7-21×2.5-0.5 cm, acute to cuneate at base, acuminate at apex, lateral nerves 8-10 on
either half; petioles 1-3 cm long. Flowers in umbels or in clusters of 4-6, greenish. 

*Stamens* 6-7, villous. *Fruits* ellipsoid, ca 1.0 cm long.

Flr.: February-March. Frt.: April-May.

Common in semi-evergreen forests and homesteads.

Vern. name: Dighloti (As.), Thru-Muchi (Garo).


**Persea** Mill., Gard. Dict. ed. 8. 1768.


Perfect *stamens* 9, filaments of third series 2-glandular, anthers 4-celled; staminodes form the fourth series. *Ovary* sessile. *Berry* globose or oblong.


A middle sized tree with spreading branches, cultivated for rearing Muga silk worms in farms. Vern. name: Som (As.), Mojili (Bodo).

**Phoebe** Nees, Syst. Laurin. 109. 1836.

Evergreen shrubs or trees. Leaves alternate or scattered or clustered at ends of branchlets, penninerved. Flowers small, hermaphrodite or polygamous, in axillary and subterminal panicles. *Perianth-tube* short; lobes of limb 6, subequal, erect and
accrescent in fruit and elapsing the base of the berry. *Stamens* 9 perfect, those of the two outer series with filaments eglandular and anthers introrsely 4-celled; of fourth row replaced by cordate or sagittate staminodes. *Ovary* sessile, narrowed into the style; stigma discoid. *Fruit* an ellipsoid or oblong berry, its base clasped by the hardened perianth-segments.


A tall *tree* with buttressed base. *Bark* greenish to blackish grey, reticulately furrowed. *Leaves* 6-15 ×2.5-5.5 cm, obovate or ovate-lanceolate, obtusely acuminate, chartaceous, glabrous; midrib impressed above, prominent beneath; lateral nerves 9-12, distinctly prominent beneath. *Inflorescence* long peduncled lax panicles. *Perianth* segments – outer small, ovate obtuse, coriaceous; inner slightly longer, equipped with few inflexed hairs. *Stamens* slender, filaments in 3 series; the fourth series is of staminodes. *Ovary* globose; style short. *Fruit* ellipsoid, blackish.

Flr.: February- April. Frt.: June- August.

Occurrence: Once common, now declining.

Vern. name: Bonsom (As.). Uses: As timber.


**PROTEACEAE**

*Trees or shrubs. Leaves* alternate or scattered, rarely sub-opposite or whorled, coriaceous, entire, toothed or pinnatisect; stipules 0. *Flowers* racemose, spicate or
rarely solitary, hermaphrodite, regular, oblique or irregular; bracts small, persistent in fruit. *Perianth* inferior, segments 4, connate in a tube with gibbous base, tips free, recurved. *Stamens* 4, inserted on or opposite the perianth-segments, anthers erect. *Disc* replaced by 4 or more connate, hypogynous scales. *Carpels* forming a free, sessile or stipitate, 1-celled ovary, ovules solitary, paired, or several 2-seriate; style terminal, tip thickened; stigma terminal or lateral. *Fruit* a nut or drupe, or a follicle or capsules with often thickly coriaceous valves.


*Tree*; young shoots rusty tomentose; bark longitudinally furrowed, grayish. *Leaves* coriaceous, twice pinnatifid, silvery beneath. *Flowers* orange coloured in unilateral racemes. *Fruit* follicle, coriaceous.


Introduced from Australia, commonly planted in roadsides, gardens etc. as an avenue tree. Vern. name: Silver oak (Eng.), Teli-wui (As.)

**THYMELAEACEAE**

*Shrubs* and *trees*. *Leaves* alternate, sometimes opposite, simple, entire. *Flowers* usually bisexual, axillary or terminal in heads, umbels, clusters, spikes or racemes. *Perianth* regular, 1-seriate, tubular or campanulate, 4-5-lobed, imbricate, often with 1-2 scales at the base. *Stamens* as many as or twice as many as the
perianth lobes. *Disc* annular, copular or of scales. *Ovary* superior 1-2- or more-celled. *Fruit* indehiscent and capsular.

*Aquilaria* Lamk., Encycl. 1:49. 1783.


An evergreen tree; cultivated for commercial Agar.

Vern. name: Agaru, Sansi (As.)

**LORANTHACEAE**

Evergreen, semi-parasitic *shrubs*; nodes swollen or jointed. *Leaves* usually opposite, simple, coriaceous, entire, sometimes absent; stipules 0. *Inflorescence* various. *Flowers* hermaphrodite or unisexual, bracts usually scale-like; ebracteolate or bracteoles usually 2. *Perianth* segments 3-8, usually connate into a tube. *Stamens* as many as perianth segments, curved, adnate to petaloid segments. *Pistillode* present in male and staminode present in female flowers. *Ovary* 1-locular, inferior. *Fruit* a 1-seeded berry or drupe.
Key to the genera:

1a. Flowers ebracteolate; corolla 5-lobed .....  Dendrophtheo
1b. Flowers bracteolate; corolla 6-lobed .....  Macrosolen


*Shrubs*, almost evergreen. *Flowers* in simple racemes or spikes with 1 bract. *Corolla* slightly zygomorphic; lobes 5; the tube more or less dilated, the bud constricted to a neck above the tube, clavate at the top. *Anthers* basifixed.

**Dendrophtheo falcata** Blume., Syst. Veg. ed. 15 bis (Roemer & Schultz) 7 (2): 1730. 1830; Kanjilal et al., FA 4:123. 1940; Chowdhury et al., Ass. Fl. 266. 2005.

A bushy *semi stem-parasite*. *Leaves* 6.2- 15 ×2- 7.5 cm, opposite or sub-opposite, variable in shape, coriaceous, glabrous, midrib reddish. *Flowers* 2.5- 6.2 cm long, orange or scarlet, in dense unilateral upcurved axillary or supra axillary racemes. *Corolla* lobes 5, greenish-yellow. *Berry* ca 1. 25 cm long, black when ripe, crowned with copular calyx. Flr. & Frt.: July- November.

Parasitic various trees and shrubs but more frequently found on *Melia azedarach, Mangifera indica, Premna benghalaensis, Terminalia chebula, Citrus medica, Lagerstroemia parviflora* etc.

Occurrence: Common.

Vern. name: Roghumola, Sagunilota (As.)


**Macrosolen** (Bl.) Reichenb.,

Shrubs. Leaves opposite. Inflorescence spicate or racemose or sometimes clustered. Flowers regular, bracteate; bracteoles free or more or less connate. Corolla 6-merous, tube inflated. Filaments straight; anthers basifixed. Styles articulate above base. Fruits globose.


Spreading, stout shrubs, parasites on trees, often forming swollen joints. Leaves elliptic to elliptic-lanceolate, ovate, 4-10 × 2- 4.5 cm, acute or cuneate at base, acute or acuminate at apex, thickly coriaceous; glabrous, shining, midrib conspicuous, lateral nerves 5-7 on either half; young leaves reddish. Flowers in axillary racemes or in pairs or sometimes clustered. Fruits ellipsoid, greenish yellow.

Flr.: December- March. Frt.: March- April.

Parasitic on Careya arborea, Persea bombycina, Shorea robusta, Lagerstroemia parviflora, Artocarpus heterophylla etc.

Vern. name: Roghumola (As.). Occurrence: Rare.

Coll. No.: Borah A, 546. Date: 11-3-2005 Locality: Swaragduar (Bhairab hill)

EUPHORBIACEAE

Herbs, shrubs or trees, often with milky juice. Leaves usually alternate and stipulate. Inflorescence complex of five types, usually of axillary racemes or spikes or cyathium, bracteate. Flowers unisexual, regular, monoecious or dioecious.
Perianth sometimes 2-whorled, 5-merous. Stamens 1–many, free or united, anthers basifixed. Disc usually present. Ovary superior, 3-locular; styles 3-branched, each branch bifid. Fruit usually a schizocarp capsule, sometimes indehiscent and drupaceous.

Key to the genera:

1a. Flowers in heads; stamens in male flower surrounds a single female pedicelled flower. Involucre regular, 4-5-lobed. ... ... ... ... ... ... Euphorbia

1b. Flowers distinct, not united in heads, not contained in an involucre:

2a. Ovary cells 2-ovuled:

3a. Leaves compound, trifoliate; flowers panicled ... ... ... ... Bischofia

3b. Leaves simple, alternate:

4a. Petals present. Fruit drupaceous with 2-pyrenes ... ... ... Bridelia

4b. Petals wanting or 0. Fruit of other types:

5a. Stamens 4-8. Seeds embedded in aril ... ... Baccaurea

5b. Stamens 3 or 3-8. Seeds not arillate:

6a. Capsule 3-crustaceous or thin 2-valved cocci ... ... Phyllanthus

6b. Capsule with 3 or more 2-valved cocci ... ... Glochidion

2b. Ovary cells 1-ovuled:

7a. Petals present:

8a. Flowers in compound cymes. Stamens 8-12. ... ... Jatropha

8b. Flowers in spikes or racemes. Stamens more:

9a. Stamens 10-30. Leaves not variegated. ... ... Croton

9b. Stamens 15-30. Leaves usually variegated ... ... Codiaeum
7b. Petals absent.

10a. Calyx campanulate:

11a. Stamens 10, free. ... ... ... ... ... ... ... ... ... ... Manihot

11b. Stamens 5-10, adnate to a column. ... ... ... ... ... ... Hevea

10b. Calyx segments valvate.

12a. Filaments free; Stamens 6 – many. ... ... ... ... ... ... Acalypha

12b. Filaments free or united at base:

13a. Stamens numerous; filaments connate in bundles. ... Ricinus

13b. Stamens 1-many, not in bundles:

14a. Fruits capsular. Style plumose. ... ... ... ... ... Mallotus

14b. Fruits capsular. Style entire. ... ... ... ... ... Macaranga

_Acalypha_ L., Sp. Pl. 1003. 1753

_Herbs_ or _shrubs_. _Leaves_ alternate, toothed or crenate, rarely entire. _Flowers_ monoecious, minute, in axillary or terminal racemes, or solitary, or casually dioecious; perianth simple. _Male flower_: Ebracteate. _Sepals_ 4, valvate, more or less connate in a membranous calyx. _Petals_ 0. _Disk_ 0. _Stamens_ usually 8, sometimes numerous on a convex receptacle. _Pistillode_ 0. _Female flower_: Bract leafy. _Sepals_ 3-4, minute, imbricate. _Petals_ 0. _Disk_ 0. _Carpels_ connate in an 8-celled ovary; ovules solitary in each cell; styles filiform, often very long and laciniate or fimbriate. _Fruit_ a small capsule of 3 minute, 2-valved, crustaceous cocci. _Seeds_ subglobose.

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Annual herbs; branches striate and hispid. Leaves ovate, shortly acuminate, serrate-dentate, ca 7 x 4 cm., scabrid, membranous, base rounded, 5 nervet ed; petioles 3-8 cm long. Flowers monoecious, in short spikes, females below, in pendunculate solitary bracts; male flower ebracteate; bracts campanulate, shortly dentate, glandular hairy, green to pale yellow. Anthers sub sessile. Pistil-2, one sterile. Ovary hispid, 3-lobed; style branched, greenish. Capsules hispid, crustaceous; seeds globose. Flr. & Frt.: July-November.

Found grow along road side on damp places in association with Andrographis peniculata, Clerodendrum pubescence etc.

Occurrence: Common. Vern. name: Muktajhuri, Patra-manjori (As., Beng.)


Baccaurea Lour., Fl. Cochinch. 661. 1790.

Trees. Leaves alternate, entire, rarely crenate-serrate, penninerved. Flowers dioecious, rarely monoecious, in different simple or panicled spikes or racemes on the same tree. Male flowers: very small. Sepals 4-5, usually unequal, imbricate. Petals 0. Disk 0, or obscure, glandular. Stamens 4-8; filaments short, free; anthers small, didymous. Pistillode pubescent. Female flower: Sepals 4-6, linear or oblong, much larger than in males. Petals 0. Disk 0. Carpels connate in a 2-5-celled, ovoid or globose ovary; ovules 2 in each cell; stigmas 2-5, sessile, free or connate in a shout
style, each 2-lobed or 2-cleft. Fruit a tardily dehiscent capsule. Seeds broad, usually
dorsally compressed or flattened.

*Baccaurea ramiflora* Lour., Fl. Cochinch. 661. 1790; Chowdhury *et al.*, Ass. Fl.

A middle sized tree with hairy young parts. Leaves 10- 22 × 3- 9 cm, elliptic-
oblong or obovate or elliptic-lanceolate, acuminate, membranous, glabrous; base
narrowed. Flowers dioecious, apetalous, shortly pedicellate, in dense fascicled
racemes from old wood or below the leaves. Male bracts longer than the clusters.
Female bracts very small. Calyx segments 4-5, unequal. Stamens 4-8, filaments
short, free. Pistillode pubescent. Ovary 2-5-celled, tomentose, ovules 2 in each cell.
Fruit globose, capsular, yellowish brown, ca 2.5 cm across. Seeds orbicular,
embedded in rose coloured pulp i.e. aril. Flr.: April- May. Frt.: May- July.

Cultivated and grows in wild. Occurrence: Rare in wild.

Vern. name: Leteku (As.), Phaduk-jela (Bodo), Lotka (Beng.)


*Bischofia* Bl., Bijdr. 1168. 1825.

Large deciduous trees. Leaves alternate, 3-foliate; leaflets often crenate.

Flowers minute, dioecious, in axillary or lateral panicled, racemes; males scattered
or clustered, females longer pedicelled. Male flower: Sepals 5, concave, obtuse,
imbricate, hooded over the anthers. Petals 0. Disk 0. Stamens 5, filaments short;
anthers large. Pistillode short broad. Female flower: Sepals 5, caducous. Staminodes
5, small or obsolete. *Carpels* connate in an esxerted 3-4 celled ovary; ovules 2 in each cell; style long, linear, stout. *Fruit* a globes, fleshy berry, with 3-4 cells lined with a parchment-like, 2-valved endocarp.


Grows in deciduous and semi-evergreen forests, often found near water bodies. Occurrence: Common.

Vern. name: Urium (As.), Thaiso (Bodo).

Uses: The plant can resist flood, hence are used as low graded timber in flood prone areas. Commonly used as fire wood.


Photo No.: 54.1 (plate 54)


*Shrubs* or *trees* or *lianas*. *Leaves* alternate, quite entire, sometimes with prominent cross veins. *Flowers* monoecious or dioecious, small, in axillary or spicate clusters, sessile or shortly pedicelled; bracts small, scale like. *Male flower:*
numerous. *Calyx* segments 5, valvate. *Petals* 5, short, scale-like, stalked or spathulate. *Disk* broad, pulvinate or adnate to calyx tube. *Stamens* 5; filaments connate below in a column which bears a terminal pistillode. *Female flowers*: few or solitary. *Calyx*-segments narrower than in male. *Disk* double, the inner forming a membranous, central, truncate cone, often enclosing the young ovary. *Carpels* connate in a 2-celled, rarely 3-celled, glabrous ovary; ovules 2-in each cell. *Fruit* a small drupe with 1-2 usually single seeded cocci or pyrenes.

**Key to the species:**

1a. Trees. Young stem spinescent. Lateral nerves many .......... .......... *B. squamosa*

1b. Scandent or climbing shrubs. Young stem not spinescent.

Uses: Timber is durable and is used as house posts.


Large, scandent woody shrubs, 8-20 m; branchlets pubescent-tomentose. Leaves elliptic-oblong to obovate, 5-15 × 3-7 cm, rounded or sub-cordate at base, obtuse and often mucronate at apex, dense tomentose beneath; nerves 8-12 pairs. Stipules ovate-triangular, 3-8 mm. Flowers 0.5 cm across, monoecious, greenish in axillary clusters, spicate or panicled; bracts hirsute. Calyx segments triangular. Petals orbicular, toothed. Stamens at first combined into a column, then branching into 5 spreading arms. Stigma just protruding in the centre from the extremity of the column. Drupe oblong, reddish turning blue-black when over-ripe, seated on enlarged calyx. Flr.: September- November. Frt.: February- March.

Grows in forests and scrub forests. Occurrence: common. Vern. name: Mou-silikha, Sagal-lederi (As.).

Uses: Ripe fruits are eaten fresh, taste like *Phyllanthus emblica*.


Glabrous shrubs or trees. Leaves alternate, entire, penninerved, often variegated. Flowers monoecious, in usually 1-sexual racemes; males small, fascicled; females larger, solitary. Male flower: Sepals 3-6, usually 5, membranous,
imbricate, free or connate below. Petals 5 or 6, smaller than sepals. Disk of 5-6 glands, alternate with petals. Stamens 15-30, crowded on a low torus, free. Pistillode 0. Female flower: Sepals connate in a 5-lobed calyx. Petals 0. Disk subentire. Carpels connate in a 3-celled ovary; ovules solitary in each cell. Fruit a globose capsule of three 2-valved, parchments like cocci. Seeds strophiolate.

*Codiaeum variegatum* (L.) Bl. Bijdr. 599. 1825; Hook. f., FBI 5:399. 1887.


Commonly cultivated ornamental shrub or tree in household gardens.

Veern. Name: Patabahar (As.)

*Croton* L., Sp. Pl. 1004. 1753.

Trees or shrubs, rarely herbs. Leaves alternate, rarely opposite or whorled, 2-glandular at the base. Inflorescence terminal, racemose. Flowers monoecious; bracts small. Male flower: sepals connate in a 5-partite calyx; segments imbricate or sub-valvate. Petals 5, equaling or sometimes smaller than the calyx. Disk of 4-6 glands, opposite the sepals. Stamens many, inserted on the hairy receptacle; filaments free. Pistillode 0. Female flower: sepals usually more ovate than in males. Petals smaller than sepals or obsolete. Disk annular or of 4-6 glands opposite the sepals. Carpels connate in a 3-celled, rarely 2-4 celled ovary; ovules solitary; style usually slender, 2-4-cleft. Fruit a sub-equally 6-valved capsule, or of three separating, 2-valved cocci. Seeds smooth; caruncle small.

Key to species:

1a. Plants herbs; stem with trichomes. ... ... ... ... ... ... ... ... ... ... *C. bonplandianum*
1b. Plants shrubs or trees without trichomes:

2a. Leaves repand-toothed or serrate-crenate. Trees .................... C. roxburghii

2b. Leaves pubescent with stellate hairs. Scandent shrub ............... C. caudatus


An erect much branched, annual herb; stem clothed with multi armed trichomes. Leaves lanceolate, serrate, crowded towards the top of branches. Inflorescence terminal, erect androgynous spike; female flower below the male ones. Male flowers bracteate, stalked incomplete, actinomorphic, unisexual, pale white, 5 cm long. Sepals 5, gamosepalous. Petals 5, gamopetalous, glandular. Stamens 16 (8+8), free, 8 larger and 8 shorter, filaments long; anther basifixd, 2 celled. Female flowers bracteate shortly pedicillate, incomplete, actinomorphic, unisexual, hypogynous, stigma 3; ovary 3 lobed- with single ovule in each cell.

Fir. & Frt.: Throughout the year.

Growing along road sides, associated with *Amaranthus spinosus, Leucas plukentii, Amaranthus spp.* etc. Occurrence: Common.


Photo No.: 54.2 (plate 54)

Scandent shrubs, 10-15 m tall. Leaves ovate-cordate or orbicular-cordate, 7-15 \times 6-11 cm, acute to acuminate at apex, coarsely toothed or crenate-serrate at margins; basal nerves 3-5; lateral nerves 3-4 pairs; petioles 3-7 cm long. Racemes terminal, solitary, 10-15 cm long. Flowers in dense fascicles. Male flowers: Stamens 8-13. Female flowers: Ovary stellately pubescent. Capsules obscurely trigonous, ca 2.5 cm long. Flr. & Frt.: April onwards to summer.

Grows in forests, fringes and road sides. Occurrence: common.


Photo No.: 54.3 (plate 54)


Small to medium sized tree. Leaves ovate or elliptic-oblong, 10-18 \times 4-7 cm, acute or acuminate at base, acuminate at apex, repand - toothed or serrate - crenate at margins; lateral nerves 10-16 pairs; petioles 1-2 cm. Racemes terminal or axillary. Flowers pale yellowish green. Calyx segments 5. Petals 5. Disk of male flowers of 4 glands, of female flowers annular. Stamens 12. Ovary 3-locular. Capsule subglobose. Flr. & Frt.: February - August.

Grows in scrub forests, and forests in association with *Dillenia*.

Vern. name: Mahunda (As.), Maisindai (Bodo), Bol-mang-chham (Garo).


Photo No.: 54.4 (plate 54).

*Herbs, shrubs, or small trees*, stems slender, leafy, or thick, fleshy, and sometimes leafless, or nearly so, often with milky latex. *Leaves* below or all alternate, or upper or all opposite, entire or rarely toothed; stipules various; juice copious, milky, usually acrid. *Flowers* monoecious in a cyathium; lobes of involucre with thick glands at the sinuses, the glands with often a petaloid, spreading, white or coloured limb; *bracteoles* within parianth under the male florets setaceous or 0. *Perianth* 0, or of minute scales. *Stamen* solitary. *Carpels* 3, ovary 3-celled; ovule one in each cell. *Fruit* a capsule of three 2-valved cocci.

**Key to the species:**

1a. *Herbs*. Leaves opposite, hispid, base obliquely cordate ........................................... *E. hirta*

1b. *Shrubs*. Leaves alternate or scattered, not hispid:

   2a. *Armed shrubs*. Branches 5-angled. Leaves crowded at the end of the branches .......................................................... .......................................................... .......................................................... *E. ligularia*

   2b. *Unarmed shrubs*. Branches not angled. Leaves all over the branches:

      3a. Branches green, cylindric, whorled. Leaves few, small. .................................. *E. tirucalli*

      3b. Branches not whorled. Leaves above persistent. Floral leaves brightly coloured. ................................................ *E. pulcherrima*

Annuals, 8-30 cm high, hispid with long, yellowish, crisped hairs; branches ascending, often quadrangular. Leaves opposite, 1.5-3.6 cm long, elliptic-oblong, obovate, or oblong-lanceolate, shortly stalked, acute, dentate or serrulate, dark green above, pale beneath; base obliquely cordate, nerves few, distinct; stipules pectinate. Inflorescence of many male flowers, surrounding a solitary female enclosed within involucres. Involucres in axillary and terminal, dense, sessile or peduncled, cymes; stalks 1.5-3 cm long; peduncle very short cyathium 0.8-1.5 \times 0.7-1 cm across. Male flowers 5-8 mm; bracteate, numerous flowers. Female flowers 0.8-0.12 cm long; single, carpels 3, syncarpous. Ovary superior, placentation axile. Capsule minute about 1 cm across, patently hairy, seeds reddish brown, trigonous. Flr. & Frt.: January-February.

Growing along the foot hills associated with Boreria articularis, Richardia scabra etc. Occurrence: Common.


A glabrous shrub; branches obscurely 5-angled with vertical rows of tubercles bearing sharp stipular thorns. Leaves crowded at the end of branches, deciduous, 10-20 \times 3.2-6.4 cm, obovate – oblong or obovate sphathulate, subacute, mucronate, fleshy, smooth; base tapering, almost sessile. Stipular spines about 1.25 cm long. Involucres ternate, forming shortly pedunculate cymes, solitary or 2; central

Grows along road sides, hill slopes and sometimes cultivated.

Occurrence: Common Vern. name: Siju (As).

Uses: Leaf juice is used to treat ear wounds. Bodo people worship the plant during “Bathou Puja.”


Cultivated for ornamental purposes. Vern. name: Lal pata (As.)


Found in gardens as ornamental plant.


Small trees. Leaves elliptic or elliptic oblong or lanceolate, 6-12 ×3-7 cm, acute at base, acuminate at apex, pale purplish beneath.

*Anthers* 3. *Female flowers* subsessile; *ovary* globose. *Capsules* obscurely 4-lobed, ca 8 mm across. Flr.& Frt.: February- September.

Found in forests on foot hills. Occurrence: Rare.


**Hevea brasiliensis** Muell.-Arg., Linnaea 34:204. 1865; Kanjilal et al., FAS 4:200. 1940; Chowdhury et al., Ass. Fl. 270. 2005.

The commercial rubber plant. Vern. name: Robor goch (As.)

**Jatropha** L., Sp. Pl. 1006.1753

Sub-shrubs, shrubs, or trees, often glandular or prickly. Leaves alternate, entire or digitately lobed or pinnate; stipules often ciliate. *Flowers* monoecious, in terminal cymes, the central flowers in the cyme or in its forks usually female. Sepals 5, often coloured, imbricate. Male flower: Petals 5, contorted, free or connate. Disk entire or of 5 glands. *Stamens* numerous; filaments all connate, or those of the outer series free. Pistillode 0. Female flower: *calyx* as in the male. Petals often absent.
Carpels connate in a 2-4-celled ovary; ovules solitary in each cell; styles connate below, 2-fid above. Fruit a capsule of 2-4 2-valved cocci.

Key to the species:

1a. Leaves sub-orbicular, ovate, broadly cordate, usually 3-5 lobed; green even in young stage. Flowers greenish yellow... ... ... ... ... ... ... ... J. curcas

1b. Leaves deeply 3-5 lobed, cordate at base, purplish brown when young. Flowers reddish ... ... ... ... ... ... ... ... ... ... J. gossipifolia


_Shrub or small tree_, deciduous; young parts tomentose; leaf scars prominent, bark thin, papery. Leaves 7.5- 15×7.5- 12.5 cm, sub-orbicular, ovate, broadly cordate, usually 3-5 lobed, shortly acuminate or acute, glabrous or sparsely pubescent on the nerves beneath; petiole 7.5- 20 cm long. Flowers greenish yellow, in long peduncled pubescent cymes. **Male flowers:** calyx segments 5; corolla campanulate, exceeding calyx, lobes 5; stamens 10, in 2 series. **Female flowers:** calyx segments ovate, acute; corolla scarcely exceeding the calyx; styles 3, connate at base; stigma 2-fid. Fruit ca 2.5 cm long, obovoid-oblong. Seeds oblong. Flr.& Frt.: Almost throughout the year.

Commonly found along road sides, homestead gardens as hedge.

Vern. Name: Bhenda, Bhot-era, Bongali-Bhotora (As.), Bherenda (Beng.)


Photo No.: 54.5 (plate 54)

**Shrubs.** Leaves deeply 3-5 lobed, cordate at base, 8-12 × 6-14 cm, purplish brown when young; petioles 6-10 cm long. *Flowers* reddish in glandular corymbose cymes of Ca 6 cm long. *Stamens* 8-12 monadelphous, sub-biseriate, unequal. *Capsules* ovoid, 3 lobed. *Seeds* oblong. Flr. & Frt.: February- August.

Exotic weed found along road sides. Occurrence: Rare

Vern. name: Bongali-bhenda, Bongali-bhot-era (As.)


Photo No.: 54.6 (plate 54)

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**Trees or shrubs.** Leaves alternate, often large and peltate, entire or lobed, more or less glandular beneath, 3-5-nerved at base. *Flowers* usually dioecious, in axillary racemes or panicles; apetalous; males many, clustered, females one or few to each bract; bracts often large, entire or toothed. *Male flower: sepals* 3-5, valvate, forming a minute globose or obovoid calyx; *stamens* central, sometimes 1-3, oftene 10-30; *pistillode* 0. *Female flower: sepals* connate in a 2-4-lobed calyx; *carpels* connate in a 2-6-celled, ovule one per cell. *Fruit* a small capsule of 1-5 naked or echinate, 2-valved cocci, often glandular or with a waxy coat.
Photo No. 54.1: *Bischofia javanica* Bl.

Photo No. 54.2: *Croton bonplandianum* Baill.

Photo No. 54.3: *Croton caudatus* Geis.

Photo No. 54.4: *Croton roxburghii* Balak.

Photo No. 54.5: *Jatropha curcas* L.

Photo No. 54.6: *Jatropha gossipifolia* L.

*Trees*, ca 10 m tall. *Leaves* deltoid-ovate, 15-21 × 9-16 cm, rounded, truncate or cordate at base, acuminate at apex, thinly coriaceous; lateral nerves 10-12 on either side, petiole 5-17 cm long. *Male panicles* slender, 10-15 cm long; *calyx* segments 2-3; *stamens* 6-30. *Female panicles* shorter; *calyx* segments 3-4; *ovary* 2-locular; *ovule* 1 per locule. *Flr. & Frt.*: February- August.

Vern. name: Jaglo, Moralia (As.), Madla (Bodo), Jagura (Beng.)


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**Mallotus** Lour., Fl. Cochinch. 635. 1790

*Trees* or *shrubs*. *Leaves* opposite or alternate, entire, toothed or 3-lobed, sometime peltate, often gland dotted beneath. *Flowers* dioecious or monoecious, in axillary or terminal, simple or branched spikes or racemes; males fascicled, females solitary in the bracts. *Male flower*: *sepals* connate in a 3-5-partite *calyx*; *petals* 0; *disk* 0; *stamens* numerous, crowded on the flat or convex receptacle; pistillods 0 or minute. *Female flowers*: *sepals* connate in a spathaceous or valvately 3-6 lobed or partite *calyx*; *petals* 0; *disk* 0 or small; *carpels* connate in a 2-4-celled ovary, *ovules* solitary in each cell. *Fruit* a capsule of 2-3, rarely 4-2-valved, tubercled, echinate, or smooth cocci.

*Trees*, 4-12 m tall. *Leaves* ovate, ovate-oblong or lanceolate, 6-14 × 3-7 cm, rounded or acute at base, acuminate at apex; basal nerves 3. *Inflorescence* brownish. *Male flowers* clustered on terminal erect spikes. *Female flowers* usually solitary; *ovary* 3-locular with red glands; *styles* 3, papillose. *Capsules* 3-lobed, red; seeds globose. *Flr.*: July- November. *Frt.*: March- May.

Grows in scrub forests and forests. Occurrence: Common.

Vern. name: Jorath, Losan (As.).

Uses: as fire wood.

Coll. No.: Borah A, 483. Date: 19- 8- 2003. Locality: Shankarghola

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**Manihot** Miller, Gard. Dict. Abridg., ed. 4. 1754.

Tall *herbs* or *shrubs*. *Leaves* alternate, petioled, entire or digitate; segments entire or lobed, free or united. *Flowers* monoecious, in terminal or axillary, simple or paniculate, racemes; males short-pedicelled, females lower in the raceme, longer pedicelled; perianth simple; *bracts* small, or large and leafy, entire or fimbriate. *Male flower*: *Sepals* connate in usually a coloured, campanulate or urceolate calyx, limb more or less lobed; *petals* 0; *disk* glandular or lobed; *stamens* 10, 2-seriate; *pistillode* 0, or 3-fid. *Female flower*: *sepals* as in males; *petals* 0; *disk* hypogynous, entire or glandular; *carpels* connate in a 3-celled *ovary*; ovule one in each cell. *Fruit* a capsule, separating into three 2-valved cocci.

A shrub with tuberous roots. Leaves palmately 5-6-lobed. Cultivated for its nutritious root. The Cassava. Vern. name: Simul-alu, Simolu-alu (As.)


Herbs, shrubs, or trees. Leaves bifarious or distichous, alternate, entire; stipules narrow or 0. Flowers small, monoecious, axillary or on old nodes, males usually many, fascicled, subsessile or pedicelled, rarely few or solitary, females in the same or in distinct axils, longer pedicelled, solitary or few; perianth simple. Male flower: sepals 4-6, free or very shortly connate, 2-seriate; disk glandular, or 0; stamens 3, rarely 5, in center of flower; pistillode 0. Female flowers: sepals as in male; petals 0; disk glandular; carpels connate in 3-celled, rarely 4-more celled ovary; ovules 2 in each cell; styles free or connate, usually 2-fid. Fruit of 3 crustaceous or coriaceous, 2-valved coci, with or without a separable epicarp, sometimes a 4-8-celled berry or a drupe with a 3-4-celled bony endocarp. Seeds 3-gonous; testa crustaceous.

Key to the species:

1a. Tree or shrubs:

2a. Stamens 5 in 2 series. Fruit not fleshy. Shrub ... ... ... ... P. reticulates

2b. Stamens 3. Fruit fleshy. Tree ... ... ... ... ... ... ... ... P. emblica

1b. Herb. Fruits on under side of leafy branches in a series ... ... ... ... ... P. fraternus

Deciduous trees. Leaves resembling a pinnate leaf, sub-sessile, oblong-elliptic, 1.0-1.5× 0.2-0.3 cm. Flowers greenish-yellow, monoecious in axillary clusters. Male flowers: perianth 6; disk glands minute, sometimes absent; stamens 3, joint to a short column. Female flower: subsessile, perianth 6; disk copular; ovary 3-celled; ovules 2 in each cell. Fruit a drupe, globose, obscurely 6-lobed. Seeds trigonous. Flr.: March- May. Frt.: November – March.

Grows in wild, also cultivated for its fruit.

Vern. name: Amlokhi (As.).

Uses: matured fruits are eaten fresh; also pickles are prepared. It is used as astringent, demulcent, tonic and in gastric trouble.


Herb, ca 15 cm high. Leaves resembling a pinnate leaf, sub-sessile, oblong-elliptic, 0.5-1.0 × 0.2-0.3 cm, green above, glaucous beneath. Flowers axillary, short sub-sessile. Male flower: sepals orbicular; anthers sessile on a short column. Female flower: sepals obovate-oblong; styles minute, very short, free, 2-lobed. Seeds with equal slender ribs. Flr. & Frt.: round the year.

Grows amidst grasses in open field. Occurrence: common.
Vern. name: Bhui-amlokhi, Mati amlokhi (As.)

Uses: The stem with fruits are eaten fresh as medicine for jaundice. Taste like Emblica fruit.


A large sub-scandent shrub with slender branches. Leaves distichous, 2.5-5 cm long, obovate-oblong to elliptic-obovate, acute or acuminate, pale green beneath, puberulous. Flowers in axillary clusters. Male flower: stamens 5 in 2 series, the three inner filaments connate; anthers erect, slits vertical. Female flower: styles minute; stigma 2-lobed. Fruit a 4-8-celled berry, cells 2-seeded.

Flr. & Frt.: April-May.

Grows in wild usually near water bodies. Occurrence: common.


Tall glabrous, glaucous annual, sometimes shrubby or tree-like. Leaves alternate, broad, palmately lobed; lobes 7 or more, serrate. Flowers monoecious, large, in terminal, sub-aciculate racemes. Male flowers: Sepals connate in a membranous calyx, splitting into 3-5 valvate segments; Petals 0; Disk 0; Stamens very many; filaments connate and repeatedly branched; Pistillode 0. Female flowers: Sepals connate in a spathaceous, caducous calyx; Petals 0; Disk 0; Carpels connate

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in a 3-celled ovary; ovules solitary in each cell; styles often very large entire, 2-fid or 2-partite, penicillate or papillose. *Fruit* a capsule of three 2-valved cocci. *Seeds* oblong.


Grows in patches or solitary in wild, sometimes cultivated.

Vern. name: Era goch, Erandi-goch (As.)

Uses: Endi silk worm rearing plant; leaves are given to Endi silk worm as food.

Seeds contain “castor oil” of commerce.


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**URTICACEAE**

Key to the genera:

1a. Hairs stinging. Shrubs .................................................. Dendrocnide

1b. Hairs not stinging:

2a. Herbs:

3a. Prostrate herbs. Leaves very oblique at base .......... Elatostema

3b. Erect herbs. Leaves not very oblique at base ...... Pouzolzia

2b. Shrubs or trees:

4a. Fruiting perianth dry. Stem not tubercled .......... Boehmeria

4b. Fruiting perianth not dry. Stem tubercled .......... Sarcochlamys


Shrubs or small trees. Leaves alternate or opposite, toothed, base 3 nerved; stipules free or rarely connate, deciduous. Flowers monoecious or dioecious, both sexes in axillary or spiked, racemed or panicled clusters; clusters; bracts small, scarious. Male flower: Sepals 3-5, connate in a valvately lobed or partite calyx. Stamens 3-5, inflexed in bud. Pistillode clavate or globose. Female flower: Sepals connate in a tubular, 2-4 toothed calyx, sometimes angled or winged or ventricose in fruit. Ovary included; ovule erect; stigma filiform, persistent. Fruit a crustaceous acheme, at first closely covered by the perianth, ultimately free.

Sub-shrubs. Leaves elliptic or ovate-lanceolate, 2-7×1.5-3.5 cm, obtuse or rounded at base, acuminate at apex, hispid on both sides, serrulate at margins; basal leaves 3. Flowers on axillary clusters and on leafy branches, terminate by leaves. Achenes oblong, compressed, hispid. Flr. & Frt.: November-January.

Grows in open places, often on the edge of scrub forests.

Coll. No. Borah A. 569. Date: 29-11-2006 Locality: Kakoijana PWLS


Shrubs of about 4 m tall. Leaves elliptic, ovate or ovate-lanceolate, 8-15 × 4.5-9.5 cm, subacute or rounded at base, acuminate at apex, crenate or serrulate at margin; strongly 3-nerved at base; petiole 1.5-8.0 cm long. Flowers greenish in axillary sessile clusters. Stamens 4. achenes minute, ovoid. Flr. & Frt.: January – March.

Grows in forests and edges. Occurrence: Common

Coll. No.: Borah A. 529. Date: 16-11-2006 Locality: Shankarghola.


Shrub; young parts clothed with stinging hairs. Leaves 15 – 35 × 7.5 – 12.5 cm, ovate or elliptic, more or less entire, sometimes crenulate at apex, acute or acuminate, clothed with stinging hairs; base rounded or cordate; petiole stout, 2.5- 10 cm long. Utricle inflated, white. Flr.: August – October, Frt.: Winter.

Commonly grows in the road sides near water bodies, scrub forests.

Vern. name: Sorat, Torash (As.), Khoma (Bodo), Gilmat-jakma (Garo)


Elatostema Forst., Char. Gen. 105. t. 53. 1776.

Herbs or undershrubs. Leaves alternate, or sub-opposite, sessile or sub-sessile, usually very oblique and inequilateral; 3-nerved from the base or shortly above it; stipules lateral or intrapetiolar. Flowers very minute, monoecious or dioecious, crowded on sessile or peduncled, unisexual, usually involucrate receptacles; bracteoles densely crowded. Florets often in clusters in the heads. Sepals 4 or 5, inflexed in bud. Pistillode minute. Sepals 3-5 very minute. Staminodes minute or 0. Fruit a minute, ellipsoid or fusiform, usually ribbed achene, subtended by the very minute perianth.


Herb; stem slender, creeping and rooting, pubescent. Leaves falcately oblong, 1 – 3 × 0.5 – 1.5 cm, auricled at base, acute at apex, sharply serrate at margins, nerves 4 – 5 pairs. Receptacles closely adpressed to the branch. Achenes ellipsoid, ribbed. Flr. & Frt.: June – July.
Commonly grows in shady, damp places in the forests, river banks etc.

Coll. No.: Borah A. 376. Date: 30-3-2005 Locality: Shankarghola.


*Herbs.* Leaves alternate, or the lower opposite, usually entire, 3 nerved at base, smaller upwards, with the uppermost often reduced to bracts; stipules free, often persistent. *Flowers* minute, usually monoecious, in unisexual or androgynous clusters, sessile in axils of leaves or bracts, individual florets pedicelled; bracteoles small. *Sepals* 4-5, connate. *Stamen* 4 or 5, rarely 3. *Pistillode* clavate or oblong. *Sepals* connate in a tubular perianth, often beaked; *Fruit* a small achene with brittle.


*Herbs* of about 30-40 cm tall branched from the base. *Leaves* ovate to lanceolate, 1-3 × 0.5-1.5 cm, acute at base, obtuse at apex, membranous; basal nerves 3; petiole 5 – 6 mm long. *Flowers* in axillary clusters. *Stamens* usually 4.


Grows in open areas in association with *Drymaria cordata, Stellaria media,* *Cleome rutidosperma* etc, amidst grasses.

Uses: Leaves of this species along with *Ageratum conyzoides* are made into paste and applied to cuts; relieves pain, stops bleeding and heals immediately.

Coll. No.: Borah A. 231 Date: 11-4-2002 Locality: Barpara.
**Sarcochlamys** Gaud., Bot. voy. Bontite t. 89. 1844-52.

*Shrubs. Leaves* alternate, petioled, narrow, toothed; stipules connate at base. Flowers dioecious, clustered. *Male flowers*: *sepals* 5, connate in a 5-partite perianth; *stamens* 5; pistillode small. *Female flower*: *sepals* connate in a campanulate perianth, 4-lobed; *ovary* oblique, ovules erect. *Fruit* an oblique achene.


Found along streams in forests and in the edges of forests.

Occurrence: Rare.

Vern. name: Mesaki (As.)

Uses: Tender leaves are eaten cooked especially with pork.

ULMACEAE


Trema Lour., Fl. Cochinch. 562. 1790.


Trees, 5-10m. Leaves ovate-lanceolate or ovate-oblong, 5-15 × 3-7 cm, obliquely subcordate or rounded at base, caudate-acuminate at apex, crenulate at margins, basal nerves 3 or 5; lateral nerves 3-6 pairs; petioles 5-10 mm. Inflorescence axillary, dense or lax flowered cymes. Perianth pubescent. Fruits ovoid, compressed. Flr. & frt: February – August.

Grows along road sides, fringe of forests etc. Occurrence: common.

Vern. name: Phakdema, Sobai gach, Mirisukuta (As.).

Coll. No.: Borah, A. 191. Date: 12-3-2002. Locality: Majpara (near Jogighopa)
CANNABACEAE

Erect herbs or undershrubs without milky juice. Leaves stipulate, opposite or upper ones distichous, palmatifid. Inflorescence a cyme or false spike. Flowers dioecious. Perianth segments 5. Stamens as many as tepals. Ovary of 2 carpels, 1-locular; ovule 1, pendulous. Fruit an achene.

(Monogeneric family)


A tall, erect annual herb. Leaves opposite below, alternate above upper 1-3, lower 5-11-partite, penninerved; lobes lanceolate, serrate; stipules 2, lateral. Flowers small, dioecious. Male flowers in axillary, panicled cymes; sepals 5, imbricate; filaments straight in buds, pistillode 0. Female flowers in axillary racemes; bracts in females convolute, leafy; perianth hyaline, embracing base of ovary within the embracing bract; staminodes 0. Ovary sessile, of 2 carpels, 1 fertile, 1 sterile, 1-locular; ovule pendulous; style central, arms 2, filiform, caducous. Fruit a somewhat compressed, crustaceous nut; seed somewhat flattened. Flr. & frt.: March- April.

Cultivated and as found in wild (probably as escape from cultivation) along river sides, near temple campus, abandoned homesteads etc.

Vern. name: Bhang, Ganja. (As.) Use: Leaves and twigs are used as fumitory, narcotic.

MORACEAE

Trees, shrubs, woody climbers or herbs, often laticiferous. Leaves usually alternate, with deciduous or persistent stipules. Inflorescence usually cymose, sometimes becoming capitate or densely spicate or flowers either on expanded or inside fleshy, hollow receptacle forming hypanthodium. Flowers unisexual. Perianth usually 4-merous, free or conate, sometimes absent. Stamens 1-4 or more. Ovary superior, 1-locular. Fruit an achene or a drupe or multiple with fleshy perianth.

Key to the genera:
1a. Flowers in an open or closed hollow receptacle, fleshy. ... ... ... ... Ficus

1b. Flowers in heads or spikes:

2a. Flowers in globose heads. Receptacle mixed with bracts ... ... Artocarpus

2b. Flowers in spicate or subcapitate or solitary or female only in globose heads:

3a. Male & female flowers spicate or female subcapitate ... ... ... Morus

3b. male flowers subcapitate; females solitary. ... ... ... ... Streblus


Trees with milky juice. Leaves often large, alternate, coriaceous, entire or pinnately lobed, pennierved; stipules lateral. Flowers monoecious densely crowded on globose or oblong, unisexual, solitary, usually axillary receptacles, often mixed with peltate bracts. Male flower: Sepals connate in a 2-4 lobed or partite perianth. Stamens solitary, erect. Pistillode 0. Female flower: Sepals connate in a tubular perianth, confluent below with the receptacle; style central or lateral. Fruit a greatly enlarged, fleshy, oblong cylindric or globose, entire or lobed receptacle, clothed with
the greatly accrescent, fleshy perianth and carpels, which have hardened spinescent, or truncate, or pyramidal, or flat apices.

Key to the species:

1a. Syncarp tubercled:

2a. Syncarp globose. Leaves scabrid. .. .. .. .. .. .. .. .. .. .. .. A. chama

2b. Syncarp oblong, bigger. Leaves smooth .. .. .. .. .. .. .. .. A. heterophylla

1b. Syncarp not tubercled. Fruit globose, velvety, yellow when ripe. .. A. lacucha


Large deciduous tree; young shoots gland dotted with long stiff hairs. *Leaves* 15-30 x 7.5 - 17 cm, elliptic-ovate or sub-rotund, entire or minutely dentate-serrate, obtuse or rounded, thinly coriaceous, sparsely hispid above, hispid-pubescent beneath; lateral nerves 6-10 on either side. *Leaves* of young seedlings and saplings or young shoots pinnatifid or lobed. *Receptacle* axillary, globose; peduncle long. *Male flowers* sessile, mixed with scales; *perianth* segments bifid at apex; scales hairy above. *Fruiting Receptacles* globose, 7.5-10 cm across; apice of anthocarp free, pubescent. *Seeds* few, ovoid. Flr.: March – April. Frt.: Summer season.

Grows in forests and sometimes cultivated.

Vern. name: Sam Kathal, Sam- goch (As.)

Uses: Timber is used for various purposes.

Coll. No.: Borah A. 507. Date: 12-6-2006 Locality: BRPL Township.

A large evergreen *tree*; young shoots with stiff hairs; barks exfoliating in small thin parts leaving a reddish-yellow colour of the stem. *Leaves* 7.5- 20 × 3.5- 7.5 cm, elliptic-ovate, entire, sometimes lobed in young stage, shortly acuminate, coriaceous, glabrous, dark green and glossy above, pale and rough beneath, base narrowed into the petiole of about 2.5 cm long; stipule sheathing. *Flowers* heads in bud enclosed in large leathery deciduous stipulate sheaths. *Syncarp* 30- 75 cm long, covered with pointed tubercles hanging on short stalks. *Seeds* ca 3 cm long, oblong, farinaceous. Flr.: February- April. Frt.: July- October.

Commonly cultivated and often found as escape near homesteads.

Vern. name: Kathal (As.). The jack fruit.

Uses: Unripe fruits are eaten as vegetable, ripe fruits are eaten fresh or made into jelly, jam etc. Seeds are eaten as vegetable, very good source of starch. Timber is durable, good for furniture.


A large deciduous *tree*; young parts tomentose. *Barks* exfoliating in small woody plates, inside reddish, fibrous. Milky juice copious. *Leaves* 10- 30 × 5- 16 cm, elliptic or broadly oblong, entire, abruptly and shortly acuminate, acute or obtuse,
coriaceous, glabrescent and rough above, softly pubescent beneath; base rounded or obtuse. Receptacle axillary, globose on short pubescent peduncles. Male receptacles puberulous; perianth segments 2; anthers exserted. Female receptacle irregularly lobulate; velvety, yellow or orange-red when ripe, wrinkled or smooth; style protruding. Anthocarp united. Seeds broad. Flr.: February- April. Frt.: Summer season.

Grows in forests, sometimes cultivated. Occurrence: Rare in wild.

Vern. name: Bohot, Dewa, Dewa-Sali goch (As.)

Uses: The ripe fruits are eaten. The bark is chewed with betel. Timber is useful in making light furniture.

Coll. No.: Borah A. 524. Date: 18-12-2004  Locality: Manikpur.


Trees or shrubs, sometimes scandent or epiphytic; milky juice present. Leaves alternate, rarely opposite, entire, lobed, serrate or toothed; stipules clothing the bud. Flowers minute, unisexual, monoecious, very rarely dioecious, on the inner walls of a fleshy receptacle, the mouth of which is closed by imbricate bracts; florets often mixed with bracteoles, of four forms; male, female, gall and, rarely, neuter; receptacles sometimes unisexual, but usually androgynous, the males nearest the mouth; males, females, and galls may be in one set, females and neuters in another, or males and galls in one set, females only in another. Sepals connate in a 2-6-fid or partite perianth. Male flowers: Stamens 1 or 2, rarely 3-6, erect in bud. Female flowers: Sepals as in males, or imperfect or obsolete. Ovary straight or oblique; ovule
pendulous. *Fruit* an enlarged, hollow, cup-shaped, closed receptacle, its inner wall studded with crustaceous or fleshy achenes, *seed* pendulous.

**Key to the species:**

1a. Male flowers with rudimentary pistil in the same receptacle:

   2a. Stipule long. Leaves inequilateral, acuminate. . . . . . . . . . . . . . . . . . . . *F. tinctoria*

   2b. Stipules minute. Leaves abruptly caudate. . . . . . . . . . . . . . . . . . . . . *F. heteropleura*

1b. Male flowers without rudimentary pistil in the receptacle:

   3a. Male, gall and fertile female flowers in the same receptacle:

      4a. Leaves coriaceous. Receptacle globose or oblong:

         5a. Leaves chartaceous, lateral nerves 4-7 on either side. . *F. benghalensis*

         5b. Leaves coriaceous; base 3-nerved, lateral nerves numerous:

            6a. Stipule large. Receptacle greenish-yellow when ripe. . . . *F. elastica*

            6b. Stipule small. Receptacle yellow or red when ripe. . . . *F. benjamina*

      4b. Leaves sub-coriaceous. Receptacle globose globose:

         7a. Acumen short; base truncate. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . *F. rumphii*

         7b. Acumen long; base rounded pr truncate or cordate . . . . . *F. religiosa*

   3b. Male flowers and gall flowers in one receptacle; female flowers in another:

      8a. Receptacle axillary:

         9a. Erect shrubs or small trees. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . *F. gasparriniana*

         9b. Creeping or scandent shrub. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . *F. heterophylla*

      8b. Receptacle mainly in fascicles from stem or branches:

         10a. Leaves ovate-oblong or elliptic oblong; base subcordate or rounded; all parts hispid. . . . . . . . . *F. hispida*
10b. Leaves ovate; base cordate or obtuse or acute; not all parts hispid:

11a. Leaves broadly ovate; serrate; base cordate ... ..  F. auriculata

11b. Leaves ovate; entire; base acute or obtuse .. .. .. F. racemosa


*Tree*; young parts pubescent. *Leaves* 12- 35 × 10-27 cm, broad, ovate-orbicular, ovate or rounded, acute or mucronate, entire or toothed, subcoriaceous, glabrous or glabrescent above, pubescent beneath; lateral nerves 3-5 on either side; base deeply cordate; petiole 2.5- 15 cm long; stipules ovate-lanceolate. *Male flowers*: tepals 3, stamens 2-3. *Gall flowers*: perianth 2-3-cleft. *Female flowers*: style hairy, curved. *Receptacles* in fascicles on short thick leafless branchlets borne on big branches or trunk, turbinate, depressed, longitudinally 8-12 ribbed, ca 7.5 cm across, purplish-orange when ripe. *Flr. & Frt.*: April- June.

*Vern. Name*: Mon-dimoru, Autha-dimoru (As.)

*Uses*: Ripe fruits are eaten. Leaves are good fodder for cattle and elephant.


*An evergreen tree* with spreading crown, sometimes epiphytic in early life; often with aerial roots and stilts. *Leaves* 10- 20 × 5- 12 cm, ovate, elliptic, entire, obtuse or rounded, coriaceous, green and glossy above, glabrescent or pubescent.
beneath; lateral nerves 4-7 on either side; petiole 1-5 cm long. *Male, gall* and fertile *female flowers* in the same receptacle. *Male flower* numerous near the mouth of the receptacle, *perianth* segments 4, stamen 1. *Gall flowers* similar to male but with a short style. *Female flowers* with elongated *style*. *Receptacle* globose, sessile, axillary, supported by 3 bracts, scarlet when ripe.

Flr.& Frt.: April- June.

Vern. name: Bor goch (As.). The Banyan tree.

Uses: Wood is used to make well-curb. Leaves are good cattle feed.


Large tree with drooping branches. *Leaves* ovate-elliptic, elliptic or ovate, 6-10×3.5-6 cm, coriaceous, rounded or sub-acute at base, abruptly shortly acuminate at apex; lateral nerves many, slender, anastomosing into an intramarginal nerve; petiole 1-1.5 cm long. *Receptacle* sessile, in pairs, globose, smooth, green when young, red when ripe. Flr. & Frt.: October – November.

Vern. name: Jari gach, Atha bor (As.).

Uses: Leaves are eaten by cattle, elephant etc.


Cultivated tree, sometimes found as escape.

Vern. name: Atha-bor (As.). Indian rubber tree.

Shrubs of about 3 m tall. Leaves oblong-obovate or oblanceolate, 5-15 × 3-6 cm, acute or acuminate at apex, with two basal lobes, hispid beneath; lateral nerves 4-6 pairs; petioles 1-3 cm. Inflorescence axillary, solitary or paired, ovoid, ca 1 cm in diam., green with white spots, pinkish-red when ripe. Achenes flattened, brown yellow. Flr. & Frt.: April – October.

Grows in forests, usually partially shade places. Occurrence: Rare.


Scandent shrubs of about 1 m tall, often trailing. Leaves very variable, broadly ovate to lanceolate, 3-5 × 2-3 cm, scabrid above, rounded or cordate at base, 3-5-nerved at base, acute or acuminate at apex, lobed at base, irregularly dentate or repand at margins; lateral nerves 4-6 on either half; petioles 2-3 cm long. Receptacle axillary, solitary, pyriform, 1.5 – 2.5 cm long, peduncle 1.0- 2.5 cm long, green and hispid when young, orange-yellowish and smooth when ripe.

Fir.: & Frt.: January to August.

Grows in moist places like bank of river, pond, beels etc. and inforests.
Fig. Ficus heterophylla  L.f. var. assamica (Miq.) Corner.
Vern. name: Konia-dimoru (As.)


*Small tree* with hollow branchlets and with horizontal wrinkles. *Leaves* opposite, ovate or elliptic-ovate, 8-20 × 5-10 cm, hispid, rounded or subcordate at base, acute-apiculate at apex, dentate-serrate at margins; lateral nerves 5-8 pairs; petioles 2-5 cm. *Receptacle* sub-pyriform, ca 2 cm across, yellow when ripe, paired or fascicled on short branches; peduncles 5-10 mm. *Achenes* ovoid, minute.

Flr. & Frt.: Throughout the year.

Commonly grows on roadsides, forest edges etc.

Vern. name: Dimoru, Dombaru (As.), Khoksa-dimoru (Bodo).

Uses: Leaves are good elephant fodder, also eaten by cattles. Green fruits are eaten as vegetable.


Tree, trunk often buttressed at base. Leaves membranous, oblong-ovate to lanceolate, 7-15 × 3-6 cm, acute or obtuse at base, caudate or blunt acuminate at apex, basal nerves 3; lateral nerves 4-6 pairs; petiole 2-5 cm long; stipule ovate-lanceolate. Syconia pyriform, turbinate at apex, ca 3 cm across, clustered on

Commonly occur in forests.

Coll. No.: Borah A, 317. Date: 10-4- 2003 Locality: Shankarghola


A large deciduous tree; often epiphytic. Leaves 11- 17.5 × 7.5- 12.5 cm, orbicular, ovate, entire or undulate, caudate-acuminate with acumen 2.5- 7.5 cm long, coriaceous, glabrous, shining above, tubercled beneath; lateral nerves 6-8 on either half; base 5-7 nerved, shallow cordate, rounded or truncate; petiole 7- 10 cm long; stipules small. Receptacle subglobose, sessile in axillary pairs, somewhat depressed, dark purple when ripe, with 3-pubescent coriaceous broad basal bracts. Flr. & Frt.: February- June.

Commonly found along road sides; sometimes cultivated.

Vern. name: Ahot goch, Pakri goch (As.). The Pipul tree.

Uses: Leaves are good fodder for cattles, elephant etc. receptacles are eaten by birds. Leaves are used in various Hindu religious functions.

Coll. No.: Borah A. 269. Date: 09- 09-2002. Locality: Dhaligaon. (Plate 56)


Large deciduous trees, sometimes epiphytic. Leaves broadly ovate, 8-12 × 5-8 cm, entire, acuminate, subcoriaceous, glabrous, upper surface dotted and shining;
lateral nerves 3-6 on either half; base 3-4 nerved, rounded, truncate into the petiole; petiole 3-5 cm long; stipules 1- 2.5 cm long, ovate-lanceolate. Receptacle sessile, in axillary pairs, globose, ca 1.5 cm across, black when ripe with 3 orbicular bracts.

Flr.& Frt.: April- July.

Grows in forests and forest edges.

Vern. name: Pakhri-bor (As.).

Uses: Leaves are eaten by cattle and elephants.

Coll. No.: Borah A. 516. Date: 23- 7- 2004 Locality: Kakoijana RF.

**Ficus tinctoria** Forst. f. ssp. gibbosa (Bl.) Comer in GBS 17:476. 1959. *Ficus gibbosa* Bl. Bijdr. 446. 1825; King in FBI 5:497. 1881; Kanjilal *et al.*, 4:238. 1940.

*Tree*, often epiphytic. *Leaves* 7- 15 × 3- 7 cm, inequilateral, ovate-elliptic or elliptic lanceolate, sometimes gibbous towards the base, entire, usually acuminate, thinly coriaceus; lateral nerves 3-6 on either half; base 3-nerved, cuneate or obtuse; petiole 0.75- 1.5 cm long. *Receptacle* less than 1 cm inn across, pedunculate, globose or pyriform, minutely hairy and verrucose with few basal bracts. *Achene* obliquely ovoid, slightly hairy. Flr. & Frt.: January- march.

Vern. name: Loti-dimoru, Jaribor (As.).

Coll. No.: Borah A. 419. Date: 02- 3- 2004 Locality: Manikpur.


*Trees* or *shrubs*: juice milky. *Leaves* alternate, entire, toothed or 3-lobed, base 3-5-nerved; stipules small, lateral, caduceus. *Flowers* monoecious or dioecious, spicate, male spikes elongated, catkin-like, female long cylindrical, or short oblong
Fig. A. *Ficus religiosa* L.  
B. *Ficus rumphii* Bl.


**Shrubs or trees** ca 3 m tall. *Leaves* ovate, 2.5-10×1.5-7.0 cm, rounded or cordate at base, caudate-acuminate at apex, sharply serrate at margins; base 3-nerved. *Male spikes* ca 3 cm long; sepals elliptic, hairy. *Female spikes* short, ovoid, ca 3 mm across; styles long, hairy, connate below. *Fruits* ovoid or subglobose. Flr. & Frt.: February-September.

Grows in open areas, also cultivated.

Vern. name: Nooni gach (As.).

Uses: Ripe fruits are eaten fresh, leaves are good fodder for Andi-worms.


**Streblus** Lour., Fl. Cochinch. 614. 1790.

**Shrubs or trees**; juice milky. *Leaves* alternate, pennierved, scabrid; stipules small, subulate. *Flowers* axillary, dioecious, very rarely monoecious, males in peduncled heads or spikes, females bracteate, solitary or 2-4 together. *Male flower*: Sepals 4, imbricate. *Stamens* 4, inflexed in bud. *Pistillode* dilated at apex. *Female
flower: Sepals 4, imbricate, embracing the ovary. Ovary straight, retuse; ovule pendulous; style central, arms very long. Fruit membranous, straight, subglobose, laxly covered by the persistent perianth. Seed globose, with membranous testa.


Large shrubs or small trees, 4-8 m high. Leaves elliptic, ovate, obovate or rhomboid, cuneate at base, obtuse or abruptly and shortly acuminate at apex, coriaceous, scabrid, 3-10 × 1.5- 4.5 cm; lateral nerves 4-6 on either half. Flowers axillary, generally dioecious. Perianth campanulate; sepals 3-5, valvate or imbricate. Stamens 4. Style filiform. Berries 1-seeded. Flr. & Frt.: February- July.

Commonly grows in hill slopes, open areas as well as forests.

Vern. name: Soura, Seura (As.).

Uses: Leaves are good fodder for cattle. Branches with barks are used to rear fish at an specified place under the water in river, lakes etc.


**CERATOPHYLLACEAE**

Slender, fragile, branched, submerged herbs. Leaves whorled, dichotomously cleft into filiform, minutely toothed lobes; stipules 0. Flowers minute, monoecious, axillary, sessile. & perianth or involucre of 6-12 narrow, sub-valvate, 2-fid segments. Stamens 20-30; filaments very short; anthers erect, extrorse; connective truncate or
2-toothed at apex; dehiscence longitudinal. & *Perianth* of the male. *Ovary* sessile ovoid, 1-celled; ovule solitary, pendulous. *Fruit* a small coriaceous, ovoid or ellipsoid, somewhat compressed nutlet., terminating in a long, subulate style, with a spur projecting from above the base on either side. *Seed* pendulous.


Aquatic herb. Stem densely leafy, green. Leaves of toothed linear segments, 3-4 cm long, dichotomously forked. *Perianth* segments greenish white. Fruits ovoid, more or less compressed, 3-4 mm long with 2 decurved spikes at base. Flr. & frt.: January- December.

Grows in wetlands. Occurrence: common

Vern. name: Sial-bhobora (As.)

MONOCOTYLEDONS
HYDROCHARITACEAE

Annual or perennial, submerged or floating herbs. Stem slender or absent. Leaves radical or cauline and whorled, simple, sessile or petioled. Plant monoecious or dioecious. Flowers usually solitary or clustered, subtended by a 2-fid spathaceous bract, regular, unisexual. Perianth of 3 or 6 segments. Stamens 3 – 12, in one or more whorls; anthers basifixed. Ovary inferior, 1-locular; ovules many; styles 3-12. Fruits linear or ovoid. Seeds few to many.

Key to the genera:
1a. Leaves cauline, in whorls of 3-8 .......................................................... Hydrilla
1b. Leaves radical:
   2a. Leaves petioled, ovate, oblong or suborbicular ................................ Ottelia
   2b. Leaves sessile, all linear ................................................................ Vallisneria


Found in beels. Occurrence: Common.

Vern. name: Siyal-bhobora, Jhanji (As.)


Submerged, monoecious annual herbs. Leaves very variable, floating leaves broadly ovate-reniform, 10-20 × 8-18 cm, obtuse-cordate at base, rounded, acute or apiculate at apex, petioles 10-30 cm long, trigonous, spathes ovate-elliptic, 1-flowered, 5-10 winged. Flowers sessile, bisexual. Sepals oblong-lanceolate, ca 1.5
cm long, green. Petals obovate, white with yellow spotted base, 2-3 cm long.

Stamens 6-9. Styles 6-10. Fruit about 5 cm long. Flr. & Frt.: throughout the year.

Usually grows in stagnant water bodies. Occurrence: Rare.

Vern. name: Pani-kola (As.)

Uses: Mature fruits are eaten fresh.


Submerged herbs. Leaves oblong-lanceolate, obtuse or acute at apex, entire or faintly toothed at margins, 5-9-nerved. Male spathes breaking off at base, peduncle 2-4 cm long. Flowers many, white. Stamens 2. staminode 1. Female spathes on long slender scape or peduncle varying with the depth of water. Flower solitary, white. Style 3. Fruits subcylindrical ca 7 cm long. Flr. & Frt: October-February.

Commonly grows in stagnant water bodies. Vern. name: Pani-kundoli (As.)

**ORCHIDACEAE**


Key to the genera:

1a. Terrestrials:

2a. Plants with subterranean pseudobulbs.

3a. Root stock tuberous. Pseudostem sheathed. Scape short ..... *Geodorum*

3b. Stem pseudobulbous with many nodes. Scape long .. .... .. *Phaius*

2b. Plants without subterranean pseudobulbs or tubers. Scape terminal or lateral:

4a. Scape terminating into leafy racemose. Grows in marshlands.... *Goodyera*

4b. Scape short, not terminating into leafy racemose. Grasslands.. .. *Zeuxine*

1b. Epiphytic:

5a. Stem monopodial. Inflorescence axillary or leaf-opposed or extra axillary.

Tip spurred:

6a. Leaves terete. Racemes 1 to few flowered. .. .. .. .. .. *Papilionanthe*

6b. Leaves flat or very rarely terete (Aerides). Racemes many flowered:

7a. Flowers more than 2 cm in across. Spur pointed at tip. .. .. .. *Aerides*

7b. Flowers 1 cm or less in across. Spur blunt at tip. .. .. .. .. *Acampe*
5b. Stem sympodial. Inflorescences terminal or lateral from the base of the rhizome, pseudobulb or from the node of the rhizome. Tip not spurred.

8a. Plants pseudobulbous. Pseudobulbs covered with overlapping leaf-sheaths. Leaves rather long. Pollinia 2. ... ... ... ... ... ... Cymbidium

8b. Plants pseudobulbous. Pseudobulbs not covered with overlapping leaf-sheaths. Leaves never rather long. Pollinia usually 4 or 8:

9a. Foot of the column well developed. Lateral sepals decurrent along the column-foot forming a mentum:

10a. Pollinia 8 with caudicle... ... ... ... ... ... ... Eria

10b. Pollinia 4 or 2, without caudicle:

11a. Inflorescence or flowers from the base of the pseudobulbs or rarely at another node of the rhizome.

Column often bear two arista at top. ... ... ... Bulbophyllum

11b. Inflorescence or flower leaf-opposed or terminal on the pseudobulb. Clumn not bearing arista. ... ... Dendrobium

9b. Foot of the column inconspicuous or absent. Lateral sepals not forming a mentum. ... ... ... ... ... ... ... Pholidota

_Acampe_ Lindl., Fol. Orch. 2. 1833.

Epiphytes. _Stems_ elongate, branched, leafy. _Flowers_ in densely subcorymbose racemes. _Peduncle_ stout. _Flowers_ small, brittle, inflexible. _Sepals_ and _petals_ coriaceous, yellow with unequal, horizontal crimson bars. _Lip_ adnate to edges of column, without foot. _Pollinia_ 2; caudicle slender; glands small.


Epiphytic on Lagerstroemia, Barringtonia, etc. Occurrence: Common.


Photo No. 58.1 (plate 58)

Aerides Lour., Fl. Cochinch. 525. 1790.

Epiphyte, hardy. Stems long, branched, leafy. Leaves sessile, flat, coriaceous, base sheathing. Inflorescence lateral, simple, few or many-flowered. Flowers dense; sepals and petals subequal; lip sessile, 3-lobed; spur conical; column short, straight; rostellum short, bifid. Pollinia 2, globose; caudicle short, strap shaped.

Key to the species:
1a. Flowers dense, reddish or rose-purple ... ... ... ... ... ... ... A. multiflora
1b. Flowers lax, white ... ... ... ... ... ... ... ... ... ... ... ... ... ... A. odorata

Roots long, branched. Stems usually curved, ca 40 cm long, ca 1 cm in dia., covered with stout leaf sheaths. Leaves distichous, channeled, oblong, leathery, crowded, ca 17 × 2.3 cm, mucronate and usually unequally bilobed at apex. Racemes simple, longer than the leaves, axillary, densely many flowered, pendent; peduncles ca 8 cm long, with clasping, short, scaly bracts at nodes; floral bracts with strong midnerve, dark brown. Flowers ca 2 cm across, reddish or rose purple with darker spots, fragrant. Sepals and petals subequal, spreading; dorsal lateral sepals ovate-oblong, rounded and emerginate at apex; lateral sepals obovate, entire, obtuse. Petals elliptic oblong to broadly elliptic ovate with dark red spots, lip 3-lobed, adnate to the base of the column, reddish purple with dark red transverse streaks; spur whitish; column 2-3 mm long, rostellum acuminate, forked at the tip. Pollinia 2, yellow. Flr: April - June. Frt.: July onwards.

Common epiphyte on species of Lagerotroemia, Mangifera, Barringtonia, Samanea etc.; also cultivated. Vern. name: Ronga Kopouphul (As.)

Uses: The bihu dancers (girl) use the inflorescence to wrap on the hair.


*Roots* long, thick, branched, whitish. *Stems* profusely branched, often pendulous, curved. *Leaves* lorate, channeled at base, oblong-lanceolate, thickly coriaceous, distichous, unequally bilobed at the apex. *Racemes* simple, axillary, as long as or longer than the leaves, pendent, cylindric, laxly many-flowered, 12-32 cm long; peduncles green, 4-12 cm long, nodes sheathed with short, scarious bracts; floral bracts triangular-ovate, rounded at apex. *Flowers* 2-2.5 cm across, waxy white with tinge of purple, strongly fragrant. *Sepals* reflexed, with upcurved apex, broadly acute, white; dorsal sepal obovate, lateral sepals sub-falcate. *Petals* oblong-obovate, entire, rounded, white, lip 3-lobed, white, pinkish-violet blotched; *spur* upcurved; *column* 3-4 mm long; rostellum acuminate, forked at the tip. *Pollinia* yellow, *caudicle* with gland. *Capsules* fusiform, 1.5-2 cm long, ridged. Flr. May – June. Frt.: July onwards.

Common epiphyte on species of *Lagerotroemia, Mangifera, Barringtonia, Samanea, Tectona* etc.; also cultivated. Vern. name: Boga Kopouphul (As.)


**Bulbophyllum** Thouars, Hist. Pl. Orch., tabl. esp. 3. sub. u. 1822, *nom. cons.*

Rhizomatous epiphytes. *Pseudobulbs* uninodal, crowded or distant, naked or clothed with old sheaths, 1-2-leaved. *Leaves* thickly coriaceous, usually persistent,
Fig. A. *Aerides multiflora* Roxb.  
(i) Habit, (ii) A flower, (iii) Perigone,  
(iv) Lip, (v) Column with lip and spur  

B. *Aerides odorata* Lour.  
(i) Habit, (ii) A flower, (iii) Perigone,  
(iv) Lip with spur, (v) Column with foot.
oblong, oval or lanceolate, petiolate or subsesile. **Inflorescence** 2-8-flowered, racemes or umbels or flowers solitary, at the base of the pseudobulb or rarely at another node of the rhizome. **Flowers** very small or large; **sepals** oblong, lateral sepals adnate to the foot of the column forming a mentum; **petals** usually smaller than the sepals. **Pollinia** 4, very rarely 2, without caudicle and appendages.

Key to the species:

1a. Peduncles longer than the pseudobulbs. Sepals glabrous. Lip dark brown or maroon. Flowers blackish brown. .. .. .. .. .. .. .. .. .. .. B. **careyanum**

1b. Peduncles shorter than the pseudobulbs. Sepals papiliolate without. Lip orange yellow with purple dots. Flowers reddish brown or orange .. .. .. B. **crassipes**


Rhizomes woody, ca 0.5 cm in dia. **Pseudobulbs** ovoid, ca 3 cm long and 1-1.8 cm in dia., smooth, ridged, 1-leaves, green. **Leaves** oblong to oblong-lanceolate, erect, 15-23 × 2-3 cm, shortly petiolate, slightly notched at apex. **Scapes** shorter than the leaves. **Racemes** ca 4 cm long; peduncles up to 14 cm long, sheathed at the base and upper nodes by bracts. **Floral bracts** ovate-lanceolate, acute. **Flowers** ca 6 mm across, blackish-brown; dorsal sepal elliptic-ovoid, concave; lateral sepals subfalcately ovate, ca 6.5 × 2.5 mm, with incurved margins; **petals** ovate, acuminate
or aristate; mentum short; lip ca 3 mm, 3-lobed; column winged; rostellum recurved; pollinia 4 in 2 pairs, orange yellow. Flr. & Frt.: October- January.

Common on tree trunks in forests.


*Rhizomes* woody, rooting usually at pseudobulbous nodes. *Pseudobulbs* ovoid, smooth, 1-leaved, 2.5-3.0 cm long, 1.5-2.0 cm in dia., green. *Leaves* oblong to oblong-elliptic, erect, broadly acute, shortly petiolate, 8-17× 2-3.3 cm. racemes dense flowered, 3-4 cm long; peduncles 2-2.5 cm long, loosely sheathed at base. *Flowers* 5-8 mm across, reddish – brown or orange with purple dots. *Sepals* subequal, acute; dorsal sepals circular-ovate, hooded; lateral sepals sub-falcately ovate with convolutive margins. *Petals* elliptic-ovate, acute; mentum short; lip 3-lobed; column winged. *Pollinia* 4, in 2 pairs. Flr. & Frt.: October- January.

Common on forest tree trunks.


*Cymbidium* Swartz


Epiphytes, sometimes terrestrials or lithophytes. *Stems* short, pseudobulbous, covered by sheathing bases of leaves. *Leaves* linear-oblong, sessile, arched. *Inflorescence* from the pseudobulbs, arched, long, many flowered; peduncle stout,
loosely sheathed. *Flowers* large; bracts persistent; *sepals* and *petals* subequal, free, *lip* sessile, 3-lobed; *column* long; *pollinia* 2. *Fruits* large, obovate, ribbed.


Large, massive epiphyte. *Stems* many leaved. *Leaves* 25-65 cm long, 2-3 cm broad, coriaceous, thick, shining, apex obliquely and obtusely 2-lobed. *Flowers* ca 3.5 cm across, yellowish-purple; bracts 1.5 cm long. *Sepals* and *petals* 2 cm long and ca 5 mm broad; *lip* ca 1.5 cm long, purplish; *column* erect. *Pollinia* 2, furrowed. *Capsules* obovoid-pyriform, large, ca 6 cm long, ribbed. Flr.: May – August. Frt.: September, persistent about a year.

Common epiphyte on old trees, on rocks, also cultivated.

Vern. name: Mota-kopoupul (As.)

Uses: Ornamental; leaf juice is used in treatment of ear infections.


Photo No. 58.2 (Plate 58)


Epiphytes. *Stems* elongate or pseudobulbous, sympodial. *Leaves* usually deciduous, alternate on elongate shoots or terminal on pseudobulbs. *Inflorescence*
recemose, usually lateral. Flowers showy. Sepals subequal, lateral, obliquely adnate to the foot of the column and forming a sac or mentum. Petals free form the dorsal sepal; lip immobile, contracted or clawed at base, usually 3-lobed. Column short, foot long or short. Anther 2-celled. Pollinia 4, free, without caudicles. Capsules obovoid, elongate.

Key to the genera:

1a. Stem short, pseudobulbous, 1-leaved. ... ... ... ... ... D. jenkinsii

1b. Stem long, not pseudobulbous, leaves many:

2a. Stems pendulous or drooping; flowers on a long leafless stem. D. aphyllum

2b. Stems suberect or drooping, flowers on leaf leaf-opposed pairs:

3a. Lip margin fimbriate with a deep purple blotch ... ... ... D. fimbriatum

3b. Lip not fimbriate, pink with a dark-purple middle. ... ... ... D. farmeri


*Stems* slender, pendulous, many noded, ca 50 cm long; internodes 3.5-5 cm long, striated. *Leaves* sessile, 8 × 2.9 cm, lanceolate to ovate lanceolate, acute or acuminate. *Flowers* light pink, ca 4.3 cm across, on long leafless stems. *Bracts* shorter; pedicelled ovary pinkish white, ca 3.2 cm long, recurved. *Sepals* oblong to
lanceolate, subacute, dorsal sepals 2-3 cm × 6.5-8 cm, 3-nerved; laterals united at the foot of the column forming a mentum. Petals broader than the sepals, acute; lip shortly calved, pale yellow at the apex with purple lines at the base, orbicular, pubescent, ciliate; column short, white, pollinia 4, yellow. Capsules stalked, ca 3.5 cm long. Flr. & Frt.: March – July.

Common in forests and road sides usually on the species of Lagerotroemia, Mangifera, Barringtonia, Samanea etc.; also cultivated.


Photo No. 58.3 (Plate 58)


Epiphytes, stem cylindrical, stout, suberect, internodes sheathed. Leaves lanceolate, coriaceous, apex acute. Inflorescence 1-3 racemes, 7-12-flowered, pendulous. Floral bracts deltoid-ovate, ca 3 × 3 mm, hyaline margined, greenish. Flowers 2.5-3.0 cm across, purplish-yellow, mildly scented. Dorsal sepals elliptic, rounded at apex; lateral sepal obliquely oblong, acute and keeled at apex. Petals obovate –suborbicular, margins reflexed; mentum short; lip sub-orbicular, pink with a deep purplish blotch in the middle and reddish streaks at base; shortly lobed; column short, yellow, wavy. Pollinia ca 2 mm long. Flr. & Frt.: April – May.


Photo No. 58.4 (Plate 58)


Epiphytes, stem cylindrical, stout, suberect, deeply grooved, internodes sheathed. Leaves lanceolate, coriaceous, apex acute. Inflorescence 1 to 3 racemes, 7-12-flowered, pendulous. Floral bracts deltoid-ovate, ca 3 x 3 mm, hyaline margined, greenish. Flowers 2.5-3.0 cm across, orange yellow, mildly scented. Dorsal sepals elliptic, rounded at apex; lateral sepal obliquely oblong, acute and keeled at apex. Petals obovate -suborbicular, margins reflexed; mentum short; lip sub-orbicular, yellow with a deep purplish brown blotch in the middle and reddish streaks at base; margins fimbriate and shortly lobed; column short, yellow, wavy. Pollinia ca 2 mm long. Flr. & Frt.: April – May.

Common in forests and road sides usually on the species of Lagerotroemia, Mangifera, Barringtonia, Samanea etc.; also cultivated.


Photo No.: 58.5 (Plate 58)

Dwarf epiphyte, *pseudobulbs* aggregated, compressed, fusiform, angular, 1-3 × 0.5- 0.8 cm, internodes sheathed. *Leaves* oblong-elliptic, thickly coriaceous, ca 2.5 × 1.0 cm with median vein. *Inflorescence* 1 or 2-flowered racemes, lateral from the upper nodes of the pseudobulb; peduncles short; floral bracts minute. *Flowers* 2-3 cm across, yellow to orange. *Sepals* subequal, entire, yellow. *Petals* elliptic-ovate, yellow; *mentum* short; *lip* sub-orbicular, yellow with an orange-yellow heart and pale yellow margins. *Pollinia* oblong. *Ovary* 3.5- 4.5 cm long. *Frl.:* April- May.

Found tall trees near river side in dense forests.


Photo No. 58.6 (Plate 58)

**Eria** Lindl., Bot. Reg. t. 904. 1825.

Epiphytes, *pseudobulbous* or not; cylindric or compressed; 1 to many articulate, 1 to many leaved, tufted or distant on a creeping rhizome. *Leaves* usually oblong, or oblong-lanceolate or elliptic, membranous, coriaceous or fleshy, sheathing. *Inflorescence* racemes, lateral or apparently terminal, 1- many flowered, hairy or glabrous. *Flowers* resupinate, hairy or glabrous, rarely brightly coloured. *Sepals* free; lateral ones decurrent along the column foot forming a mentum. *Petals* subequalling the dorsal sepal, linear, or oblong; lip inserted on the column foot, 3-lobed or entire. *Pollinia* 8 in two groups with caudicle.


Epiphyte with stout rhizomes, 4-5 mm in dia., internodes short, clothed with coriaceous sheaths. *Pseudobulbs* laterally compressed, 4-5-noded, internodes longitudinally furrowed, covered with leaf sheaths and scales. *Leaves* 3 or 5, narrowly oblong-lanceolate, acute or shortly acuminate; petioles absent in lower leaves. *Racemes* stout, 1 or 2 from the base or lowers nodes of pseudobulbs, 18-24 cm long with peduncles; laxly many flowered. *Floral bracts* ovate-lanceolate, acuminate, ca 1.8 cm long, nervé. *Flowers* ca 2.5-3.0 cm across, greenish-yellow with purple spotted disc on the lip. *Sepals* coriaceous, dorsal sepals narrowly ovate-lanceolate, lateral ones spreading, greenish-yellow; mentum short. *Petals* oblong-lanceolate, obtuse, 9-13 × 2-4 mm, pale yellow; *lip* thick, 3-lobed, puberulous, clawed, greenish-yellow with purple spots; *column* erect, stout, white with brown tinge below; *rostellum* expanded. *Pollinia* 8, yellow. *Capsules* 2.5-3.5 cm long, 6-8 mm thick, cylindric and ridged. Flr.: April – May. Frt.: May onwards.

Found sporadically in foothill areas.


Terrestrial subterenian *pseudobulbous herbs*. *Leaves* erect, many narved, plaited, convolute, stalked and sheathed forming a *pseudostem*. *Inflorescences* scpose recemose, from the base of the pseudobulbs; racemes recurved, few to many
flowered. *Flowers* lax, slightly opened. *Sepals* and *petals* almost similar; *lip* sesile, immobile; *column* short, broad, with a short foot. *Pollinia* 2, bifid.


*Pseudobulbs* tuberous, underground, ovoid or obconical with concentric rings, green. *Pseudostem* lateral, terete, sheathed, fleshy, 6-8 cm long. *Leaves* 2-3, broadly elliptic to oblong-lanceolate, acute or acuminate, many nerved. *Scapes* lateral, from the pseudobulb. *Peduncles* 9-12 cm long, nodes ensheathed by tubular sheaths. *Racemes* few flowered, 1-2 cm long. *Floral bracts* narrow lanceolate, acuminate. *Flowers* 1-1.8 cm across, white. *Sepals* oblong-lanceolate, acute, 5-nerved, ca 11×3 mm; lateral sepals slightly keeled. *Petals* subequaling to the sepals, obtuse or subacute, 11.5-12.5 × 5.5-6.5 mm; *lip* saccate, ca 1.3 cm long; epichile emerginate and bilobed at apex, hypochile rounded; *disc* brown dotted; column short, stout, white. *Pollinia* 2, orange-yellow. *Capsules* fusiform. Flr.: April-September.

Occurrence: Common in shady hill slopes

Goodyera R. Brown in W. et W. T. Aiton
Hort. Kew. 5:197. ed. 2. 1813 nom. cons.

Terrestrial, often in marshlands, herbs with erect or creeping, many leaved stems, covered with leaf sheaths. Leaves convolute, subcoriaceous, membranous, petiolate. Inflorescence spicate or racemed, simple, many flowered, terminal, erect. Flowers small, slightly opened. Dorsal sepals concave, conniving with petals forming a hood; lateral sepals subconniving or spreading; lip erect, sessile; sac often with setae; column short, without appendage. Pollinia 2.


Marshland herbs. Roots thick, fibrous. Stem glabrous, cylindric. Leaves 6-8, elliptic-lanceolate or ovate elliptic, acute or acuminate, 7-14 × 3-5 cm, many nerved, shining green; petiole stout. Racemes spicate, 5-7 cm long, densely many flowered, peduncles stout with many foliaceous sterile bracts. Floral bracts ovate-acuminate or lanceolate, irregularly serrate, flowers glabrous, not fully opened, ca 3 mm across and 6 mm long. Sepals obtuse, pale green, dorsal sepal concave; lateral sepals oblong-lanceolate. Petals with a linear claw, obtuse, whitish with darker streakes; lip cymbiform with infolded margins, brownish green; column 1 mm, white; rostellum bifid, erect. Pollinia 2. Flr: April – May.
Grows in marshy places and moist forest floor usually of sandy soil mixed with pebbles.

Coll. No.: Borah A. 278. Date: 13-8-2002. Locality: Kakoijana RF.

*Papilionanthe* Schltr., in Orchis 9:78. 1915.

Large, slender, spreading epiphytes with erect or pendulous stems, long flexous roots and terete slender leaves. *Inflorescence* axillary, stout or slender, 1- few flowered racemes. *Flowers* large and showy or small. *Sepals* subequal, free. *Petals* broader than sepals, attached by a very broad base to the foot of the column; *lip* spurred, 3-lobed, erect, adnate at the base of the column foot; hypochile large, enfoldling the column; epichile deflexed; *column* short, stout with a long foot at right angle. Anther terminal, 2-chambered; *rostellum* elongated. *Pollinia* 2, on a broad caudicle and large gland.


Climbing epiphyte. *Stem* branched, slender, terete, many noded with stout, long, branched and flexous roots. *Leaves* terete, slender, 8-15 cm long, 3-5 mm in dia., green. *Inflorescence* 2-6-flowered racemes. *Flowers* 4-8 cm across, shortly pedicelled, pink or pinkish-white. *Dorsal sepals* obovate, rounded at apex, ca 2.5-1.5 cm; *lateral sepals* ca 2.5-2.0 cm. *Petals* orbicular or suborbicular ca 3.0 cm.
across; *lip* 3-lobed, ca 5 cm; lateral lobes infolded over the *column*, 15-20 mm; midlobe bifid at apex, ca 2 × 1.5 cm; *spur* conical, ca 2 cm, yellow at throat.


Photo No. 58.7 (Plate 58)


Terrestrial *herbs*. *Stem pseudobulnous* with many nodes, nodes sheathed; or stem long, cylindric or short, leafy. *Leaves* many, sessile, large and plaited, usually elliptic-lanceolate, apex acute or acuminate; scapes lateral to the pseudobulbs, or axillary or terminal, laxly few to many flowered. *Flowers* usually large, bracteate, showy. *Bracts* large, deciduous, lanceolate-acute. *Sepals* and *petals* subequal, spreading or not; *lip* sessile at the base of the column and embrassing it, erect; *column* erect, long and stout. *Pollinia* 8, attached in 4 by a granular viscous.


Terrestrial *herbs*; pseudobulbs up to 10 cm long, ca 5.5 cm thick, close. *Stems* up to 25 cm long, formed of long leaf sheaths. *Leaves* plaited, 20-40 ×10-15 cm, elliptic-lanceolate, acuminate. *Inflorescence* 75-120 cm long, arises from the base of the pseudobulb, many-flowered racemes. *Flowers* widely opened, ca 8 cm across, brownish-yellow. Pedicelled *ovary* stout, curved, pale green; *bracts* longer than the...
pedicelled ovary, deciduous, lanceolate, acuminate, many-nerved, dirty-white, spatheceous. Sepals subequal, ca 6.7×1.4 cm, lanceolate, acuminate. Petals slightly shorter than the sepals; lip sessile at the base of the column, ca 5.5×1.4 cm, 3-lobed; side lobes short, round; midlobes crisped, acute, spurred; column erect, ca 2 cm long.


Grows in forests, usually in damp, moist places. Occurrence: Rare.


Photo No.: 58.8 (Plate 58)

Note: Vulnerable species. Not reported from Lower Assam earlier.


Epiphyte or lithophytes. Rhizome terete, sheathed. Stems elongate, branched with many nodes; internodes pseudobulbous; pseudobulb uninoded, crowded or clustered or distant on a creeping rhizome. Leaves usually 1, from the top of the pseudobulbs, or 2, from the branched pseudobulbs, sessile or petioled, elliptic-lanceolate, acute or obtuse, thin or coriaceous, many nerved. Inflorescence drooping or pendulous, either from top or base of the pseudobulbs, many flowered. Flowers usually white, small, dense or lax; bracts deciduous or persistent, distichous, either enclosing the flower bud or flower in bloom. Sepals subequal, concave, acute. Petals narrower than the sepals; lip sessile at the base of the column, 3-lobed; column short with winged apex. Pollinia 4, free or in pairs.

Pholidota imbricata (Roxb.) Lindl. in Hook., Exot. Fl. t. 138. 1825; Hook. f., FBI 5:85. 1890; Jain et Hajra, BBSI 17:85. 1975; Bose et Bhatta, Orch. Ind. 442. 1980;
PLATE 58.

Photo No. 58.1: *Acampe papillosa* (Lindl.) Lindl. Photo No. 58.2: *Cymbidium aloifolium* (L.) Sw.

Photo No. 58.3: *Dendrobium aphyllum* (Roxb.) Fisher

Photo No. 58.4: *Dendrobium farmeri* Paxt.

Photo No. 58.5: *Dendrobium fimbriatum* Hook.

Photo No. 58.6: *Dendrobium jenkinsii* Wall. ex Lindl.

Photo No. 58.7: *Papilionanthe teres* (Roxb.) Schl.

Photo No. 58.8: *Phaius tankervilleae* (Ban.ex Her.) Bl.

*Pseudobulbs* oblong, uninodal, irregularly or less prominently quadrangular, aggregated on stout creeping rhizome, rooting at base. *Leaves* solitary, terminal on pseudobulbs, elliptic-lanceolate, acute, coriaceous, ca 34 cm long and 8 cm in width, 3 nerves distinct on ventral side; petioles 2-5 cm long. Inflorescence pendulous, ca 30 cm long, slender. *Floral bracts* sub-orbicular, many-nerved, membranous, persistent. *Dorsal sepal* broadly ovate, obtuse, 5-nerved, ca 4×3.5 mm; *lateral sepals* elliptic-ovate, acute, ca 5.5×3 mm, keeled. *Petals* linear-lanceolate, acute or obtuse, falcate, 4-5×1-1.4 mm; *lip* deeply saccate, distinctly 3-lobed; *column* ca 4mm long, broadly winged; *rostellum* thick, forked into two arms. *Pollinia* pale yellow. Flr.: May- July. Frt.: August onwards.

Grows on tree trunks and old rocks in dense, moist forests.


Zeuxine Lindl.


Leafy, terrestrial, small *herb*. *Stem* erect, often prostrate below. *Leaves* sheathed, sessile or petiolate, membranous or nearly so. *Inflorescence* short, terminal spikes or spicate racemes. *Flowers* small, slightly opened, sessile or shortly pedicelled, resupinate; *dorsal sepal* adnate to the petals forming a hood; *lateral*
sepals enclosing the saccate base of the lip. Petals of unequal-sides; lip sessile, shortly saccate at base; limb entire, 2-lobed or 2-winged; column very short. Stigmas 2, pulvinate, on the left and right side of the column; rostellum large, deeply divided. Pollinia 2, pyriform.

Key to the species:

1a. Leaves narrow, linear. Capsule widely ellipsoid. ... ... ... Z. strateumatica
1b. Leaves broad, ovate. Capsules narrowly oblong. ... ... ... Z. longilabris


Slender herbs up to 30 cm high, rooting at lower creeping stem. Leaves ovate to ovate-oblong, acute, glabrous, 5-7-nerved, 1.5-3.5×1-2 cm, base rounded; petiole ca 0.6 cm long; sheaths hyaline, loose, less than 1 cm long. Spikes few flowered, 2-6 cm long. Floral bracts as long as the ovary, ovate-lanceolate, acuminate. Flowers greenish-white. Sepals glandular-pubescent, green; dorsal sepal deltoid-ovate, 6×3 mm; lateral sepals falcately oblong, 1-nerved, 4×1.5 mm. Petals adpressed to the dorsal sepal, oblong, obliquely narrowed at apex, ca 6×2 mm, white; lip ca 11 mm long, membranous, white; sac with a callus on either side of the midnerve at base; column simple, without any appendage; rostellum cleft. Pollinia pyriform, clavate, brown. Flr. & Frt.: December – January.
Grows amidst grasses. Occurrence: Rare.


*Herbs* up to 15 cm high. *Stems* usually unbranched, more or less densely crowded with leaves. *Leaves* 0.5-6.0 × 0.2-0.4 cm. *Flowers* dense. *Sepals* white with pink tinge at base; dorsal sepal ca 6 ×4 mm; lateral sepals ca 5×2 mm. *Petals* ca 6×2 mm, white, hyaline; *lip* slightly shorter than the lateral sepals, yellowish; epichile entire or notched, hammer beaded or suborbicular, somewhat fleshy, often pubescent; *column* ca 1.5 mm long; ovary ca 9 mm long. *Capsules* ellipsoid, ca 12 mm long. Flr.: January – March.

Commonly grows amidst grasses, usually in shady places.

**ZINGIBERACEAE**

Terrestrial perennial *herbs*. *Rhizomes* sympodial, creeping. *Leaves* clustered at the base or scattered along a distinct stem, alternate, sheathing, ligulate, pinnately nervet. *Flowers* terminal or on a separate peduncle, spicate or panicled, bisexual,
zygomorphic; bracts enclosing a solitary or 2-several flowers. Calyx tubular or campanulate, 3-lobed or toothed, frequently split on one side. Corolla tubular. 2 stamens modified into a petaloid lip. Ovary inferior, 3-locular; ovules usually numerous. Fruit a dehiscent capsule or rarely indehiscent. Seeds arillate.

Key to the genera:

1a. Inflorescence with a terminal plume of sterile bracts; bracts laterally, partially adnate; Several flowers, forming cone-like spike... ... ... ... ... Curcuma

1b. Inflorescence without a terminal plume of sterile bracts, bracts not adnate:

2a. Inflorescence on a leafless peduncle or in between radical leaves:

3a. Lateral staminodes petaloid, free from the labellum ... ... Kaempferia

3b. Lateral staminodes not petaloid, tooth-like, adnate to the labellum or absent. Inflorescence fusiform enclosed by an involucre of rigid sterile bracts ... ... ... ... ... ... ... ... ... ... ... Hornstedtia

2b. Inflorescence terminal on elongated stem.

4a. Lateral staminodes petaloid, filament slender, long, ovary unilocular:

5a. Stem leafy, corolla tube long, labellum deflexed, adnate to filament forming a tube above the insertion of the corolla lobes; free part of filament long exerted, bow-like... ... ... ... ... ... Globba

5b. Flowering stem leafy, labellum erect or suberect, not adnate to filament and forming tube, filament not bow-like, ovary trilocular

... ... ... ... ... ... ... ... ... ... ... Hedychium

4b. Lateral staminodes minutes or absent:

6a. Inflorescence axis unbranched; inflorescence capitate, cylindrical or
spiciform... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Zingiber

6b. Inflorescence axis branched; inflorescence spicate, paniculate or racemose. ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Alpinia


*Herbs* with tall, leafy stems, and horizontal rootstocks. *Leaves* oblong or lanceolate. *Flowers* in terminal racemes or panicles; bracteoles large, sometimes enveloping the buds. *Sepals* 3, connate in a loosely tubular, 3-toothed calyx. *Petals* 3, connate in a corolla with cylindric tube, rarely exceeding calyx; lobes linear-oblong or oblong, the upper broader and more convex than lateral. *Stamen* 1 perfect; filament flattened; anther-cells diverging at the top, occasionally with an orbicular crest; lateral *staminodes* minute or obsolete; lip spreading, often orbicular, with incurved margins, sometimes with 2 subulate processes at the base of the claw. *Carpels* 3, connate in a 3-celled ovary; ovules few or many on each placenta; style filiform; stigma subglobose. *Fruit* usually a dry or fleshy berry. *Seeds* globose or angled.

Key to the species:

1a. Panicle broad with at least the lower few branches 5-15 cm. long; Bracteole tubular. Lip white with a median pair of pink lines. Capsule black... ... *A. nigra*

1b. Panicles narrow with its branches hardly 0.5-lcm. long; Bracteole open to the base. Lip streaked and dotted with pink-red in the center. Capsule orange-red... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... *A. galanga*

A tall herb. Leafy stems ca 2.1 m high. Leaves 20-45 × 3-20 cm, glabrous. Racemes in compound terminal panicles. Panicles narrow with its branches hardly 0.5-1 cm long. Bracteole open to the base. Lip obovate, white with lilac veins, with a long calw. Ovules few, usually 2, in each cell. Capsule orange red. Flr. & Frt.: May-October.

Grows in damp places, in grasslands, usually prefers shady places.

Vern. Name: Tora-baghini (As.)

Coll. No.: Borah A. 579. Date: 3-4-2007. Locality: Kuklung RF.


Leafy stems ca 3 m high. Leaves 20-45 × 3-20 cm, glabrous. Panicles 15-60 cm long; rachis pubescent; bracteoles 4-8 mm long. Calyx 6-12 mm long, pinkish, pubescent. Corolla pinkish-white, lobes oblong, 7-14 × 2-5 mm; lip obovate, cuneate, 1-2×1-1.5 cm, white with pink lines. Stamens pinkish; filament ca 1 cm long. Ovary pilose, locules 2-seeded. Flr. & Frt.: May - October.

Grows in damp, shady places, on the bank of stagnant water bodies.
Vern. Name: Tora. (As.)

Uses: Young shoots and rhizomes are eaten raw or cooked. Leaves are used to wrap rice for boiling purposes in various traditional food items.

Coll. No.: Borah A. 310. Date: 12-3-2003. Locality: Naya Chara beel

Photo No. 59.1 (Plate 59)

_Curcuma_ L., Sp. Pl. 1: 2.1753

_Rhizome_ branched; roots stout. _Leaves_ in basal bunches, sheathing at base, forming a false stem, usually oblong, often very large. _Spikes_ pedunculate, compact, sub-cylindric, separate from leafy shoots. _Flowers_ in dense, compound spikes, vernal or aestival and proceeding, or autumnal and contemporaneous with the leaves, crowned by a coma of enlarged, coloured bracts; lower bracts ovate, membranous, enclosing several bracteolate fugitive flowers, which open in succession. _Sepals_ 3, connate in a short, cylindric, minutely toothed calyx. _Petals_ 3, connate in a corolla with funnel-shaped tube. _Stamen_ 1 perfect; filament short; lateral _staminodes_ oblong, petaloid, connate with the filament; _lip_ orbicular, with a deflexed tip. _Carpels_ 3, connate in a 3-celled ovary; ovules numerous. _Fruit_ a tardily dehiscent, globose, membranous, 3-valved capsule. _Seeds_ ovoid or oblong, usually arillate.

Key to the Species:

1a. Inflorescence central, usually appearing with the leaves, Peduncle enclosed with in leaf sheaths.

2a. Rhizomes with smell of mango... .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. _C. amada_
2b. Rhizomes without smell o f green mango. Rhizomes deep orange yellow;
ovary hairy upper half only...............................................................C. longa
lb. Inflorescence lateral, separate from the leaf short, usually produce before the
leaves appear, sometimes persisting and found with the leaves.
3a. Leaves uniformly green; rhizomes strongly aromatic................C. aromatica
3b. Leaves with purple flush above on either side o f the midrib; rhizomes faintly
aromatic.......................................................................................C. zedoaria

Curcuma amada Roxb., As. Res. 6:341. 1810 & FI. ind. 1:33. 1832; Hook, f., FBI
6:213. 1893; Prain, Bengal Plants 2:1042. 1903; Chowdhury et ah, Ass. FI. 287.
2005.
Cultivated and sometimes running wild as an escape. General appearance like
that of Curcuma longa but its rhizome is almost white or light greenish-white with a
smell like mango.
1890; Prain, Bengal Plants 2:1042. 1903; Hajra and Jain, Bot. Kaz. Man. 235. 1978;
Chowdhury et al., Ass. FI. 287.2005.
Rhizomes strongly aromatic inside. Plants ca 1 m high. Leaves uniformly
green, silky pubescent beneath; sheaths green. Peduncles 15-20 cm long. Spikes ca
20 x 5 cm; bracts ca 5 cm long. Flowers as long as bract. Corolla tube ca 2.5 cm
long. Lateral staminodes as long as or shorter than lip, obliquely obovate. Lip 8 mm
broad, obovate, 3-lobed. Filament ca 5 mm long; anther ca 4 mm long, hairy. Fir.:
May - June.

566


Grows in open areas, roadsides etc. Occurrence: common.

Vern. Name: Keturi/ Katri (As.)


Photo No. 59.2 (Plate 59)


Commonly cultivated turmeric. Vern. Name: Haldhi (As.)


*Plants* ca 1 m high. *Rhizomes* pale or deep yellow inside, faintly aromatic.

*Leaves* oblong, 20-40 × 10-15 cm with persistent purple flush above on either side of midrib; sheaths purple. *Peduncles* 10-20 cm long. *Spikes* ca 18 × 7 cm; bracts ca 5 cm long. *Calyx* ca 8 mm long, pinkish. *Corolla* ca 2.5 cm long, lobes ca 1 cm long, white with pink tips. *Staminodes* ca 12×8 mm, pale yellow. *Lip* ca 12×14 mm, pale yellow. *Filament* ca 4 mm long. *Anther* ca 5 mm long. *Ovary* villous. Flr.: April-May.

Rare. Found in grasslands amidst forests, usually in damp places.

Coll. No.: Borah A. 581. Date: 4-4-2007. Locality: Kuklung RF.

Photo No. 59.3 (Plate 59)
Globba L., Mant. Pl. 143. 170. 1771.

Perennial herbs with creeping, slender rhizomes. Leaves sessile or subsessile, oblong or oblong-lanceolate. Flowers in terminal panicles, rarely in spikes. Sepals connate in a funnel-shaped, 3-lobed calyx. Petals 3, connate in a corolla with tube longer than the calyx. Stamen 1 perfect; filament long, incurved, with 2 dorsal appendages; lateral staminodes petaloid, contiguous to the corolla-segments; lip deflexed. Carpels 3, connate in a 1-celled ovary; ovules many, on 3 parietal placentas; style filiform, lying in a groove of the filament Fruit a globose capsule, tardily dehiscent. Seeds many, small, ovoid, with a small, white, arillus.


Plants 0.5-1.0 m. leaves lanceolate, 15-30 × 3-6 cm, caudate at apex, 20-35 cm; bracts ca 2 cm, caduceus. Flowers yellowish-brown or orange-yellow, 1-3 at tip of branches, mostly replaced by tiny brownish-green bulbils. Corolla tube ca 2 cm long; lobes ca 8 × 4 mm. Staminodes ca 1 cm long, yellow; lip shallowly bilobed at apex, auricled at base. Anthers crested. Flr. & Frt.: June-October.

Grows on shaded, damp places in forests.


Photo No. 59.3 (Plate 59)


Perennial herbs with tuberous rhizomes. Stem elongated, leafy. Leaves sessile or subsessile, distichous, oblong or lanceolate. Flowers in terminal spikes. Bracts
with straight tips, uniformly green or brown, subcoriaceous, 1- or more flowered. Sepals 3, connate in a tubular corolla. Petals 3, connate in corolla. Perfect stamen 1, lateral staminodes linear, oblong, or spathulate about as long as the labellum. Lip large, 2-fid. Carpels 3, connate into a 3-celled ovary. Fruit globose, 3-valved capsule. Seeds many, arillate.

**Hedychium coronarium** Koenig, Observ. Bot. (Retzins) 3:73. 1783; Prain, Bengal Plants 2:1038. 1903; Chowdhury et al., Ass. Fl. 287. 2005.

Leafy stem 1- 2 m high. Spikes terminal. Flowers white. Lip broad, shallowly 2-fid, distinctly clawed. Stamen as long as or or rather longer than the lip. Labellum suborbicular or orbicular. Lateral staminodes spathulate. Filaments white. Flr.: July- September.

Vern. Name: Dulon- champa (As., Beng.)

Uses: Cultivated as ornamental plant.

Coll. No.: Borah A. 505. Date: 24- 8- 2006. Locality: Gosaipara.


Perennial herbs with horizontal rhizomes, aromatic. Leafy stem 2-3 m high. Inflorescence fusiform enclosed by an involucre of ridged sterile bracts; in a separate stem other than leafy one, 8-10 flowers. Bracts coriaceous, greenish-white. Flowers sessile, bisexual. Corolla-tube much large than the labellum. Lateral staminodes not petaloid, tooth like, adnate to the labellum or absent.

Aromatic rhizomatous, perennial herb. Leaf sheaths forming pseudo aerial stem; 2.5-3.0 m high and ca 10-15 cm in dia. at base. **Inflorescence** 8-14-flowered with 2-4 in bloom. **Bracts** 4-9, coriaceous, greenish-white. **Sepals** adnate to form a tubular calyx, 3-4 cm long. **Petals** 4-8 cm long, basal portion white, upper reddish, 3-lobed, lobes red. **Lip** 4.5-6 cm, red. **Flr.**: Throughout the year, especially in summer.

Vern. Name: Kor-phul, Gandha-tora (As.)

Uses: Aromatic rhizomes are cut into small pieces and are eaten fresh as mouth freshener. It is also used as medicine in pyorrhea, sore throat, rheumatism etc.


Note: Endangered species. Earlier reported from Kulsi RF of Kamrup district in Assam; not reported from north bank of the river Brahmaputra.

Photo No. 59.4 (Plate 59)

**Kaempferia** L., Gen. Pl. ed. 5. 1754; Sp. Pl. 1:2. 1753.

Herbs with short stems or stemless; rootstock often tuberous. Leaves few. Flowers spiked, on radical scapes or at the apex of the leafy stem. Sepals 3, connate in a short, cylindric calyx. Petals 3, connate in a corolla with a long, slender tube, lobes spreading. Stamen 1 perfect; filament short; anthers 2-celled; lateral staminodes broad, petaloid; lip broad, usually 2-fid. Carpels 3, connate in a 3-celled
ovary; ovules many; style long, filiform; stigma turbinate. Fruit an oblong capsule with thin pericarp. Seeds subglobose, with a small, lacerate arillus.

Key to the species:

1a. Leaves suborbicular; corolla segments lanceolate; staminodes obovate-cuneate; lip white with lilac throat ........................................ K. galanga.

1b. Leaves petioled, not produced till flowering is over, oblong; corolla segments long, linear; staminodes oblong, lip lilac or reddish ........................................ K. rotunda.

Kaempferia galanga L., Sp. Pl. 3: 1753; Prain, Bengal Plants 2; 1038. 1903; Chowdhury et al., Ass. Fl. 288. 2005.


Vern. Name: Gathion (As.)


Note: Endangered species. Not reported earlier from north bank of River Brahmaputra.

Kaempferia rotunda L., Sp. Pl. 3:1753; Prain, Bengal Plants 2; 1038. 1903; Chowdhury et al., Ass. Fl. 288. 2005.

A stemless herb. Leaves erect, with short, channelled petioles; blades ca 30 cm long, 7.5-10 cm width.

Cultivated as ornamental and medicinal plant; sometimes found as an escape.

Perennial, rhizomatous herbs with elongated, leafy stems. Leaves oblong-lanceolate, cauline, sessile or subsessile. Flowers in spikes, usually radical. Bracts persistent, densely imbricating, usually 1-flowered. Bracteoles split at the base. Sepals 3, connate in a cylindric, shortly 3-lobed calyx. Petals 3, connate in a corolla with cylindric tube; lobes lanceolate, the upper concave. Stamen 1 perfect; filament short; anther 2-celled, crested; lateral staminodes 0, or adnate to obovate lip. Carpels 3, connate in a 3-celled ovary; ovules many. Fruit an oblong capsule, tardily dehiscent.

Seeds large, globose, arillate.

Key to the species:

1a. Leaves linear lanceolate not more than 2-5 cm broad; spike sub cylindric,

   Labellum purple black... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Z. officinale

1b. Leaves oblong-glabrous beneath, 3-8 cm broad; spikes globose or ovoid, labellum white or yellow; bract orbicular green... ... ... ... ... ... ... ... Z. zerumbet


Sparingly cultivated herb for its commercial rhizome. Vern. Name: Ada (As.)

Uses: Rhizomes are eaten fresh, as spice & condiment, as medicine for liver ailment, indigestion, cough etc.

A tall *herb*, with rather stout, leafy stems, 7.5-10 cm high. *Leaves* oblong-glabrous beneath, 3-8 cm broad. *Spikes* globose or ovoid; bract orbicular green. *Labellum* white or yellow. Flr.: August-September.


Note: Endangered species. Photo No.: 59.5 (Plate 59)

**STRELITZIACEAE**


Key to the genera:

1a. Tree like, stem with leaf scars ....................................................... *Ravenala*

1b. Shrubby, leaf scar not seen .......................................................... *Strelitzia*


*Stem* tree-like, marked with annular leaf scars. *Leaves* large, close-set, distichously fan-like; petioles long, concave below, hardly sheathing. *Flowers* many, large, short pedicelled, shortly racemose within large, boat-shaped; bracts spathe-like, distichously spreading, on axillary scapes or peduncles. *Sepals* 3, long narrow, the central rather wider than the lateral, keeled. *Petals* 3, the outermost shorter than the others, lateral like sepals but rather smaller. *Stamens* 5; anther linear, 2-locular, much exceeding their filaments. *Carpels* 3, connate in a 3-celled ovary; ovules
numerous in each cell; style long, filiform; stigma oblong -clavate, shortly 6-toothed. Fruit an oblong or ovoid trigonous, loculicidally 3-valved capsule. Seeds numerous; ariilus fimbriate


Cultivated as ornamental plant in homesteads, institutional gardens and parks.

Vern. Name: Pantha-padop. (As.)


Cultivated as ornamental plant in homesteads, institutional gardens and parks.

Vern. Name: Mala kol (As.)

**MUSACEAE**

Perennial cormous *herbs*. *Stem* formed by the imbricate bases of the petioles. *Leaves* spirally arranged. *Lamina* large with thick midrib. *Flowers* in pedunculate spikes, generally unisexual, zygomorphic, clustered; bracts spatheceous, caducous. *Male flowers* within the upper bracts; hermaphrodite or *female flowers* within lowers bracts. *Perianth* free or variousely united; lobes toothed at apex. *Stamens* 5, sixth
rudimentary; filaments filiform; anthers linear, 2-locular. Ovary inferior, 3-locular; ovules many; styles filiform. Fruit fleshy, indehiscent.


Cormous herbs, often tree like. Leaf sheaths tightly clasping forming pseudostem. Pseudostems swollen at base with offsets. Leaves very large, oblong. Flowers in an erect or decurved, sub-terminal spike, practically 1-sexual, the lower female, the upper male; bracts large, spathaceous, ovate or orbicular. Bracts and flowers deciduous except female ovaries in basal portion. Sepals connate in a spathaceous, 3-5-lobed calyx. Petals connate in a unilateral corolla. Stamens 5 perfect, the sixth rudimentary or obsolete; filaments stout, filiform; anthers linear, erect, 2-celled. Carpels 3, connate in a 3-locular ovary; ovules many, superposed; style filiform from a thickened base; stigma globose, 6-lobed. Fruit oblong or fusiform, trigonous, fleshy, indehiscent. Seeds subglobose or angled by pressure, in cultivated forms often obsolete.

The following species of _Musa_ are in cultivation in various forms in the area.

- **Musa assamica** G. Mann.  
  Vern. Name: Malbhog Kol (As.)
- **M. balbisiana** Colla  
  Vern. Name: Bhim Kol (As.)
- **M. chantpa** Hort.  
  Vern. Name: Cheni-champa kol (As.)
- **M. chinensis** Sweet.  
  Vern. Name: Jahaji kol (As.)
- **M. paradisiaca** L.  
  Vern. Name: Athiya Kol (As.)
- **M. sanguinea** Hook. f.  
  Vern. Name: Kachkol / Pura kol (As.)
- **M. velutina** Wendl. & Drude  
  Vern. Name: Ram kol (As.), Baby pink banana (Eng.)
COSTACEAE

Perennial, erect or spirally twisted *herbs*, with creeping tuberous rootstock. *Leaves* alternate, shortly petioled, simple, entire; sheath tubular, closed, ligulate. *Inflorescence* a dense terminal cone like spike with spirally arranged bracts. *Flowers* bisexual, irregular. *Calyx* 3-toothed. *Corolla* 3-lobed. *Stamen* 1, connective petaloid. 2 *staminodes* combined to form lip or labellum, other staminodes minute or obsolete. *Ovary* inferior, 3-locular. *Fruit* a irregularly dehiscing capsule.

(Monotypic family)


*Herbs* with long, leafy stems of 1-2.5 m high; root stock tuberous, horizontal. *Leaves* oblanceolate-ovate, 12-24 × 4-7 cm, upper surface glabrous and lower surface pubescent, with tubular closed sheaths. *Flowers* in dense, globose or ovoid, terminal heads. *Bracts* ovate-oblong, 2-8 cm long. *Sepals* 3, connate in a short, funnel shaped calyx. *Petals* 3, connate, tube short. *Stamen* 1 perfect; filament petaloid, anther-cells situated in its middle; lateral staminodes minute or obsolete; lip large, obovate, with incurved margins. *Carpels* 3, connate; ovary 3-celled; ovules many. *Fruit* a globose or ovoid capsule, tardily opening on one side between the ribs. *Seeds* obovoid or subglobose; shortly arrilate. *Frr. & Frt.*: June - October.

Usually grows in moist, partially shady places. Natural as well as cultivated.
Vern. Name: Jom-lakhuti, Devi-tokon (As.)

Uses: The juice of the tuberous rootstock is administered with cow milk and banana in case of jaundice.


Note: Vulnerable species. Photo No. 59.6 (Plate 59)

**CANNACEAE**

Erect, rhizomatous *herbs*. *Leaves* alternate, large, broad, midnerve prominent. *Inflorescence* terminal, racemes or panicles. *Flowers* irregular, bisexual, large and brightly coloured. *Perianth* double; the outer calyx-like, the inner corolla-like. *Sepals* 3, imbricate, small and green. *Petals* 3, sepaloid, connate at base and adnate to the staminal column. *Stamens* petaloid, 3; outer one staminode, inner 2 connate; anther solitary, 1-celled. *Ovary* inferior, 3-celled; ovules many per cell. *Fruit* a capsule, pericarp warty.

(Monogeneric family)

*Canna* L., Sp. Pl. 1. 1753.


Tall *herbs*, with simple, leafy stems and perennial creeping rhizome. *Leaves* large, ovate-elliptic or oblong, 30-50× 10-15 cm, chartaceous, glabrous, base tapering, margin entire, apex acuminate. *Panicles* ca 20 cm long, bracts ovate or narrowly linear, 4-7 cm long; bracteoles orbicular. *Flowers* paired, ca 10 cm long.
Photo No. 59.1: *Alpinia nigra* (Gaertn.) Burt.

Photo No. 59.3: *Globba clarkei* Bak.

Photo No. 59.5: *Zingiber zerumbet* (L.) J. E. Sm.

Photo No. 59.2: *Curcuma aromatica* Salisb.

Photo No. 59.4: *Hornstedtia linguiformis* (Schult.) K. Schum.

Photo No. 59.6: *Costus speciosus* (Koen. ex Retz.) Sm.
Sepals 3, small, oblong or lanceolate. Petals 3, connate in a yellow, orange or red corolla with cylindric tube; lobes lanceolate, equal. Stamens, 1 partially perfect, with a 1-celled anther adnate to one of its edges. Staminodes spathulate-oblanceolate, ca 6 cm long. Carpels 3, connate in a 3-celled ovary; ovules numerous in each cell; style adnate below to the staminal tube, free above; stigma capitate. Fruit globose, warty capsule, indehiscent or tardily rupturing. Seeds large, globose. Flr. & Frt.: Throughout the year.

Usually cultivated in gardens and in most of them as an escape.

Vern. Name: Parijat phul (As.), Sabha-jaya; sarba-jaya (Beng.)


**MARANTACEAE**

Perennial rhizomatous herbs or shrubs. Leaves clustered at base or all cauline, petioled, ovate-oblong or lanceolate, pinnately nerved; petioles usually pulvinus. Inflorescence paniculate or capituliform. Flowers bisexual, zygomorphic, bracteate. Sepals 3. Corolla tubular, 3-lobed. Stamens and staminodes connate below forming a staminal tube. Staminodes 3-4, stamen 1. Ovary inferior., 1-or 3-locular. Styles curved; stigma 3-lobed. Fruit dehiscent or indehiscent; seeds atrillate.

Key to the genera:

1a. Shrubs; stem dichotomously branched. ... ... ... ... ... Schumannianthus

1b. Herbs; unbranched:

2a. Inflorescence dichotomous terminal cymes ... ... ... ... ... Maranta

2b. Inflorescence subglobose heads ... ... ... ... ... ... Phrynium
**Maranta** L., Sp. Pl. 2. 1753.

*Herbs* with leafy stems, and a tuberous or creeping rootstock. *Leaves* petioled on the sheaths, ovate. *Flowers* in laxly dichotomous, terminal cymes; bracts narrow, spathaceous; bracteoles 0. *Sepals* 3, narrow, subequal. *Petals* 3, connate in a tubular corolla; lobes subequal. *Stamen* 1, partially perfect with a single marginal another-cell, connate below in corolla-tube; lobes petaloid, staminodes petaloid or other; the lip crested. *Carpels* 3, two becoming obsolete and forming a 1-locular, 1-ovuled ovary, with 2 small, empty locules; style adnate to staminal tube; stigma oblique, wide, almost 2-lipped. *Fruit* indehiscent, ovoid-oblong, or somewhat 3-cornered, more or less oblique; pericarp fleshy. *Seed* arillate.


Occasionally cultivated for its edible rhizomes and as ornamental plant. The rootstock yields Arrowroot starch.

Vern. Name: Tora-alu (As.), Mukta-pati, pati-pati, madar-pati (Beng.).

Arrowroot (Eng.)


*Leaves* oblong or ovate-oblong, 20-55×7-20 cm, rounded or abruptly cuneate at base, cuspidate at apex; petioles 5-70 cm long. *Spikes* on upper half of the petiole, globose, 4-5 cm across; peduncles absent or rarely up to 4 cm in fruits; *bracts* red, oblong-lanceolate, 2.5-4×1-2 cm. *Seeds* usually 3, sometimes 2. Flr. & Frt.: January-December.

Grows in damp, shaded places in the forests.

Vern. Name: Kou-pat. (As.)

Uses: Leaves are used to wrap washed rice and then boiled in water-vapour to prepare a kind of traditional food item by some tribes.

Coll. No.: Borah A. 560. Date: 4-7-2006. Locality: Bijni.


Shrubs. Stem cane-like, ca 1-1.5 m high; dichotomously branched; rootstock tuberous or woody. Leaves ovate-oblong or oblong-lanceolate, 8-15 × 3-7 cm, acute or acuminate at apex, glabrous; petioles terete, hairy. Inflorescence lax-flowered, terminal panicles, ca 5-10 cm long; bracts lanceolate, convolute. Flowers in pairs, white. Sepals 3, ca 5 mm long. Petals 3, ca 1 cm long, conniving but hardly connate in a tube below, their tips spreading. Stamens, 1 perfect; staminal tube ca 1 cm long. Staminodes ca 1 cm long, all connate in a corolla-like tube, segments petaloid, unequal. Carpels 3, connate in a 3-celled ovary; ovule 1 in each cell; style adnate below to the staminal tube, hooked above; stigma capitate. Fruit indehiscent, 1-3-seeded. Seeds subglobose, arillate. Flr. & Frt.: May- June.

Grows in shaded places, especially on bank of wetlands or in marshy places.

Vern. Name: Pati-doi, Pati goch (As.)

Uses: The stem is used for making mats called “Sital pati”


BROMELIACEAE

Short stemmed terrestrial herbs with rosettes of long and spiny-serrate leaves. Inflorescence terminal on the leafy stem, capitate, crowned with a tuft of leaves. Flowers sessile, bisexual. Calyx short. Corolla-lobes free or variously connate, base with 2 ligules, imbricate. Stamens 6, adnate to corolla. Ovary inferior, 3-celled; ovules indefinite per cell; style slender, elongate; stigmas 3. Fruit a syncarpium, formed of the coalescence rachis, bracts and ovaries.

*Herbs* with short, leafy stems. *Leaves* rosette, long with spinous-serrate edges. *Flowers* in a terminal, cone-like, very dense, globose or oblong spike, solitary, sessile, or embedded on the axil of each bract, only the sub-spinescent tips of the bracts projecting, the uppermost bracts empty, more or less leafy, often forming a viviparous coma. *Sepals* 3, wide-acuminate, closely imbricate. *Petals* 3, slightly imbricate, slightly adnate below to the filaments, often with 2 minute, basal scales. *Stamens* 6; 3 alternate with petals, filaments free or slightly adnate to the petals; 3 opposite and adnate below to the petals. *Carpels* 3; ovary inferior, 3-celled, fleshy, embedded in the thick rachis. *Fruit* fleshy, embedded in the fleshy receptacle, the whole forming with the bracts, rachis, and receptacles a cone-like, fleshy *syncarp*. *Seeds* few, ovoid or oblong, somewhat compressed.


Cultivated in large amount in hill slopes for its very tasty and commercially important syncarp. Vern. Name: Anarosh (As.)

**HAEMODORACEAE**

Perennial glabrous or woolly *herbs*, with short, tuberous rootstock. *Leaves* usually radical, often distichous, narrow-linear or sub-ensiform, with sheaths. *Flowers* in terminal spikes, racemes, or panicles. *Perianth* corolline, persistent, 2-
seriate; lobes 6. *Stamens* 6, opposite or more or less adnate to the perianth-lobes, all perfect or 1-3 reduced to staminodes. *Carpels* 3, connate in a 3-celled ovary, inferior, half-inferior, or almost superior; ovules 1 or more per cell. *Fruit* a superior loculicidal capsule or an inferior, indehiscent berry or capsule tipped by the perianth. *Seeds* in many, few, or sometimes solitary, globose, oblong, angular, or flattened.


*Herbs* with horizontal root stocks. *Leaves* narrow, linear or lanceolate, subplicately nerved. *Flowers* small, racemose, on erect scapes; *bracts* scarious. *Perianth* superior; lobes 6, subequal, spreading, connate below in a short, compansulate tube. *Stamens* 6; filaments very short, connate to mouth of the perianth-tube. *Carpels* 3, connate in an inferior, 3-celled ovary, with a conical, free apex; ovules 2 or more in each cell; stigma subsessile 3-lobed. *Fruit* an imperfect berry. *Seeds* few, dehiscence by bursting through the pericarp.


Grows in moist shady places in the forests and homesteads.

Coll. No.: Borah A. 549. Date: 24-6-2006. Locality: Kakoijana RF.
AMARYLIDACEAE

Bulbous herbs, ornamental. Leaves from base of stem or from apex of bulbs, linear. Flowers showy, bisexual, regular, umbellate, subtended by an involucre two or more usually membranous bracts. Perianth superior or inferior, petaloid. Filaments free or expanded at base, connate and forming false corona. Anther 2-celled. Ovary 3-locular. Stigma capitate or 3-lobed. Fruit a capsule or berry.

Key to the genera:
1a. Scapes 1-flowered..................................................... Zephyranthes
1b. Scapes umbellate...................................................... Crinum


Herbs, sometimes large, with tunicate bulbs. Leaves long, ensiform or lanceolate. Flowers large, umbellate, sessile or short-pedicelled, subtended by 2 spathe-like bracts and linear bracteoles at the top of a long, solid scape. Perianth funnel-shaped or almost salver shaped; tube long, cylindric or with enlarged mouth; lobes 6, linear-lanceolate or narrowly oblong, recurved or spreading or conniving. Stamens 6, adnate to throat of perianth-tube; filaments free; anther linear or oblong-linear, dorsifixed. Carpels 3, connate in a 3-celled ovary; ovules in each loculus few or many, sometimes only 2; style filiform; stigma very small, subcapitate. Fruit an irregularly subglobose, membranous or coriaceous capsule. Seeds few, large.

Bulbs globose. Leaves oblong, 70-100 × 1.5-8.5 cm, flat, coriaceous, glabrous, narrow at base, margin entire, apex gradually tapering. Scape to 30 cm long, often more, 1-2 cm across; umbels 10-17 cm, 30-50-flowered; bracts hooded, ovate-lanceolate, 7-8.5 × 4-5 cm; bracteoles ca 5 cm. Flowers ca 16 cm long, 10-14 cm across. Perianth salver-shaped; tube ca 10 cm; lobes white, oblong-linear, glabrous, many-nerved, subacute, cuspidate. Filaments ca 4.5 cm; anthers ca 2 cm long. Ovary 3-celled; ovules 1 or 2 per cell. Flr. & Frt.: Summer.

Vern. Name: Bon-nohoru, Gonohoru (As.). Uses: Ornamental.


Zephyranthes Herbert, Appendix 36. 1821. (nom. cons.)

Herbs with tunicate bulbs. Leaves few, linear, appearing with or after the flowers. Flower solitary, pedicelled or rarely sessile within an entire or 2-fid, spathe-like bract at the top of a long, fistular scape. Perianth funnel-shaped, straight or declinate; tube short or long, dilated upwards; lobes 6, equal or somewhat unequal, narrowed at the base. Stamens 6, adnate to perianth throat, equal or 3 somewhat shorter than the others; anthers linear, dorsifixed. Carpels 3, connate in a 3-celled ovary; ovules many, 2-seriate; style filiform, usually declinate above; stigma more or less 3-fid. Fruit a subglobose or depressed capsule, ultimately 3-dymous or 3-lobed, loculicidally 3-valved.
Zephyranthes purpurea Phil., Linnaea 29:65. 1858.

Small, bulbous herb. Leaves ca 20-30 cm long, 0.5 - 1 cm broad; dark green, glossy. Scapes erect, ca 12-30 cm long, somewhat angular. Flowers rose or pink or purplish or white. Flr. & Frt.: summer.

Mostly cultivated; sometimes Usually grows in open fields as escape.

Uses: Ornamental.


AGAVACEAE

Stout herbs or shrubs. Leaves large, thick, sometimes fleshy, densely clustered at the top of a rootstock or stem, spiny at the tip and / or armed along the edge. Scape terminal, simple, far far exceeding leaves, branched. Inflorescence racemes or panicles. Flowers small, bisexual. Perianth tubular or narrowly campanulate, 6-cleft; lobes narrow. Stamens 6, adnate to base of perianth-tube.

Carpels 3, connate. Fruit a globose or 3-lobed dry berry.

Key to the genera:

1a. Leaves spinous apically or on margins. Ovary inferior. Fruit capsule... ... Agave

1b. Leaves unarmed. Ovary superior. Fruit berries. .. .. .. .. .. ... Cordyline

Agave L., Sp. Pl. 323. 1753.

Shrubby herbs, with short woody stock. Leaves large, thick and fleshy, densely clustered at the top of a rootstock or short stem, tip spiny, edges spinous-serrate. Flowers solitary or fascicleds on a large thyrsoid scape. Perianth tube funnel


A large short stemed, fleshy leaves herb that are cultivated as garden plant and as hedge.


Cultivated in gardens and sometimes found in wild as escape.

**DRACAENACEAE**

Shrubs or herbs, sometimes with stoloniferous rootstock. Leaves basal, flat or cylindric, base sheathing; or alternate or crowded and sub-terminal, sessile or petioled. *Flowers* in terminal racemes, panicles, heads or umbels; or *scape* solitary; bisexual. *Perianth* funnel-shaped, or tubular, 6-lobed. *Stamens* 6. *Ovary* 3-celled. *Fruit* berry.
Key to the genera:

1a. Herbs with subterranean creeping rootstock ........................................ Sansevieria

1b. Shrubs, without creeping rootstock........................................................... Pleomele

_Pleomele_ Salisb.

Prodr. Stripium in Horto ad Chapel Allerton Vigentium 1796.

_Shrubs. Leaves_ alternate or crowded and sub-terminal, sessile or petioled, many-nerved, costate or not. _Flowers_ in terminal racemes, panicles, heads or umbels; bracts small. _Perianth_ corolline, campanulate, funnel-shaped, or tubular, 6-lobes narrow. _Stamens_ 6, adnate to base of perianth-tube; filaments or flattened; anthers versatile. _Carpels_ 3, connate in a 3-celled ovary; ovules solitary in each cell; style filiform; stigma capitate. _Fruit_ a globose, didymous, or 3-lobed berry. _Seeds_ globose or angled.


Cultivated as an ornamental plant and as hedge. Sometimes running wild.


_Herbs. Leaves_ basal, sessile, flat or cylindric, base sheathing. _Scape_ solitary, stout. _Flowers_ bisexual. _Perianth_ tube 6-lobed. _Stamens_ 6, adnate to the perianth mouth. _Ovary_ 3-celled. _Fruit_ berry.


Though it is a cultivated species, it is running wild in many locations.

Vern. Name: Gumuni (As.) Uses: Ornamental.


HYPOXIDACEAE

Perennial herbs with an erect or tuberous, subterranean rhizome. Leaves radical, sessile or petioled, lanceolate, linear-lanceolate or linear, distinctly nerved. Inflorescence racemose or spicate or subumbellate on a long scape. Flowers solitary, regular. Tepals free or almost so, yellow. Stamens 6; anthers introse or extrose. Ovary inferior, 3-locular, ovules many. Fruit a many seeded capsule or berry.


Slender small herbs. Leaves radical, entire, plicate, acuminate, sheathing at base. Flowers bisexual, solitary. Perianth segments spreading. Ovary inferior,


Grows in open places amidst grasses.


**TACCACEAE**

Perennial *herbs* with tuberous or creeping rootstock. *Leaves* radical, large, long petioled, undivided or dissected, and costate, reticulate veined. *Inflorescence* umbellate on long scape; outer bracts few, usually 4, leafy and broad, forming an involucre, sometimes coloured; inner bracts under the pedicels many, long, filiform, pendent. *Flowers* regular, hermaphrodite. *Perianth* usually lurid, coralline, urceolate or subcampanulate, lobes 6 in 2-series; lobes of outer series larger. *Stamens* 6, adnate to perianth-tube or to base or perianth-lobes, included; filaments very short; anthers sessile under the hood; cells 2; dehiscence longitudinal. *Carpels* 3, connate in an inferior, 3-cornered, 1-locular ovary, with 3 parietal placentae; *ovules* many; *style* short, columner, usually 3-cornered; stigmas 3, often petaloid, broad, 2-fid and inflexed like an umbrella above the style. *Fruit* globose, ovoid, turbinate, an oblong,
3-6 ribbed, forming an indehiscent berry, or rarely a 3-valved capsule. **Seeds** many, ovoid, compressed, longitudinally many-striate.

(Monogeneric family)

**Tacca** J. Forst. & G. Forst., Char. Gen. Pl. 35. 1775

**Tacca laevis** Roxb., Hort. Bengal. 25; Fl. ind.2:171. 1832; Prain, Bengal Plants 2: 1063. 1903; Chowdhury et al., Ass. Fl. 290. 2005.

*Herb* with oblong rootstock. *Leaves* radical, large, 51cm long petioled, entire and costate, reticulate veined; petiole smooth, 68 cm long. *Flowers* hermaphrodite, regular in umbellate on long scape about 80 cm; scape smooth; outer bracts few, 4, sessile, subequal, leafy and broad, forming an involucre, whitish; inner bracts under the pedicels many, long, filiform, pendent, violet-purple. *Perianth* coralline, urceolate or subcampanulate, lobes 6 in 2-series; lobes of outer series larger, light purple-violet. *Stamens* 6, adnate to base or perianth-lobes, included; filaments very short; anthers sessile under the hood. *Carpels* 3, connate; ovary inferior, 3-cornered, 1-locular; *ovules* many; *style* short, columnar, stigmas 3, petaloid, broad, 2-fid and inflexed like an umbrella above the style. *Fruit* ovoid, turbinate, an oblong, 3-6 ribbed, indehiscent berry. *Seeds* many, ovoid, compressed, longitudinally many-striate.

Grows in damp, shaded area in the forests. Occurrence: rare.

Vern. Name: Bagbor—darhi (As.), Moti-munda (Beng.)

Co. No.: Borah A. 454. Date: 21-5- 2005. Locality: Kakoijana RF.

Note: Endangered species. Earlier reported from NC Hills and Cachar (Barak valley) only; not reported from Brahmaputra valley.
DIOSCOREACEAE

Large, slender, deciduous *climbing herbs*, with usually a tuberous underground rootstock, or a cluster of tuberous roots, sometimes the tuber epigeal. *Leaves* alternate or opposite, simple or palmately compound, costate and reticulate; petioles with a pulvinus at each end, often angled and twisted at the base, sometimes articulate. *Spike* or *racemes* solitary or several together, in leaf-axils, or on terminal or axillary, leafless branches. *Flowers* small, actionmorphic, unisexual; tepals; 6, biseriate. *Femal flowers* with *staminodes*. *Stamens* 6, biseriate. *Ovary* inferior, 3-locular, ovules 3-winged. *Seeds* compressed, often winged.


Perennial, deciduous *climbers*, with usually a tuberous underground rootstock, or a cluster of tuberous roots, sometimes the tuber epigeal. *Leaves* alternate or opposite, simple or palmately compound, costate and reticulate; petioles with a pulvinus at each end, often angled and twisted at the base, sometimes articulate. *Flowers* small, usually unisexual, spicate or racemose, dioecious or monoecious; *bracts* small, often minute; male racemes simple or paniculate, female simple, sometimes reduced to 1-2 flowers. *Perianth* 2-seriately 6-lobed. *Male flowers*: perianth deeply 6-fid; *stamens* 6, adnate to base of perianth, all perfect, or 3 reduced to *staminodes*, or only 3 with no staminodes; *pistilode* thick, columnar, 3-fid or entire or obsolete. *Female flower*: perianth smaller than in male, 6-fid, persistent; *staminodes* 3 or 6 or 0; *Carpels* 3, connate in an inferior, 3- cornered, 3-locular ovary; ovules 2 per cell; *styles* 3, very short; *stigmas* entire or 2-fid, recurved.

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Fruit a berry or a 3-valved capsule, angles prominent. Seeds flat or globose, sometimes with a unilateral samaroid or a circular, membranous wing.

Key to the species:

1a. Leaves simple:

2a. Capsules longer than broad; seeds winged at base only. ... ... D. bulbifera

2b. Capsules broader than long; seeds winged all around:

3a. Stem twining to the left:

4a. Leaves glabrous, hastate or deltoid-cordate without stipular thorns. ...

... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... D. deltoidea

4b. Leaves pubescent, reniform or orbicular-cordate with sharp stipular thorns ...

... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... D. esculenta

3b. Stem twinning to the right, 4-angled or winged. ... ... ... ... ... ... D. alata

1b. Leaves compound, leaflets usually 5. ... ... ... ... ... ... D. pentaphylla


Tubers polymorphic, shallow to deep underground, flesh pale yellowish to purplish white. Stem 4-5 angled, or winged, glabrous, unarmed or prickly; bulbils large. Leaves generally opposite, broadly ovate, 5-nerved, sub-cordate to hastate at
base, acute or cuspidate at apex, ca 10-15×5-15 cm, petioles ca 5-12 cm long, base usually winged. *Staminate* spikes 1-3, on axillary branches, ca 2 cm long; rachis sympodial, winged, decurved; *tepals* ca 1 mm long, *stamens* 6. *Pistillate* spikes ca 15 cm long; solitary; tepals ca 2 mm long. *Capsules* broadly reniform, green nad reddish-brown when dry; *wings* ca 2 cm across; *seeds* winged all around.

Found climbing on associated shrubs. Flr. & Frt.: December- January.

Occurrence: Rare in forests. Cultivated.

Vern. Name: Kath alu (As.), Kham-alu (Beng.).

Uses: Tubers are eaten cooked.

Coll. No.: Borah A. 360. Date: 16-10-2004. Locality: Kakoijana RF.


Grows in hill slopes in forests. Occurrence: Rare in forests. Cultivated.

Vern. Name: Kath alu (As.). Uses: Tubers are eaten cooked.

Coll. No.: Borah A. 361. Date: 16-10-2004. Locality: Kakoijana RF.


Grows on slopes of foothills. Occurrence: Scarce.

Coll. No.: Borah A. 403. Date: 15-1-2005. Locality: Kakoijana RF.

Note: Scarce. Not reported in Assam's Flora by Chowdhury et al., 2005.


A large climber. Tubers few, unequal, mixed with many fibrous roots of which the uppermost are spinous. Cultivated for its edible tubers.

Vern. Name: Moa Alu/ Mou-alu (As., Beng)


Stems prickly; bulbils many, globose or ellipsoid. Leaves 3-5-foliolate; petioles 8-10 cm; leaflets oblanceolate or obovate, 10-15 ×3-5 cm; lateral nerves 5-7-pairs. Male inflorescence ca 3 cm, 2-6 together on axillary or terminal leafless branches.
Female inflorescence 1-3 together, ca 25 cm long. Capsules hairy, winged. Flr. & Frt.: August- March.

Grows in forests, scrub forests usually on slopes of foot hills.

Ver. Name: Panch-potia alu (As.), Kanta-alu (Beng.)


(Plate No. 60)

LILIACEAE

Perennial herbs, very rarely shrubs or small trees, with fibrous roots or a creeping rootstock, or a bulb or corm. Leaves cauline or radical, sometimes 0. Flowers hermaphrodite, rarely unisexual, axillary or terminal, solitary or geminate or umbellate, spicate or racemose or paniculate or fascicled; bracts usually small, scarious, sometimes spathe-like. Perianth 6-merous in 2 whorls, rarely 4-or 8-or 10-merous. Stamens 6, rarely 3 or fewer, hypogynous or adnate to the perianth. Carpels 3, connate in a superior, 3-celled ovary; ovules 2 or more. Fruit a caspule or berry, usually 3-celled. Seeds 1 or more, globose or flattened.

Key to the genera:

1a. Undershubs. Stem straggling or climbing. Asparagus

1b. Herbs. Stem herbaceous:

2a. Annual stem climbing. Leaves broad with tendril-like tips. Gloriosa

2b. Herbaceous. Leaves not tendriller. Chlorophytum

Straggling, or climbing Undershrubs; stems erect, terete, grooved, or angled; rootstock creeping. Leaves scale-like, with tufts of needle-like or flattened axillary cladodes. Flowers hermaphrodite, minute, axillary, solitary, fascicled or racemose; bracts minute or obsolete. Perianth petaloid, 6-partite, campanulate. Stamens 6, adnate to base of perianth. Carpels 3, connate in a sessile, 3-gonous, 3-celled ovary; ovules 2 or more in each cell; style columnar; stigmas 3. Fruit a globose, pulpy berry. Seeds few or solitary.


A tall, climbing, much branched undershrub, often cultivated in household gardens for ornamental purposes.

Vern. Name: Sata-mul (As., Beng.)

Chlorophytum Ker.-Gawl.

in Curtis, bot. Mag. 27:t 1071. 1808.

Perennial scapigerous herbs. Roots fascicled on a short rootstock. Leaves radical, clustered, sheathing at base. Flowers laxly racemel on a simple or branching leafless scape. Perianth petaloid, lobes free, rotate. Stamens 6, hypogynous, free or the 3 inner adnate to perianth-lobes. Carpels 3, connate in a sessile 3-quetrous ovary; ovules 4 or more in each cell. Fruit a truncate, trigonous, often 3-lobed, loculicidal capsule. Seeds broad usually compressed.


Grows in shady places especially in humus rich soil.


**Gloriosa** L., Sp. Pl. 1:1753

Rootstock tuberous, annual aerial stem climbing. Leaves alternate, opposite, or 3-nately whorled, lanceolate, with a long, spiral tendrils like apex. Flowers large, axillary, solitary. Perianth petaloid, segments 6, spreading or reflexed, margins often undulate. Stamens 6, hypogynous. Carpels 3, conate in a 3-celled ovary. Fruit a septicidal capsule.


Rootstock a chain of tuber-like joints, budding from the convex upper side. Leaves with cirrhate tips. Perianth 6, petaloid, spreading, margins undulate, upper red, lower greenish-yellow. Stamens 6, spreading, anthers linear, dorsifixed. Carpels 3, conate in a 3-celled ovary, ovules numerous in each cell; style filiform, deflexed with 3 subulate arms. Fruit septicidal capsule; seeds subglobose.

Rare in forests. Sometimes cultivated as ornamental plant.
ALLIACEAE

Bulbous, foetid or pungent herbs. Leaves radical, usually narrow, often fistular, base sheathing and enveloping the scape below. Flowers small, many in a terminal umbel, enclosed at first by 2, rarely 4, membranous bracts at the top of a simple, leafless scape. Perianth of 6 persistent segments, free or lightly connate below, sub-equal, campanulate or stellate. Stamens 6, inserted at or near the base of the perianth-lobes; filaments free, filiform, or somewhat dilated below, or sometimes connate at the base. Carpels 3, connate in a sessile or shortly stipitate, more or less perfectly 3-Selled ovary; ovules usually 2; style filiform; stigma minute. Fruit a membranous, loculicidal capsule. Seeds few, compressed.

(Monogeneric family)

*Allium* L., Sp. Pl. 2:294. 1753; Gen. Pl. ed. 5. 1754

Key to the species:

1a. Leaves fistular; heads dense; scales of bulbs reddish-brown .... ... ... *A. cepa*

1b. Leaves flat; heads lax; scales of bulbs white .. .. .. .. .. .. .. .. .. .. .. .. .. *A. sativa*


A commonly cultivated bulbous herb. Used as spice & condiment, medicinal in low pressure. Vern. Name: Piyaj (As., Beng.), the onion.

A bulbous herb, commonly cultivated.

Vern. Name: Nohoru, Ponoru, Losun (As.), Lasun (Beng), the garlic.

Uses: As spice & condiment and it is also considered medicinal in stomach disorder, high pressuer, cough & cold, skin diseases etc.

SMILACACEAE

Climbing shrubs. Leaves with 3-5-main nerves, petioled; base of petiole broadened into a distinct sheath. Inflorescence of 1-3 or many umbels on axillary, bracteate peduncles. Flowers small. Tepals 6, free or connate. Stamens 6, free. Staminodes usually 3 in pistillate flowers. Ovary superior, 3-locular. Fruit a globose berry.


Stems armed, climbing. Leaves elliptic, orbicular-ovate or oblong-cuspidate, 12-18×8-12 cm rounded or subcordate at base; main basal nerves 5; petiole with large amplexicaul, erect or reflexed auricles. Umbels 10-20, many flowered on a common peduncle. Flowers very small. Fruits ca 5 mm across. Flr. & Frt.: January-December.

Common in forests.

Vern. Name: Kumbhi/ Kumarika/ Bagh-achora lota/ Bagh-chora lewa (As.)

**PONTEDERIACEAE**

Aquatic or march-land herbs, rooted or free-floating. Leafy stems 1-foliate, springing from the buried rootstock or from the joints of the floating stem. Leaves radical, floating or submerged; petioles sheathing at base; basal leaf long petioled, Inflorescence terminal, peduncled, spiciform, many flowered; bract under the inflorescence spathe-like, bract under the flowers minute or obsolete. Flowers hermaphrodite, zygomorphic or actinomorphic. Perianth 6, inferior, petaloid, usually tubular, blue or lilac. Stamens 6 or 3, or 1, unequally adnate to perianth–tube or base of perianth-lobes. Carpels 3, connate in a superior 3-celled ovary; ovules 1-many. Fruit a dry, membranous, loculicidally 3-valved capsule. Seeds ovoid or oblong, small; longitudinally ribbed.

Key to the genera:

1a. Petioles swollen; flowers sessile, zygomorphic. . . . . . . . . . . . . . Eichhornia

1b. Petioles not swollen; flowers pedicelled, actinomorphic. . . . . . . . . . . . Monochoria
**Eichhornia** Kunth, Enum. Pl. 4:129. 1843.


**Monochoria** Presl., Rel. Haenk. i. 127. 1827.

Aquatic herbs; rootstock creeping, clothed with leaf-sheaths. Leaves radical and solitary, radical long petioled, cauline rather shorter petioled, all cordate – ovate, sagittate or lanceolate. Flowers in a raceme, sessile within axil of the cauline leaf, and fasciculately pedicelled, or peduncled. Perianth campanulate; tube 0; lobes 6, distinct, subequel. Stamen 6, adnate, to base of perianth–lobes, hypogynous, one usually largest. Carpels 3, Connate on an ovoid, sessile, 3 celled ovary; ovules in each cell many; style filiform; stigma minutely 2-lobed. Fruit an oblong, membranous, loculicidal capsule. Seeds many, ovoid, obtuse costate.

Key to the species:

1a. Rootstock elongated, creeping; leaves hastate sagittate, or cordate; flowers long pedicelled, subumbellate or racemose. ... ... ... ... ... ... **M. hastata**

1b. Rootstock short, suberect; leaves ovate or ovate-cordate; flowers short-pedicelled, subspicate. ... ... ... ... ... ... ... ... ... ... ... ... **M. vaginalis**

Rootstock branched, creeping, clothed with remains of old leaves. Leaves sagittate-hastate or cordate, 6.5-12.0 × 6.5-11.0 cm; petiole 10-50 cm long; sheaths purplish-green at base. Inflorescence ca 7 cm long, racemes or subumbellate; upper bract oblong-lanceolate, 3-5 × 1-3 cm. Pedicels 1-4 cm long. Perianth pale blue; outer oblong, ca 10 mm long; inner obovate ca 16 mm long. Filaments sub-equal, white. Ovary oblong or ellipsoid. Flr. & Frt.: February- November.

Vern. Name: Jonaki phul (As.)

Uses: Inflorescences & flowers are eaten fried by Bodos and Koch-Rajbaonghis.

Coll. No.: Borah A. 274. Date: 12-9-2003. Locality: Gosaipara. (Plate 60.)


Rootstock thick, suberect. Leaves ovate, 3-8.5 ×1.5-5 cm, thin coriaceous, glabrous, obscurely lobed, base cordate, margin entire, apex gradually or abruptly acuminate-caudate; petiole 10-30 cm, sheathing at base. Raceme solitary, terminal, deflexed, 6-10-flowered; bracts membranous, ca 4.5 ×1 cm; pedicel 0.8-2.5 cm. Flowers regular, ca 2 cm across. Perianth campanulate, deeply lobed; lobes 3+3, deep blue, oblong-ovobate, inner ones broad, outer narow. Stamens 6, inserted at the
Fig. *Monochoria hastata* (L.) Solms. (i) A flowering twig, (ii) A flower

Vern. Name: Jonaki phul (As.)

Uses: Inflorescences & flowers are eaten fried by Bodos and Koch-Rajbaonghis.


**COMMELINACEAE**

Prostrate or erect or climbing *herbs*. *Leaves* alternate, base sheathing, sheath usually closed. *Inflorescence* terminal or axillary of cymes, panicles or in clusters; bracts often foliar or spatheceous; floral bracts usually small. *Flowers* more or less irregular, hermaphrodite or by abortion, polygamous. *Perianth* inferior, 6-partite, 2 outer segments 3, herbaceous, often persistent, inner segments 3, petaloid; free or connate below. *Stamens* 2-6, fertile, adnate to base of perianth-segments; *staminodes* 0-4, usually with cruciform or hastate lobes. *Carpels* 3, or some-times 2, connate in usually a 3-celled, superior ovary; ovules solitary or few; style terminal; stigma small. *Fruit* a loculicidal capsule, or indehiscent, with a thin, fragile, or a succulent pericarp. *Seeds* angled.

Key to the genera:

1a. Inflorescences enclosed in leaf sheaths.- Petals connate into a tube at base

   .. .. .. .. .. .. .. .. .. .. .. .. .. .. *Rhoeo*

1b. Inflorescences exceeding leaf sheath:
2a. Inflorescences subtended by spathe like foliaceous or boat-shaped spathaceous bracts:

3a. Stamens 3. Petals free ...................... Commelina 

3b. Stamens 6. Petals united into a short or long tube ...................... Cyanotis

2b. Inflorescences not subtended by spathe like or boat-shaped bracts:

4a. Fruit indehiscent, blue on maturity. Fertile stamens 3 ...................... Aclisia

4b. Fruit loculicidally dehiscent capsule. Fertile stamens 2-3 or 6:

5a. Sepals glandular hairy. Stamens 6 ...................... Floscopia

5b. Sepals glabrous or pubescent. Stamens 2-3 ...................... Murdannia


Stems 40-60 cm tall, creeping at base. Leaves 15-20 × 1.5-4.5 cm, sessile or petioled; petiole 2-5 mm, glabrous or scaberulous above; sheaths hairy; mouth not ciliate. Peduncle and panicle hairy, many to few flowered. Sepals elliptic, glabrous. Petals white or pale pink. Fruits globose, ca 5-6 mm. Flr. & Frt.: May- July.
Grows in shady places, often as patch amidst moist grasses.

Coll. No.: Borah A 366. Date: 16-6-2004. Locality: Kuklung RF.


Erect or slender creeping *herbs*, rooting at nodes. *Leaves* subsessile, ovate-lanceolate, or linear, with lax sheaths, petioled or not. *Inflorescence* terminal or axillary cymes arising from a spatheform bract. *Flowers* of the upper cyme-branch small, deciduous, of the lower fertile; fruiting pedicel and capsule retracted within the spathe. *Sepals* 3, membranous, the 2 inner often connate below. *Petals* 3, longer than sepals, one larger than the others and often clawed. *Stamens* 3 perfect; anthers oblong, one usually larger than the others. *Staminodes* 2-3 or absent. *Carpels* 3, sometimes one abortive, connate in a 3-celled, rarely a 2-celled ovary; ovules 1-2 per cell; style erect. *Fruit* a 2-3-loculicidal capsule.

Key to the species:

1a. Spatha boat-shaped, longer than broad:

   2a. Leaves lanceolate to ovate-lanceolate, base rounded ........................................... *C. diffusa*

   2b. Leaves linear to linear-lanceolate, base narrowed ........................................... *C. appendiculata*

1b. Spatha funnel-shaped, as long as broad. Leaves ovate or oblong-ovate, base

   subtruncate ........................................... ........................................... *C. benghalensis*


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Erect herbs ca 40-50 cm tall, branched. Stems glabrous, internodes long. Leaves sessile, linear or linear-lanceolate, 2-12 × 0.5-1.0 cm, acute at apex, narrowed at base, glabrous or sparsely hispid on upper surface; sheath ca 2 cm, glabrous or pubescent with ciliate margins. Spathe solitary, terminal and axillary, sparsely hairy inside, 3.5-7.0 cm long; peduncle 2.0-3.5 cm long. Racemes 2-flowered. Flowers blue. Capsules ovoid, 2-locular, each 1-seeded. Seeds smooth, brownish-black. Flr. & Frt.: April-June.

Grows in damp places along road sides.


Small diffuse herbs, rooting at lower nodes, glabrous; rootstock with cleistogamous flowers. Leaves sessile, ovate or ovate-oblong, membranous, glabrescent, margin ciliate, base subtruncate, apex acute-obtuse; petiole ca 1 cm; sheath, ca 1.5 cm long, apex with rufous hairs. Spathe clustered, funnel-shaped, 1.5 cm long, pubescent; upper cymes 2-flowered; lower one 1- or 2-flowered. Flowers bluish in colour, ca 8 mm across. Sepals 3, outer one linear, inner ones orbicular. Petals blue, larger ones broadly ovate, 3.5×4.5 mm. Fertile stamens ca 2.5 mm; staminodes 5.5 mm. style 1.5 mm. Capsule ca 6 mm, ellipsoid, 3-celled, 5-seeded. Flr. & Frt.: July - October.

Growing in watery shady places along with Cyperus brevifolius, Oxalis carniculata, Spilanthes paniculata etc; common along drains.
Vern. Name: Kona-Simolu (As.).

Uses: Watery sap of the stem is applied to treat painful carbuncles.


Subscandent *herbs*, rooting at nodes at base. *Leaves* sessile, lanceolate or ovate-lanceolate, 3-6 × 1-2 cm, chartaceous, acute or acuminate at apex, base subcordate or rounded, margin entire; sheath 1-2 cm long, glabrous or sparsely ciliate at mouth. *Spathes* acute, base rounded or crodate, glabrous or pubescent, 1.5-3.0 cm long. *Peduncles* 1-3 cm long. *Flowers* exserted from the sheaths in 2-branched cymes. *Petals* blue, suborbicular. *Filaments* bluish-violet. *Capsules* ca 5 mm long, broadly oblong, 3-locular, 5 seeded. Flr. & Frt.: January-October.

Grows in moist and shady placers; common along drains.

Vern. Name: Kona simalu (As.)

Uses: Watery sap of the stem is applied to treat painful carbuncles.


Subscandent or erect *herbs*. *Cymes* scorpioid, axillary and terminal, pedunculate; bracts leafy, equal or longer than cyme; bracteoles leafy, imbricate, falcate, ovate, acute or acuminate. *Flowers* partly enclosed in bracteoles. *Sepals* free
PLATE 61.

Fig. (A) Commelina diffusa Burm. (B) C. benghalensis L.


Grows in shady places, amidst grasses along streams.


Erect or subscandent herbs. Leaves alternate, lanceolate. Flowers in terminal or axillary panicles of second but not scorioid cymes; bracts minute. Sepals 3, oblong, free. Petals 3, free, obovate. Stamens 6 all perfect, or 5 perfect 1 obsolete. Carpels connate in a 2-celled ovary; ovules solitary in each cell. Fruit a loculicidal, 2-celled capsule; seeds in each cell solitary, hemispheric.


Erect herbs from a creeping base, 20-50 cm tall. Leaves elliptic-lanceolate, sessile, acuminate at apex, 5-8 × 1.5-2.0 cm; sheaths pubescent. Inflorescence axillary or terminal, 4-8 cm long, densely glandular hairy. Petals white or pink, exceeding calyx, glabrous. Fruits enclosed by calyx, compressed. Flr. & Frt.: January – November.

Grows in damp and shady places, usually adjacent to forest streams.

Coll. No.: Borah A. 280. Date: 24-10- 2003. Locality: Bhairabchura PRF.


Small, ca 40 cm high, annual herb. Leaves alternate, linear or linear-lanceolate, 3-8 × 0.3-0.5 cm, glabrous, base obtuse, margin entire, apex tapering, acuminate; sheaths 6-10 mm, ciliate. Cymes subcorymbose, terminal, lax, ca 2 cm; peduncle ca 5 cm. Sepals oblong. Petals broadly oblong, purplish-blue. Capsule subglobose, glabrous, ca 3 mm; seeds 2 per cell, cuboid, ca 1 mm, deeply pitted. Fr. & Frt.: May-October.

Grows in moist places, often amidst grasses.

Vern. Name: Kenkena (As.), Bird's foot grass (Eng.)


Erect stout herbs, sometimes base creeping. Leaves narrow lanceolate, succulent, plicate or flat, obtuse, entire, acuminate, often coloured; sheaths pilose. Inflorescence enclosed in leafsheaths. Petals connate into a tube at base. Stamens 6, hairy.


Cultivated as ornamental plant in gardens.

**ARECACEAE**

Erect or climbing shrubs, or trees, solitary or gregarious, sometimes armed; stems stout or slender, often covered with persistent leaf bases. Leaves alternate, usually crowded at apex of stem, rarely scattered, plicate in bud, pinnatisect or
palmate, rarely entire or 2 pinnatisect; petiole sheathing. Inflorescence axillary or interfoliar, of spadices, often spicate or paniculate, monoecious or dioecious; spathe 1 or more, coriaceous or woody; bracteoles often connate at the base of flowers. 

Flowers small, commonly unisexual. Perianth inferior, 2 segments in each series 3, usually all free, imbricate or valvate. Stamens usually 6, 2-seriately inserted to the perianth-segments, sometimes 3. Carpels 3, connate in a 3-celled ovary, or free; ovules in each carpel 1-2; stigmas 3, usually sessile. Fruit a 1-3-celled drupe or hard berry, or of 1-3 ripe carpels; pericarp smooth, rough, or clothed with downward-imbricating, shining scales. Seeds erect or laterally attached.

Key to the genera:

1a. Leaves simple, flabelliform, fan-like or orbicular:

   2a. Flowers hermaphrodite, scattered, small. Fruit small:

      3a. Carpels triangular; spadix sparingly branched or simple ........ Licuala

      3b. Carpels globose; spadix loosely panicled .......... Livistona

2b. Flowers dioecious; males small, sunk in cavities of thickened, catkin-like branches; females large. Fruit large. ........ Borassus

1b. Leaves pinnate:

   4a. Fruits clothed with closely adpressed imbricating scales; stem climbing, rarely erect, armed; leaf rachis or spadix or sheath produced as an armed flagellum ........ Calamus

   4b. Fruit not clothed with scales; stem erect, unarmed; no flagellum produced:

      5a. Leaves 2-pinnate; leaflets obliquely cuneate, apical margin caudate. Monoecious ........ Caryota
5b. Leaves 1-pinnate. Leaflets linear, oblong, margin entire. Mono- or dioecious:

6a. Lowest leaflets modified into spines. Dioecious ........... Phoenix

6b. Lowest leaflets non-spinous. Monoecious:

7a. Stem sympodial:

8a. Stem and leaves golden-yellow ...................... Chrysalidocarpus

8b. Stem and leaves green. Fruit edible ..................... Pinanga

7b. Stem monopodial:

9a. Drupe 3-5 cm across. Stem ca 15 cm across. Leaflets apically praemorse. Leaf sheath tubular ........... Areca

9b. Drupes very large. Stem ca 40 cm across. Leaflets apically acuminate. Leaf sheaths 0 ........... Cocos.

Areca L., Sp. Pl. 1189. 1753

Slender, tree; stem erect, leaf scars prominent. Leaves crowded at apex of the stem, pinnatisect, distal segments confluent. Flowers monoecious, on branched, infrafoliar spadices; spathes 3 or more, caducous, the lowest complete, the upper often bract-like; males many, solitary or 2-nate; females near bases of branches, solitary. Male flower: Sepals 3, small. Petals 3, obliquely lanceolate, valvate. Stamens 3 or 6; anthers basifixed, erect. Female flower: much larger than males; perianth accrescent. Sepals 3, orbicular, imbricate. Petals 3, orbicular, imbricate below, their tips acute, valvate. Carpels connate in a 1-celled ovary; ovule basal,
erect; stigmas 3, sessile. Fruit ovoid or oblong, with terminal stigmas. Seed with a small truncate base and ruminate albumen.


Most commonly cultivated palm for its edible fruit.

Vern. Name: Tamol (As.), Supari (Beng.), Goui (Bodo), Betel nut (Eng.)

**Borassus** L., Sp. Pl. 1187. 1753.

Medium sized unarmed tree with stout trunk covered with persistent leaf bases. Leaves terminal, fan-shaped, plicately multifid; petiole spinous; ligule short. Flowers small, mixed with scale like bracts, 2- seriately second on small spikelets, and protruding one by one from the cavities of the branches of a very large, simply branched spadix, as the rachis of the spikelet elongates. Perianth glumaceous; segments imbricate, 2-seriate, outer 3 narrowly cuneate, tips inflexed, truncate, inner 3 shorter, obovate spatulate. Stamens 6; anthers sub-sessile, oblong. Pistillodes 3, setaceous. Female Flowers globose, larger, few, solitary, scattered on the branches of a sparingly branched spadix. Perianth fleshy, greatly accrescent, 2-seriate; outer series 3, reniform, imbricate; inner 3 smaller, convolute. Staminodes 6-9. Carpels 3-4, connate in a globose, entire or 3-4 partite, 3-4 celled ovary; ovules erect; stigmas 3, sessile, recurved. Fruit a large, subglobe drupe, with 1-3 obcordate, fibrous pyrenes; pericarp thinly fleshy; stigmas terminal. Seeds oblong, with a 3- lobed apex; testa adnate to the pyrene.

Cultivated in household gardens for its edible fruit and also as ornamental plant. Vern. Name: Tal (As., Beng.)

Calamus L., Sp. Pl. 325. 1753.

Armed, erect, or scandent, shrubs. Leaves alternate, pinnatisect; segments acuminate; rachis often produced as an armed flagellum; sheath armed, produced into a ligule or ochrea. Flowers small, polygamo-dioecious, in usually distichous often scorpioid spikelets, solitary, either male or female or both in the axils of the bracteoles of axillary, usually much elongated and much-branched spadices, sometimes produced as a flagellum; spathes tubular or open, persistent, sheathing the peduncle and branches of the spadix, and passing into bracts and bracteoles. Male flowers: Sepals 3, connate in a copular, 3-toothed calyx. Petals 3, acute. Stamens 6; filaments short. Female flowers: Sepals connate in tubular, 3-toothed calyx. Petals 3, connate in a tubular corolla. Staminodes connate in a cup. Carpels connate in an incompletely 3-celled ovary, clothed with retrorse scales; stigmas 4. Fruit globose or ellipsoid; style terminal; pericarp thin, clothed with adpressed, deflexed, closely imbricate, shining scales. Seed usually one, smooth or pitted.

Key to the species:

1a. Leaflets 1-costate. Leaflets sub-opposite, linear-lanceolate. . . . . C. flagellum
1b. Leaflets 3-7-costate. Leaflets equidistant, linear-ensiform. . . . . . . C. tenuis

Sub-scandent shrub; stems ca 3 cm across. Leaves 2-3 m. long; leaflets sub-opposite, linear-lanceolate, largest 60-70 cm long; ochrea small, 2-lobed, caducous; petiole 30-40 cm, spiny. Spathes tubular. Spadix ca 3 m long, produced into a long, clawed flagellum. Male flowers ca 1 cm long; calyx divided to middle. Female flowers conical, ca 7 mm long; calyx 3-toothed. Fruits broadly ovoid, ca 3 cm long; scales in 12 series with dark intramerginal lines. Flr. & Frt.: March-December.

In the forests, usually in moist areas. Occurrence: Sporadic.

Vern. Name: Nagagola bet (As.). Uses: stem in various cane products.

Coll. No.: Borah A. 614. Date: 16-3-2007. Locality: Kakoijana RF.


Scandent or climbing shrub; stems 1-2 cm across. Leaves 60-80 cm long; leaflets 30-35 cm long, equidistant, linear-ensiform; sheaths with brownish spines and slender flagellum, clawed upwards; ochrea bristly, truncate; petiole 10-15 cm long. Spadix very long, decompound, flageliferous. Male flowers 3 mm long; calyx 3-toothed. Fruits subglobose, ca 1 cm long, covered with adpressed scales. Flr. & Frt.: August-January.

In the forests and on the river banks, sometimes cultivated.

Vern. Name: Jati-bet. (As.).

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Uses: Splitted stems are used in various housing purposes, in making containers, furniture etc. The tender stems of sprouting are eaten cooked or raw.


*Caryota* L., Sp. Pl. 1189. 1753.

*Tree*, soboliferous or simple, trunk naked or sheathed. *Leaves* few, very large, twice pinnatisect; bases swollen at the point of attachment. *Flower* arising from the upper leaf-sheaths and then successively downwards, alternately male and androgynous. *Flowers* monoecious, solitary and male, or ternate with the central female, on the slender, pendulous branches of interfoliar, short peduncled, much fastigately branched spadice; *spathes* 3-5, incomplete, tubular; bracteoles wide. *Sepals* 3, rounded. *Petals* 3, linear, oblong. *Male flowers*: *Stamens* numerous; filaments Short; anthers long. *Female flowers*: *Carpels* 3, con-nate in a 3-celled ovary; ovules erect; stigma sessile, 3-lobed. *Fruit* globose, 1-2-seeded. *Seeds* erect; albumen ruminate.


*Stem* annulate, shining. *Leaves* 2-pinnate, ca 3-4 m; *pinnae* ca 10 pairs; leaflets induplicate, clustered or alternate, 15-20 × 7-10 cm, base cuneate, oblique, margin praemorse, irregularly serrate, petiole stout. *Spadices* interfoliar; branches slender, pendulous; peduncles short; *spathes* 3-5. *Flowers* many, *monoecious*, solitary and male, or in threes with central one female, between the two staminate.
Male flower: sepals 3, rounded, imbricate. Petals linear-oblong, valvate. Stamens many; filaments short; pistillode 0. Female flower: sepals broader. Petals rounded. Ovary 3-celled; ovule 1 per cell; stigma sessile, 3-lobed; staminodes 3. Fruit globose, ca 2.5 cm; seeds 1 or 2. Flr.: February-May. Frt.: throughout the year.

In forest fringes and road sides.

Vern. Name: Chaow-tamol, chorat-tamol (As.)


Small tree; stem erect, unarmed, with annual petiolar scars; no flagellum produced. Leaves 1-pinnate; leaflets linear, oblong, margin entire, often leaflets and petioles become golden-yellow in colour. Flowers monoecious, shortly pedicellate.


Cultivated commonly as ornamental plant in gardens and homesteads.

Vern. Name: Golden palm (Eng.).

**Cocos** L., Sp. Pl. 1188. 1753.

Unarmed tree; stem with annular petiolar scars. Leaves tufted, pinnatisect, large; segments linear; petioles elongate, stout. Spadices interfoliar, 60-90 cm long, panicked; branches long, flexuous; lower spathe ca 50 cm, oblong, woody. Flowers monoecious. Perianth-segments coriaceous, 2-seriate; outer series 3, small, valvate; inner 3 oblong, acute, valvate. Stamens 6; filaments subulate; anthers linear, erect.
Pistillode minute or 0, flowers usually much larger than males, ovoid; perianth greatly accrescent. Disk 0 or annular. Carels 3, connate in a 3-celled ovary; ovules usually solitary. Fruit large, ovoid, terete or 3-gonous, with a terminal style and a single seed; epicarp thick, fibrous; endocarp hard. Seed connate with endocarp; albumen solid or hollow or merely lining the endocarp with a thick, hard coat.


Highly cultivated palm for its edible fruits, oil etc. Various items are made from its fibers, hard testa etc.

Vern. Name: Narikol goch. (As., Beng.), Coconut tree (Eng.).


Shrubs; stems annulate. Leaves more or less orbicular or flabellate, plicate, deeply partite; petiole usually spinous. Flowers usually small, scattered, hermaphrodite, on interfoliar, simple or branched, glabrous, tomentose or scurfy spadices, sheathed by tubular, coriaceous persistent spathes; bracts and bracteoles obscure or 0. Sepals 3, connate in a tubular or copular calyx, mouth 3-fid. Petals 3, connate, lobes valvate. Stamens 6; filaments subulate; anthers cordate. Carpels 3, truncate, free or nearly so; ovule 1 in each carpel. Fruit of small drupes, with terminal styles. Seeds globose.

Licuala peltata Roxb., Fl. ind. 2:179. 1832; Hook. f., FBI 6:430. 1892; Prain, Bengal Plants 2:1091. 1903; Chowdhury et al., Ass. Fl. 295. 2005.
A gregarious shrub; about 2.5-5 m high. *Leaves* flabellate, plicate, deeply partite; petiole usually spinous. *Flowers* hermaphrodite, on interfoliar tomentose spadices, sheathed by tubular, coriaceous persistent spathe. *Fruit* of small drupes, with terminal styles.

In damp shady places in the forests and also cultivated in homesteads.

Vern. Name: Japi-pat (As.).

Uses: Leaves are used to make “Japi”, a device to protect individual from rain especially in the field; sometimes leaves are used in house roofing.


*Livistona* R.Br., Prodr. 267. 1810.

*Tree or small tree* with annulate stems. *Leaves* orbicular, flabellately plicate, split to the middle into slender, 2-fid narrow lobes; petiole long, with spinous margins. *Flowers* minute, hermaphrodite, loosely panicled on interfoliar, long peduncled, spadices, erect in flower, pendulous in fruit; spathe many, sheathing, tubular. *Sepals* 3, rounded, imbricate. *Petals* connate in a 3-lobed corolla tube. *Stamens* 6; filaments subulate, connate below in a ring; anthers cordate. *Carpels* 3, nearly free. *Fruit* of 1 to 3 globose, oblong or ellipsoid drupes. *Seeds* erect, ventral face hollowed.

Key to the species:

1a. Dwarf shrub

1b. Tall trees

L. chinensis

L. jenkinsiana

A beautiful small tree, cultivated in gardens.

Vern. Name: Chinese palm (Eng.)


Tall unbranched palm with persistent scars of leaf-bases on the trunk. Leaves in terminal cluster, orbicular, flabellately plicate, split to the middle into slender, 2-fid narrow lobes; petiole long, with spinous margins. Flowers minute, loosely arranged in panicles on long peduncled spadix arise from upper leaf sheaths. Panicles erect in flowers, pendulous in fruiting stage, spathes many, sheathing, tubular. Fruit globose drupe with the style subterminal; seeds erect, ventral face hollow. Flr. & Frt: almost round the year.

Rarely found in nature in the area, few are in cultivation.

Vern. Name: Tokou (As.)

Uses: Seeds are eaten fresh like betelnut; epicarp and mesocarp of the fruit are to be removed carefully because if come in contact of soft skin, they usually cause irritation; usually the ripe fruits are buried under damp soil for few days to allow decay for easy removal of fruit coats. Splitted trunk is used as housing material and in preparing some agriculture implements. Leaves are used to roof huts and “Japi", a substitute of umbrella especially prepared for ploughman.


Tall, unbranched *tree* with persisting petiole bases; 8-15 m high. *Leaves* tufted at the top of the trunk, 2-4 m long; *leaflets* 14-40 cm long, compressed at apex; *petioles* spinous. *Spadices* branched, 60-100 cm long, (sub) erect; *spathes* nearly as long as the spadices, 2 valved. *Male flowers* dense, white. *Stamens* 6. *Female flowers* distant. *Carpels* 3, free; *stigma* sessile. *Drupes* ca 2 cm long, greenish to orange yellow or reddish brown; *seed* solitary, testa hard and longitudinally grooved. Flr.: February - April. Frt.: May onwards.

Grow along dry places, on rocky places.

Vern. Name: Khejuri/Khejur (As.), wild date palm (Eng.).

Uses: Toddy is obtained from soft woods removing the lower leaves. Fleshy pericarp eaten fresh. Leaves are used for making basket and mats; as decorative for
gate especially in festivals, marriage ceremony etc.


*Pinanga* Bl., Rumphia 2:76. t. 87. 1836


Sporadically cultivated for its edible fruit and also as ornamental plant.

Vern. Name: Geruka tamol, Momai tamol (As.), Gua supari (Beng.)


Cultivated tall tree with large, annulate trunk, usually larger in upper than base. Leaf sheaths large, complete.

Vern. Name: Royal palm (Eng.). Introduced for ornamental purposes.
PANDANACEAE

*Trees or shrubs*, often with aerial roots. *Leaves* usually 3-farious, narrow, acuminate, coriaceous, margins and keels usually spinously toothed. *Inflorescences* crowded or catkin-like, simple or branched, axillary spadices clothed with leafy spathes. *Flowers* dioecious, small, ebracteate. *Perianth* absent. *Stamens* numerous; filaments free or connate; anthers erect, basifixed. *Pistillode* small or obsolete. *Staminodes* small or 0. *Carpels* solitary, free or connate; ovules solitary or many; stigmas subsessile, papillose. *Fruit* a globose or oblong, woody or fleshy angular drupes. *Seeds* minute.

*Pandanus* S. Parkinson, J. Voyage South Seas 46. 1773.

*Trees or shrubs*, sometimes sub-aquatic, rarely epiphytic. Proproots usually produced from stem near base, sometimes also from branches. Trunk sparingly or profusely branched, pseudo-dichotomous. *Leaves* linear-ensiform or sometimes narrowly elliptic, trifariously spiraled, prickly on the midrib below and the margins. *Female inflorescence* a cephalium, pendulous at maturity; *flowers* solitary or spicate; *carpels* 1-celled and 1-ovuled; style spinous, simple or forked, or obsolete or lacking. *Male inflorescence* spicate, bracteate, the spikes composed of numerous densely packed floral units; *flowers* with few to many stamens with usually elongate-oblong anthers. *Drupes* 1 or several seeded, seed enclosed in a simple or compound pyrene.

Much branched shrub or small tree, branches spreading; trunk with basal proproots. Leaves linear-ensiform, 1-2 m long and 5-8 cm wide, stoutly armed with prickles on dorsal midrib and margins. Female inflorescence a solitary terminal cephalium, pendulous in fruit; the carpels concentrically arranged, their apices convex with U or V-shaped stigma. Male inflorescence of several spikes with cream axillant bracts; stamens numerous, anthers elongate. Flr. & Frt.: April- May.

Grows in plains and hill slopes, usually moist areas.

Vern. Name: Keteki phul (As.), Keiya, Kewa-kanta (Beng.), Thatch screw pine (Eng.)

Uses: Flowers are sweet scented, used to decorate house during “Rongali Bihu”.

Coll. No.: Borah A. 318. Date: 12-3-2004. Locality: Kakoijana RF.

**TYPHACEAE**

Perennial aquatic or palustrine herbs with creeping rhizomes. Leaves linear, erect, sheathing below; nerves parallel. Flowers small or minute, monoecious or dioecious, densely crowded in globose or cylindric, 1-sexual, bracteate spikes, of which the upper are males; bracteoles 0. Perianth of membranous green scales or slender hairs. Male flower: Stamens 1-7; filaments free or connate; anthers basifixed. Female flowers: ovary superior; 1-2-locular; styles free, persistent. Fruit small, membranous or drupaceous.

Perennial, erect, marsh \textit{herbs}. \textit{Rhizomes} creeping. \textit{Leaves} erect, linear, spongy, radical. \textit{Flowers} small, numerous, in very dense, cylindric spikes, often intermixed with hairs. \textit{Perianth} of capillary hairs, or in the male flowers obsolete. \textit{Stamens} 1 or more. \textit{Ovary} often reduced to a hair with clavate tip, long-stalked, narrowed into a capillary style, with a clavate or filiform stigma. \textit{Fruit} very minute achene.


Marsh herbs, ca 1.5 m high, robust. Leaves 2-2.5 cm broad, trigonous above; sheaths flattened at apex, acute. Flowers bracteolate. Male spikes 15-20 cm long, caduceus. Female spikes 20-30 cm long, mixed with clavate pistillodes; stigma linear. Ovule 1, pendulous. Fruit an achene with persistent style. Seeds striate. Flr. & Frt.: May-October.

In marshy places and dried river beds.

Vern. Name: Gogol Bon, Megela, Hati-gah (As.)

Uses: as fodder for buffalo, cow, elephant etc.

Coll. No.: Borah A. 267. Date: 14-7-2003. Locality: Khagrabari (Aie river bed)

\textbf{ARACEAE}

Perennial \textit{herbs}; terrestrial, climbing, epiphytic or aquatic floating. \textit{Stem} cormous, tuberous, rhizomatous or stoloniferous, sometimes with milky sap. \textit{Leaves} simple to decompound; lamina entire to perforate or lobed; venation parallel or
reticulate. **Inflorescence** a spadix subtended by or enveloped by a spathe; spadix with bisexual or unisexual flowers; bisexual flowers usually with perianth, unisexuals naked and monoecious or dioecious. **Stamens** free or united into synandria. **Female flowers** with ovary 1-many locular, ovules 1-many. **Fruit** usually a berry or rarely a fleshy dehiscent capsule with 1-many seeds.

Key to the genera:

1a. Aquatic floating. Leaves pubescent, obdeltoid and rosette. .. .. .. .. .. **Pistia**

1b. Terrestrial to marsh herbs or climbers. Leaves glabrous, not obdeltoid, rosette:

2a. Stem rhizomatous or climbing. Roots adventitious:

3a. Stem creeping. Leaves ovate-lanceolate, variegated. .. .. .. **Dieffenbachia**

3b. Stem scandent or climbing. Leaves not variegated:

4a. Leaves usually pinnatisect or perforate. Spadix elongate, cylindric, erect.

   Perianth absent. .. .. .. .. .. .. .. .. .. .. .. .. **Raphidophora**

4b. Leaves linear or oblong-lanceolate. Spadix ellipsoid to subglobose, decurved. Perianth present:

5a. Spathe small, ca 2 cm long. Leaves linear to ovate. .. .. .. .. .. **Pothos**

5b. Spathe large, ca 10 cm long. Leaves ovate to oblong. .. .. **Philodendron**

2b. Stem tuberous, rhizomatous or reduced to corm. Roots tuberous:

6a. Stem creeping; usually marsh land:

7a. Stem spinous. Leaves lobed. Ovules solitary. .. .. .. .. .. .. .. **Lasia**

7b. Stem smooth. Leaves entire. Ovules many. .. .. .. .. .. .. .. **Acorus**

6b. Stem cormous or tuberous or stoloniferous rhizomatous. Terrestrial:

8a. Leaves compound, 3-5-lobed or pinnatisect:
9a. Leaves entire, 3-5-lobed. Flowers appear with leaves. Staminate and pistillate zones on spadices not contiguous .. .. .. .. .. *Typhonium*

9b. Leaves 3-partite, segments pinnatisect. Flowers appear before leaves. Staminate and pistillate zones contiguous .. .. .. .. *Amorphophallus*

8b. Leaves simple, entire.

10a. Bulbiferous shoots absent. Leaves variegated .. .. .. .. *Caladium*

10b. Bulbiferous shoots present. Leaves not variegated:

11a. Leaves peltate. Spadix with a barren appendage:

12a. Ovules few, basal. Seeds subglobose .. .. .. .. .. *Alocasia*

12b. Ovules many, parietal. Seeds oblong .. .. .. .. .. *Colocasia*

11b. Leaves not peltate. Spadix without an appendage .. .. *Homalonema*


*Rhizomes* aromatic, ca 2 cm in dia. *Leaves* ca 100 × 2 cm, glabrous, green, venation striate, margins often wavy. *Peduncles* ca 25-30 × 1 cm, leaf-like. Spathe leaf-like, ca 40 cm long; spadices ca 8 cm long. *Tepals* 6, orbicular, incurved at apex.
Stamens 6, filaments linear, flattened, as long as tepals. Ovary 2-3-locular, ovules 2-many. Flr.: November. Frt.: rare.

Vern. Name: Boch (As., Beng.)

Uses: Used as medicine in stomach ache.


Note: Vulnerable species. Not reported earlier from Lower Assam beyond Guwahati.


Perennial herbs, usually tall and coarse; rootstock tuberous or forming a short, stout, suberect or erect caudex. Flowers and leaves coetaneous. Leaves with stout petioles, sheathing below; lamina ovate-cordate, often distinctly peltate. Flowers monoeccious; spathe on a stout, axillary peduncle; spadix shorter than the spathe, male and female inflorescences with usually interposed, flat neuters; appendage cylindric or subulate. Stamens 3-8, connate in an obpyramidal column, with a synandria. Ovary 1-locular or partially 3-4-locular above; ovules 3-5. Fruit of clustered, obovid or ellipsoid, few seeded berries.

Key to the species:

1a. Caudex stout. Leaves not or very slightly peltate.: 
   
   2a. Leaves ovate-cordate; lower nerves approximate, subpalmate...  *A. cucullata*
   
   2b. Leaves sagittate-cordate; nerves pinnate:
      
      3a. Spathe limb narrowly oblong, 15-20 cm long; appendage more than 10 cm long  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  ...  A. indica
3b. Spathe limb cymbiform, 10-15 cm long; appendage 3-4 cm .... A. odora

1b. Caudex erect or inclined. Leaves distinctly peltate, the basal lobes connate; nerves pinnate.... A. fornicata


Rootstock 1-2 ft., with many suckers, branched, inclined. Commonly cultivated for vegetable. Vern. Name: Ahina kochu (As.)


Erect, stout, ca 1.0 m tall herbs. Rhizomes prostrate or erect. Leaves shining, sagittate, 15-30 × 15 cm, cuspidate at apex; secondary nerves 5-8 on each side; petiole ca 40 cm long. Peduncles 15-20 cm long. Spathe greenish yellow. Spadix about equaling the spathe. Female portion of the spades ca 1 cm long; male portion 1.5- 2.0 cm long; sterile portion as long as male portion; appendix subconical. Synandrium with flat, crenulate top. Pistil ovoid; ovules 2.5 cm long. Berries globose-ovate. Flr. & Frt.: July- October.

Grows in shady places, preferably damp areas.

Vern. Name: Kala kochu (As.). Uses: Tubers are eaten cooked with lemon.

Coll. No.: Borah A 388. Date: 6-11-2004. Locality: Barpara. (Plate 62)

Leaves ovate cordate or saggittate, undulate; apical lobe triangularly acute with a deflexed cusp, lateral nerves 6-8 pairs; basal lobes ovate, obtuse. Petioles ca 90 cm long. Peduncles solitary or several, ca 20 cm long. Spathes ca 256 cm long, pale yellowish; tube ca 5 cm long, ovoid. Spadix yellowish-white; pistillate zone ca 2.5 cm long; staminate zone nearly twice or as long as pistillate zone; appendage longer than inflorescence. Ovaries obovoid; stigma 3-4-lobed. Flr.: April- May.

Vern. Name: Man kochu (As.)

Uses: Rhizomes are eaten cooked with lemon.


Leaves broadly ovate-cordate, 45-90 cm across, erect, shining glabrous, undulate, bright green; apical lobe with 6-10 pairs of lateral nerves, basal lobes shortly connate, rounded; petiole stout, longer than lamina, green. Peduncles several, ca 20 cm long. Spathe ca 20 cm long, pale green, yellowish at age; tube ovoid, ca 5 cm long. Spadix fragrant, white; pistillate zone ca 2.5 cm, neuter zone 3.5 cm, staminate zone 4 cm long, appendage ca 4 cm. Flr. & Frt.: November- February.
In partial shady places, sometimes cultivated.

Vern. Name: Dohi kochu, Dudh kochu (As.)

Uses: Petioles are eaten cooked.


Tuberous herbs. Leaves appear after flower, solitary, 3-partite; segments pinnatisect. Flowers monoecious; spathe with an open or convolute, funnel-shaped or campanulate limb; spadix exserted or included; appendage large, short or long. Inflorescence cylindric, dense flowered; males and females contiguous; neuters 0. Stamens 2-4; anthers sessile. Ovaries globose, 1-4-celled; ovules in each cell solitary, stigma entire or 2-4-lobed. Fruit of clustered, subglobose, or obovoid berries.

Key to the species:

1a. Leaves bulbiferous at forks, present while blooming. Spathe-limb purple within; appendage of spadix smooth, ....... .... .... .... .... .... .... .... .... .... .... .... .... .... A. bulbifera

1b. Leaves not bulbiferous, absent while blooming. Spathe-limb rosy-pink within; appendage of spadix rough with folds and lobes. ..... .... .... .... A. paonifolius

Fig. (A) *Alocasia fornicata* (Roxb.) Schott.,
(B) *A. indica* (Lour.) Koch., (C) *A. odora* (Roxb.) Koch.
Corm ca 7 cm across, warty. Leaves solitary, ca 30 cm across, tripartite, lobes obovate, acuminate, wavy, green; petioles ca 25 cm, greenish white with purplish to deep green stripes or blotches; apical bulb present. Peduncles shorter than petioles. Spathes campanulate, convolute, ca 10 cm, limb obtuse. Spadix sessile. Pistillate zone ca 4 cm long, stigma discoid, sessile, lobed, yellow. Staminate zone ca 6 cm long. Appendage obtuse, purple, ca 10 cm long. Flr. & Frt.: May - June.

Grows on shady places, commonly on slopes of foot hills.

Vern. Name: Ol-kochu, Baghraj (As.), Amla-bela (Beng.)

Uses: Corm, petiole and leaves are eaten cooked.


Corm ca 12 x 8 cm across. Leaves tripartite, each part 3-segmented; lobes ca 15 x 4.5 cm, oblong-lanceolate, acuminate, entire or wavy; petioles ca 20 cm long, greenish-white with deep green blotches. Peduncles ca 13 cm long, ca 30 cm in fruit, green blotched. Spathes campanulate, convolute; leaf plicate, ca 16 cm long. Spadix stout and thick. Pistillate zone ca 8 cm long; style longer than ovary, 2-3-lobed. Staminate zone ca 6 cm long, anthers yellowish. Appendages ca 10 cm long, dark purple. Berries dense, ellipsoid or oblong-ovoid, ca 1 cm long, 2-3-seeded, yellow-red in ca 10 cm spikes. Flr.: May - June. Frt.: November - December.
Grows on shady places, commonly on slopes of foot hills.

Vern. Name: Ol-kochu, Baghraj (As.), Amla-bela (Beng.)

Uses: Corm, petiole and leaves are eaten cooked.


**Caladium** Vent., Mag. Encycl. 4:463. 1801.

Perennial, deciduous, Cormous herbs. Leaves long petioled, sheathing. Spathe with a tube and upper cymbiform; male flowers apical, female flowers basal and neuter flowers in between them. Ovary 2-3-locular, ovules numerous.


Perennial, deciduous, cormous herbs. Leaves long-petioled, petiole basally vaginate, sheathing, lamina mottled with different colours. Inflorescence solitary, axillary, long-peduncled; spathe with a basal convolute, persistent tube and an upper cymbiform, limb with constriction between spadix. Male flowers represented by many synandria. Female flowers many, ovary incompletely 2-3-locular with numerous, 2-seriate, ovules. Fruit a many seeded berry.

It is usually cultivated in gardens as ornamental plant but now occur naturally in many places as escape.


Tall or small herbs, with tuberous stems and stolons, or a short, stout caudex. Leaves and flowers appearing simultaneously; with stout petioles, sheathing below; lamina peltate, ovate-sagittate. Inflorescence one or more, axillary, peduncled. Spathe with a basal, convolute, persistent tubular portion and an upper, lanceolate limb portion; spadix shorter than the spathe, stout or slender, differentiated into four distinct portions - basal female, neuteriflorous, male and apical naked sterile appendage. Female flowers: Ovary ovoid, 1-celled; ovules many, on usually 3 parietal placentas; stigma sessile, discoid. Neuter flowers syanandroid, cream in colour. Male flowers represented by 3-6-angled synandria each with 2-6 linear anther lobes; appendix slightly wrinkled, subcylindric with pointed tip. Berry oblong, many seeded.


Tall tuberous herbs with caudex. Leaves peltate, subcoriaceous, 20-50 × 10-30 cm, ovate, sagittate, cuspidate at apex, margin wavy, 3-nerved at base, green, yellowish at age. Petioles long, green to dark purple. Spathe 20-45 cm long, convolute to an accrescent, persistent tube, constricted at mouth; limb convolute or curved, caducous. Spadices sessile, shorter than spathes, creamy. Appendage shorter

Commonly grows in moist, shady places.

Vern. Name: Kola-kochu (As.), Mukhi kochu (Beng.)

- Uses: Tubers and tender leaves are cooked especially with lemon.

Coll. No.: Borah A. 430. Date: 3-3-2005. Locality: Barpara.

*Dieffenbachia* Wiener


Robust *herbs*. *Stem* basally creeping. *Leaves* ovate-lanceolate, variegated along the midnerve, glabrous, shining.


Cultivated herb in gardens, homesteads etc. as ornamental plant.


*Herbs*; caudex short, rooting. *Leaves* 15-30 cm long, base deeply cordate, apex acute, margin entire. *Peduncles* several, 7-10 cm long, stout. *Spathe* ca 7.5 cm long, oblong, acute at base and top. Male flowers in dense group, close to female flowers. Flr.: June- November.

Grows in damp, partially shady places.

Vern. Name: Gandh kochu (As.).

Coll. No.: Borah a 514. Date: 11-2-2006 Locality: Khagarpur.

**Lasia** Lour., Fl. cochinch.81. 1790.

Stout, erect or ascending, spinous, aquatic or marsh *herbs*; rootstock branched. *Leaves* generally crowded at the stem apex; petiole long, prickly; leaf-blade sagittate-hastate, entire or pedatly lobed and out; petiole and nerves beneath prickly. *Inflorescence* at apex of leafy plant, solitary in leaf axils, long- peduncled. *Spathe* long, fleshy, twisted. *Spadix* short, cylindric, dense-flowered; flowers hermaphrodite, all fertile. *Perianth* segments 4-6, obovate; tips truncate, incurved. *Stamens* 4-6; filaments short, flat. *Ovary* ovoid, 1-celled; ovule solitary. *Fruit* a cluster of 6-sided, obpyramidal berries, with warty or muricate tips. *Seeds* compressed, rugose.


Grows in marsh places.

Vern. Name: Chengmora/ Kantiya-kochu (As.), Chibru (Bodo).

Uses: Leaf petioles and flower spadices are eaten cooked by Bodos, Koch-Rajbongshis.

Coll. No.: Borah A. 457. Date: 23- 6- 2005. Locality: Kakoijana RF. (Plate 63)

*Philodendron* Schott, Wiener Z. Kunst 3:78. 1829.

Introduced climbing subshrub, rooting at nodes. Leaves of various size and shape, coriaceous, glossy.


Cultivated in homestead gardens.

*Pistia* L., Gen. Pl. 275. 1737.

Free floating aquatic stemless, stoloniferous *herbs*; *roots* long, slender. *Leaves* sessile, obovate-obcuneate, together forming an erect cup. *Inflorescence* short
peduncled, spathe small, with a slightly convolute basal portion and an expanded ovate-acute limb with a slight constriction between; spadix adnate to the spathe, free above. Male and female flowers separated by a disc like structure. Pistil single; ovary unilocular with many ovules. Male flowers represented by 4-6 sessile anthers adnate in whorl forming a synandrium. Fruit membranous, few-seeded.


Leaves rosette, several, sessile, roundly retusely obovate-cuneate or obdeltoid to spathulate, ca 5 cm across, coriaceous, densely silky-pubescent, pale-yelowish green; nerves flabellate. Inflorescence shortly oeduncled; spathes amidst the leaves, ca 1 cm long, tomentose without, constricted about the middle, gibbous or closed below; limb suborbicular, greenish to pale yellowish white. Spadices adnate to the spathe at base. Perianth absent. Staminate flowers 4-6, below the apex of the spadix. Neuters few, below the staminate floers. Pistillate flowers solitary; ovaries 1-celled, superior; ovules many, parietal. Flr. & Frt.: June- October.

Common in stagnent water bodies, often gregarious.

Vern. Name: Puni, Bor Puni. (As.)
Photo No.: 64.1 (Plate 64)


Root climbing branched herbs or subshrubs. Leaves distichous, oblique, linear or linear to ovate, blade sometimes obsolete; petiole winged or leaflike,
sheathing at the base. **Peduncles** axillary or infra-axillary, leafy or sheathed or naked; spathe small, coriaceous, cymbiform to elongate; **spadix** shorter than spathe, stipitate. **Perianth** of 6 segments, tips incurved. **Stamens** 6. **Ovary** ovoid, or depressed, 3-locular; ovules solitary, in each locule. **Fruit** of ellipsoid or obovoid, 1-3-seeded berries.

**Pothos cathcartii** Schott, Aroid. 22. t. 44.; Hook, f., FBI 6:552. 1893; Chowdhury et al., Ass. Fl. 296. 2005.

*Climber*, rooting at nodes. **Leaves** 5-15 cm long, coriaceous, ovate-oblong or lanceolate, acute or acuminate with flat petiole. **Peduncle** stout, 0.8-1.0 cm long, bracts concave; **spathes** orbicular, 1-2 cm long; **spadix** stipitate, suberect, globose-oblong. **Berries** ca 1 cm long. Flr. & Frt.: almost round the year.

Commonly grows in shady, moist places, amidst bamboo patches etc.


*Stem* rooting, much branched, ca 2 cm thick. **Leaves** 5-10 ×0.5-3 cm, obovate to lanceolate, acute at apex, peduncles sheathed, ca 1 cm long; sheaths imbricating, ovate. **Spathe** cymbiform, cuspidate, 4-6 ×3-4 cm. **Spadix** subglobose, ellipsoid or obovoid, 4-5 cm long, yellow. **Berries** oblong, scarlet. Flr. & Frt.: February – September.

On tree trunks, old walls, rocks etc where moisture is more. Sometimes used as ornamental plant.

Rhaphidophora Hassk., Flora 25 (2) Beibl. 1:11. 1842.

Robust, climbing shrubs with long aerial roots. Leaves large, distichous, often oblique, perforate or pinnately lobed, rarely entire; petiole sheathing, geniculate. Inflorescence axillary; spathe deciduous, cymbiform, not differentiated into tube and limb; spadix included, thick, cylindric, dense-flowered. Flowers bisexual. Perianth 0. Stamens 4 or 5; filaments linear, flattened, narrowed at the tips. Ovary obpyramidal or prismatic, 1- or imperfectly 2-locular, top flattened; ovules many, anatropous, parietal. Fruit a cluster of cohering berries.


A large climbing shrub; stem ca 3-4 cm in diam. Leaves 60-120 cm long, broad-oblong, pinnatisect, base broadly cordate, segments 8-15 pairs, falcately ensiform, tips acuminate, costate with several lateral nerves; petiole 30-60 cm long, stout, thick, grooved. Peduncle 7-15 cm long. Spathe yellow, 12-16 cm long, subcylindrical. Stigma raised from the top of the ovary. Flr. & Frt.: Winter.

Grows in forests where moisture is abundant.

Vern. Name: Bor-lota- Kochu (As.)

Coll. No.: Borah A 20. Date: 11-1-2001. Locality: Kakoijana RF. (Plate No.63)

Typhonium Schott in Winner Z. Kunst. 3:72. 1829.

Tuberous herbs. Leaves entire, 3-5 lobed or pedatisect. Flowers monoecious; tube of spathe short, convolute, with a constricted mouth, persistent; limb ovate-
Fig. (A) *Lasia spinosa* (L.) Thw.,

(B) *Rhaphidophora decursiva* (Roxb.) Schott.
oblong, lanceolate or linear, deciduous; spadix exserted, with a long, smooth barren appendage; male and female flowers remote, with neuters above the females, and sometimes also below the males. Male flowers: Stamens 1-3. Female flowers: Carpels forming an ovoid or oblong-ovoid, 1-celled ovary; ovules 1-2, erect; stigma sessile. Fruit of ovoid, 1-2-seeded berries.

Key to the species:

1a. Leaves deep cordately sagittate, sub-3-lobed. Tip of the spathe twisted. .. .. .. ..

       .. .. .. .. T. divaricatum  

1b. Leaves hastately 3-lobed. Tip of the spathe not twisted .. .. .. .. . T. trilobatum


Tuberous herb. Leaves hastate to deep cordately sagittate, sub-3-lobed. Tip of the spathe twisted. Neuters above the femal inflorescence. Base of the appendage rounded or truncate. Flr. & Frt.: Summer.

Vern. Name: Sam gach, Sam-kochu (As.)


Photo No.: 64.2 (Plate 64)

Corms sub globose, ca 4 cm thick. Leaves deeply trilobed, hastate at base; lobes ovate, sub-equal, wavy, green; petioles ca 30 cm long; sheathed at base. Penduncles under ground, ca 5 cm long, whitish. Spathe companulate, ca 15 cm long; limb purple to dark red within, greenish without, spadix shorter than spathe, pistillate and staminate zones separated by neuter and interspaces. Pistillate zone ca 1 cm long; neuters filamentous, inter winged, white, interspace ca 1.5 cm long, cream; staminate zone ca 2.5 cm long, pinkish. Appendages stipulate, obtuse at the apex, base truncate, ca 5.5 cm long, dark red. Flr. & Frt.: April-June

Quite common amidst grasses along the hills of the area.

Vern. Name: Cham-goch, Cham-kochu (As.).


Photo No.: 64.3 (Plate 64)

LEMNACEAE

Small or minute, free floating aquatic herbs, often gregarious; rootless or with capillary roots, propagated by buds or bulbils, rarely by seed. Fronds either solitary or in groups; ovate-oblong, elliptic-oblong; smooth above, spongy below. Inflorescence spatheate with one female and two male flowers. Flowers monoecious. Perianth 0. Stamens 1, anthers 1 or 2-celled. Ovary sessile, 1-locular, narrowed into a funnel-shaped style; ovules 1-4, basal. Fruit a minute, flask-shaped utricle, indehiscent or opening by circumscissile dehiscence.
(monotypic family)

Lemna L., Syst. Nat. ed. 1. 1735; Sp. PL 970. 1753.


Fronds in groups of 2 or 3, sometimes solitary, ovate-obovate or oblong, symmetric to asymmetric, 1-4×1-2.5mm; dorsal side flat with hook-shaped papilla at the tip; ventral side somewhat convex, base obtuse to acute, apex obtuse-rounded, margin entire, 3-nerved. Inflorescence 1 in budding pouch with one female and 2 male flowers. Fruit ellipsoid. Flr.: Autumn.

Grows in ponds, beels etc.

Vern. Name: Saru puni (As.)


Photo No.: 64.4 (Plate 64)

ALISMATACEAE

Aquatic or marsh herbs; succulent, usually erect, sometimes floating. Leaves radical, submerged or floating, entire, petioled, often pellucid-dotted or lineolate; petioles with air-channels, septate, ribbed, sheathing at base. Panicles 1 or 3; peduncle hollow, air-channeled; bracts 2-3; pedicels unequal. Flowers bi sexual or unisexual. Perianth 2-seriate; the outer whorl of 3 herbaceous, the inner whorl petaloid, rarely obsolete. Stamens 6 or more, anthers erect, basifixed, 2-celled. Carpels 3-6, or more, 1-celled, sessile or stipitate on a flat or raised receptacle;
ovules 1 or more in each carpel. *Fruit* of small achenes or follicles. *Seeds* small or minute.

*Sagittaria* L., Sp. Pl. 2: 993. 1753

Aquatic *herbs*; often stemless. *Leaves* long-petioled, elliptic-cordate or sagittate. Flowers 1-sexual or polygamous, in paniculate or spicate whorls; scape erect or slender; receptacle globose or oblong. *Sepals* 3, persistent. *Petals* 3, membranous, deciduous, white. *Stamens* 6-10-24 in the male flowers, 9-12 in the hermaphrodites; staminodes single in female flowers. *Carpels* many, crowded on the large, globose or oblong receptacle, flattened laterally; ovary solitary. *Fruit* a globose or oblong head of flattened, crested or winged achenes.


Commonly grows in wetlands.

Vern. Name: Pani kochu, Pani kodoli (As.)

Coll. No.: Borah A 444. Date: 3-4-2005. Locality: Nayachara beel.

Photo No.: 64.5 (Plate 64)
BUTOMACEAE


Butomopsis Kunth, Enum. Pl. 3:1841.


Annual herb of marshes and rice fields with milky juice. Leaves radical, elliptic-acute. Inflorescence umbels, scape longer than the leaves. Sepals herbaceous, persistent. Petals membranous, white, deciduous. Stamens 9 of which 6 outer in pairs opposite to sepals and 3 inner single opposite to petals; anthers oblong. Carpels 6, whorled on a flat receptacle, sessile, shortly connate below; ovary 1-locular, ovules many, small. Follicles erect. Seeds minute, numerous, smooth.
Photo No. 64. 1: *Pistia stratiotes* L.

Photo No. 64. 2: *Typhonium divaricatum* (L.) Decne

Photo No. 64. 3: *Typhonium trilobatum* (L.) Schott.

Photo No. 64. 4: *Lemna perpusilla* Torrey

Photo No. 64. 5: *Sagittaria trifolia* L.

Photo No. 64. 6: *Butomopsis latifolia* (D. Don) Kunth
In marshy grasslands.

Vern. Name: Samuch-pat (As.)


Note: Rare species. Not reported earlier from Lower Assam beyond Guwahati.

Photo No.: 64.6 (Plate 64)

**APONOGETONACEAE**

Aquatic or marsh *herbs*; rhizome tuberous. *Leaves* submerged and floating. *Spike* solitary, terminal, emerging above water; spathes caducous. *Flowers* spiral, patent, uniformly dense or lax at the top, dense at base, bisexual. *Tepals* 2, often as long as broad, 1-nerved. *Stamens* 3+3, free; filaments unequal. *Ovaries* 3, superior, free; ovules 2-8 on basal placenta. *Fruits* dense on the spike with a terminal curved beak.

*Aponogeton* L., Suppl. 32, 214. 1782.

Aquatic or marsh *herbs*, scapigerous, with tuberous rootstocks. *Leaves* oblong floating or submerged, base sheathing, lateral nerves parallel cross nerves prominent. *Spathe* solitary. *Flowers* bi-sexual. *Perianth* of 1-3 equal or unequal, pink or white segments, or obsolete. *Stamens* 3 or more; filaments subulate, unequal, persistent; anthers didymous. *Carpels* 3-6, each 2- or more-ovuled; style short; stigma discoid or decurrent, persistent; ovules basilar, anatropous. *Fruit* of 3 or more coriaceous follicles. *Seeds* erect.


Tuber linear-oblong, or globose, 2-3.5 ×0.7-1.5 cm. Leaves oblong, ca 10 cm long, glabrous, base subcordate-obtuse, margin entire, apex obtuse-subacute; petiole long. Spikes 2-7 cm long; peduncle long, overtopping leaves. Flowers ca 4 mm across, dense. Tepals 2, violetish, obovate-suborbicular, clawed. Stamens 6. ovaries 3, oblong, ca 1 mm. Fruit globose, 4×2 mm, smooth, shapely beaked. Flr. & Frt.: winter.

Grows in ponds, beels etc.

POTAMOGETONACEAE

Submerged herbs with creeping rhizomes. Leaves submerged or floating, distichous, alternate or opposite, petiolate or sessile, base sheathing, often adnate to the petiole, stipulate. Spikes axillary, pedunculate, spathes caducous. Flowers bisexual, 4-merous, sessile, ebracteate. Perianth-lobes 4, obovate-suborbicular, 1-nerved, base attenuate, clawed, apex obtuse-round. Stamens 4, basally adnate to perianth. Ovaries 3-4, free, 1-celled, ovule one. Fruit drupelets, dorsally compressed, ridged, warty or smooth.


Submerged herbs, with creeping rootstock. Leaves submerged or floating, opposite or alternate, entire or toothed, with intrafoliaceous stipules, base sheathing.
Flowers small, hermaphrodite, spicate on a scape, rising from a membranous spathe; bracts 0. Perianth-lobes 4, concave, green, valvate. Stamens 4; anthers sessile on the perianth-segments. Carpels 4, sessile, 1-celled and 1-ovuled. Drupelets ridged. 


Stem slender, much branched. Leaves dimorphic: floating leaves narrow elliptic to ovate-oblong, acute or subacute at apex, 5-7-nerved; submerged leaves linear to filiform, 1-2 cm long, caducous. Peduncle 1-3 cm long. Spikes axillary, 6-12 mm long, interrupted. Flowers 4-12. Perianth-lobes ovate-orbicular. Drupelets obovoid, beaked. Flr. & Frt.: June – November.

In stagnant water bodies.


Cyperaceae

Fibrous rooted or rhizomatous annual or perennials. Stems usually trigonous or triquetrous, sometimes almost 3-winged, 4-5 angled, terete or compressed, solid or rarely hollow. Leaves often 3-ranked, usually all clustered at base, bifacial and linear with a long entire generally eligulate sheath, without articulation. Inflorescence terminal, generally bracteate, capitate or reduced to solitary spikelet, paniculate racemose. Flowers inconspicuous, solitary in the axils of glumes, sessile or subsessile, bi- or unisexual, monoecious. Perianth of 2 – several scale-like or
bristle-like segments or absent. *Stamens* free, 1-3, filaments long, often persistent. 

*Ovary* superior, unilocular. *Ovule* solitary; style 1, terminal; stigmas 2 or 3, papillate. 

*Fruit* an achene or nut, indehiscent, generally trigonous or flattened. 

Key to the genera: 

1a. Glumes strictly distichous; spikelets flat ..................................................
   1b. Glumes spiral, not distichous; spikelets terete: 
   2a. Spikelets terminal and solitary ..................................................
   2b. Spikelets terminal, axillary or lateral, not solitary: 
   3a. Nuts enclosed in a cuplike utricle. Inflorescence racemose panicles... 
   3b. Nuts not enclosed in utricle. Inflorescence capitate to umbellate: 
   4a. Perianth absent. Leaves reduced to narrow blades or bladeless sheath : 
      5a. Flowers all bisexual ........................................................... 
      5b. Flowers all unisexual ............................................................. 
   4b. Perianth present, bristle like. Leafless or leafy at the base only.... 

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*Carex* L., Syst. Nat. 1735; Sp. Pl. 2:972. 1753. 

Perennials or rarely annuals, monoecious or rarely dioecious *herbs*. *Rhizome* creeping. *Stems* erect or nodding, usually trigonous-triquetrous, sometimes terete and hollow. *Leaves* in basal clusters or scattered all along the stem, sessile, linear, ligulate, 3-costate; sheaths usually closed. *Inflorescence* usually paniculate, racemose or spiciform; bracts foliaceous. *Spikelets* solitary or clustered, several – many-flowered, unisexual or male above, female below or female above, male below.


Perennial tufted herbs, 7-20 dm high. Rhizomes short, obliquely descending. Stem erect or nodding, smooth. Leaves coriaceous, scattered all along and exceeding the stem, 5-13 cm broad, acuminate, margins scabrid, revolute; lower sheaths membranous, ladder fibrilorely splitting. Panicles 30-85 cm long, partial panicles 5-11, single, ellipsoid, 6-30 cm long, lower distant on long exserted peduncles, usually bearing numerous spikelets, rarely reduced to a solitary spikelet, rachis smooth or scaberulous; lower bracts foliaceous, much exceeding the panicle, spikelets sessile, androgynous. Glumes ovate-oblong, 3.3-3.8 cm long, mucronate, glabrous or hispidulous, reddish brown. Stamens 3. Stigma 3. Utricles sessile, coriaceous, inflated, broadly ovoid to sub globose, abruptly beaked, prominently nerved, young greenish, mature brighter or ultimately blackening. Nuts shortly stipitate, triquetrous, ellipsoid, 2.5-2.8 mm long, rostrate, deep brown. Flr & Frt.: September-March.

Occurrence: Rare.

Found growing on hill solpes of the study area associated with Panicum repens, Saccharum sp.

Cyperus L., Sp. Pl. 44. 1753 et Gen Pl. ed. %. 26. 1754.

Perennials or annuals. Stems usually trigonous or triquetrous, sometimes terete. Leaves mostly clustered at base. Inflorescence terminal, mostly umbellate or capitate; each ray subtended by a bract, usually several together forming an involucre. Spikelets sessile or subsesile, 1-many flowered. Glumes alternate, lower 1-2 empty. Flowers all bisexual or upper one few male or barren. Perianth absent. Stamens 1-3. Nuts sessile or stipitate.

Key to the species:
1a. Rachilla deciduous with spikelets articulated .......... .. .. .. .. . C. brevifolius
1b. Rachilla persistant, not articulated:
   2a. Spikelets spicate .............................................................. .. .. .. .. C. flavidus
   2b Spikelets not spicate:
      3a. Spikelets terete ......................................................... ....... C. distans
      3b. Spikelets compressed:
         4a. Stoloniferous, stolon with intermittent tubers ........... C. rotundus
         4b. No tuber in the stolons ........................................... C. compressus


An erect, terrestrial, perennial herb. Rhizomes long, creeping, usually simple, sometimes branched, pinkish or ultimately purplish black out side, white inside;
scales ovate, oblong ultimately fibrous. Stem trigonous. Leaves much shorter than the stem. Spikelets in solitary capitate spike, subtended by foliaceous spreading bracts, usually 3, sometimes 4. Spikes ovoid to sub-globose; spikelets numerous, elliptic-lanceolate, 2-3 mm long, glume keeled, mucronate; Stamens usually 3. Carpels crest-ovate, papillone, styles deeply bifid. Nuts obovoid or oblong-obovoid, ca 1 mm, brownish or yellowish. Flr. & Frt: September – February.

Very common in waste lands, on dry moist situation, often forming dense clumps.

Coll. No.: Borah A 368. Date: 12-9-2004. Locality: Barpara. (Plate No. 65)


Annual tufted herbs, 10-35 cm tall. Stems slender, smooth, compressed, trigonous. Leaves subcoriaceous, usually shorter than or subequal to the stem, 1.0-4.0 mm broad; sheaths red brown. Umbels simple, lax; bracts 3-7 foliaceous, exceeding the umbel, lower ca 20 cm long; rays 1-8, slender. Spikelets in clusters of 4-12, linear-oblong, compressed-subquadrangular, 1.0-3.5 cm long, 12-40-flowered. Glumes ovate, mucronate, many nerved. Stamens 3. Styles shortly trifid. Nuts shortly stipitate, blackish-brown. Flr. & Frt.: May – December.

In moist shady places and grasslands.


Cyperus distans L. f., Suppl. 103.1781; Clarke in Hook. f., FBI 6: 607. 1893; Jain et Hajra, BBSI. 17: 85. 1975; Rao et Verma, Cyp. N.E. Ind. 16. 1982; Balak, FJ. 2:
Fig. (A) *Cyperus brevifolius* (Rottb.) Hassk.

(B) *C. rotundus* L.

(i) Habit     (ii) Flower
Stoloniferous rhizomatous perennial *herbs*. Stem slender, ca 80 cm high, trimerous, base swollen, covered with persistent scaly sheaths. Leaves scaberulous, as long as or shorter than stem; sheaths with hyaline margins. Umbels large decompound, lax, unequally rayed. Bracts 4-8. Spikes lax, spikelets divaricate, narrowly linear, ca 2 cm long, sessile, 15-20 flowered; rachilla wings caducous, internodes ca 1 mm long. Glumes elliptic, keeled. Nuts equaling the glume, apiculate, triquetrous, black. Flr. & Frt.: Round the year.

Growing on foot hills in moist areas. Occurrence: locally rare.


Shortly rhizomatous, tufted, annual or perennial *herbs*, ca 20 cm high. Stem trigonous, narrow, slender. Leaves shorter than stem. Umbels simple, lax, rays 1-4; bracts 2-4, lower slightly longer than umbels. Spikelets compressed, linear, 3-5 mm long, many flowered; rachilla wingless. Glumes distichous, closely imbricating, ovate, muticous, brownish. Stamens 2. Nuts lenticular, black. Flr. & Frt.: May-August.

Found in waste lands, grow on moist shady places. Occurrence: Rare


Found growing in open fields of foot hills as well as in plains.

Occurrence: Common.

Vern. Name: Keyan-bon. (As.)

Coll. No.: Borah A. 394. Date: 14- 11- 2004. Locality: Gosaipara. (Plate No. 65)


('Eleocharis', 'Elocaris' et. 'Heleocharis', Sphalen.); Hook.f. FBI. 6: 625, 1893.


Stem ca 10 cm high, 0.2 cm thick, slender, sub terete, sheaths ca 15 mm long, purplish. Spikelets thicker than stem, oblong-ovoid, obtuse. Glumes ca 1.5 mm long, greenish with purple edges. Bristles 4 to 6, equal. Style 2-fid. Nuts minute, glossy, blackish brown, truncate at apex. Flr. & Frt.: September-October

Grow on marsh places. Occurrence: Rare.


Fimbristylis Vahl., Enum. Pl. 2: 285. 1806


Annual or perennial tufted herbs. Rhizomes usually short, sometimes long; creeping. Stems usually 3-angled. Leaves clustered at base, usually linear, ligules absent or membranous or dense fringe of short hairs. Inflorescence usually umbellate. Spikelets 1-solitary or in clusters, few to several flowered. Flowers usually all bisexual. Perianth absent. Stamens 1-3. Nut trigonal, orbicular or obovoid or linear.


Annuals in perennials, ca 30 cm high, stems ca 1 mm across, 3-5 angled. Leaves less prominently distichous, ca 1 mm broad, without a midrib, eligulate. Spikelets numerous, in profusely branched clusters. Glumes ovate, ca 1.5 mm long, spiral, brown. Stamens 1-2. style bifid, glabrous or fimbriate towards apex. Nuts trigonous, obovoid, ca 1 cm long., verrucose. Flr. & Frt.: May- November.

Growing in damp places and amidst grasses. Occurrence: Rare.

Coll. No.: Borah A.624. Date: 12-4-2007. Locality: Barpara. (Plate No. 66)


Perennials or annuals in marshy or aquatic places. Rhizomes short or creeping. Stems terete or angled, usually smooth. Leaves clustered at the base or scattered on stem, linear, sometimes reduced to the sheath. Inflorescence terminal or pseudolateral, capitulate or umbellate; spikelets many or solitary; bracts 1-many, foliaceous or absent. Rachilla persistent. Glumes all spiral, caducous, lower 1-3 empty. Flowers bisexual. Stigmas 2-3. Nuts sessile or subsessile, obovoid, oblong or ellipsoid, smooth or rugulose.


Herbs, ca 50 cm · tall. Leaves absent, sheaths 1-3, purplish-black. Inflorescence pseudolateral, capitulate. Bracts solitary, 5-8 cm long, acute. Spikelets 2-6, ovoid-oblong, 6-12 mm long, many flowered. Glumes pale to deep brown.
Fig. *Fimbristylis miliacea* (L.) Vahl.

In marshy places and near forests.


Perennial or annual herbs. Stems triangular, leafy. Leaves flat or keeled, 3-ranked; sheaths with a more or less well-marked tongue opposite the blade (ligule, antiligule or pseudoligule). Inflorescence terminal or axillary panicle or spike; spikelets or bisexual or all unisexual; sometimes clustered into small groups. Stigmas 3. Nut globose or ovoid, usually apiculate, borne on a hypogonium which is dilated at apex into a disc, falling with nut.


Perennial herbs, erect or scrambling over other plants, 1-1.5 m high. Stems slender. Leaves acuminate, 20-70× 0.5-2.0 cm, sheaths open with 5 mm broad wings. Inflorescence paniculate, terminal and 2-4 lateral, 5-10 cm long, spikelets linear-lanceolate, 3-4 mm; glumes ovate, acute; disc-lobes 3, rounded. Nuts ovoid, obtusely trigonous, apiculate, ca 3 mm across, glossy white or purplish black. Flr. & Frt: February- December.

In grasslands and forests fringes.

POACEAE

Annual or perennial herbs, rarely shrubs or trees, tall and woody. Stems erect, ascending or prostrate and creeping, sometimes with rhizomes and stolons, usually branched at base; flowering stems (culms) usually cylindrical, rarely flattened, jointed, usually holow in the internodes. Leaves simple, usually sessile, alternate, sometimes crowded at base of stems, consisting of sheath, ligule and blade. Inflorescence raceme or a panicle or a spike of spikelets; spikelets pedicelled, sessile, each spikelet consists of axis-the rachilla which bears a series of modified bracts, the lower pair (glumes) empty, other (lemmas) bear a floret or florets in their axil. Florets usually hermaphrodite, with 1-3 or 6 stamens subtended by 2-3 minute hyalline scales- lodicules (perianth) and a 1-locular ovary with usually 2, rarely 1-3, styles. Fruit mostly a caryopsis.

Key to the genera:

1a. Shrubs or trees or arboreal:

2a. Rhizomes usually underground. Culms solitary or distant from the ramifications of rhizomes, unarmed. Spikelets with solitary fertile floret. ... ... .. Melocanna

2b. Rhizomes usually overground. Culms always tufted or caespitose, armed or unarmed. Spikelets with more than one fertile florets:

3a. Culms unarmed. Lodicules absent... ... ... ... ... ... Dendrocalamus

3b. Culms always armed. Lodicules present. ... ... ... ... ... ... Bambusa

1b. Herbs or undershrubs:
4a. 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:

5a. Male and female spikelets in separate inflorescence or in different parts of the same inflorescence and of different appearance:

: Female spikelets in crowded longitudinal rows on a very thick spongy axis. Fruit case absent. ... ... ... ... ... ... ... . Zea

5b. Spikelets all hermaphrodite or closely mixed with male or barren:

6a. Spikelets usually solitary, rarely paired; more or less similar.

Glumes membranous, lower glumes usually smaller or suppressed; lower lemma resembling upper glume, usually awnless:

7a. Rachis flattened:

8a. Lower lemma present. ... ... ... ... ... . Paspalidium

8b. Lower glume absent .... ... ... ... ... ... . Paspalum

7b. Rachis angular or terete:

9a. Inflorescence raceme:

10a. Racemes digitately arranged .... ... ... . Digitaria

10b. Racemes arranged along a central axis . Oplismenus

9b. Inflorescence paniculate:

11a. Panicles contracted or cylindric spiciform:

12a. Spikelets subtended by 1-many bristles. ... Setaria
12b. Spikelets not subtended by bristles... *Hymenachne*

11b. Panicles effuse:

13a. Spikelets distinctly gibbous... *Cyrtococcum*

13b. Spikelets not or slightly gibbous... *Panicum*

6b. Spikelets often paired with one sessile and the other pedicelled or one shortly and another long pedicelled, those of each pair similar or more often dissimilar, rarely solitary and all alike.

Glumes equaling the length of spikelets, hyaline and membranous, somewhat rigid and firmes than lemmas, upper lemma usually awned:

14a. Joints and pedicells fused together.... .. .. .. .. *Ophiuros*

14b. Joints and pedicells not fused:

15a. Inflorescence a simple raceme:

16a. Racemes without spathe:

17a. Lower glumes of sessile spikelets dorsally longitudinally channelled .. .. *Microstigium*

17b. Lower glume of sessile spikelets flat or supressed, not channelled:

18a. Upper lemma awned into the cleft. ..*Eulalia*

18b. Upper lemma not awned .. .. *Dicanthium*

16b. Racemes with spathe:

19a. Spikelets in paired racemes. .. .. *Cymbopogon*

19b. Spikelets in heads .. .. .. .. .. .. *Apluda*
15b. Inflorescence a panicle:

20a. Panicles glabrous or pubescent:

21a. Spikelets in threes (3) ................................... *Chrysopogon*

21b. Spikelet in pairs ........................................... *Vetiveria*

20b. Panicle plumose:

22a. Spikelets all pedicelled, rachis or racemose tough:

23a. Callus hairs twice the length of glume. Panicles short, cylindric, white ........... *Imperata*

23b. Callus hairs shorter than glumes. Panicles effuse, reddish brown ............... *Sclerostachya*

22b. Spikelets with one sessile and other pedicelled. Rachis or racemose fragile:

24a. Spikelets awned ....... ............................... *Erianthus*

24b. Spikelets unawned .................. .......................... *Saccharum*

4b. Spikelets 1-many-fowered, braking up at maturity above the more or less persistent glumes, or if falling entire, then not 2-flowered with the lower floret 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 the lemmas all membranous and with a globose wrinkled seed which splits the palea when mature:

25a. Aquatic grasses .. .... ............................ *Hygroryza*

25b. Terrestrial grasses:
26a. Inflorescence a raceme:

27a. Racemes terminal, solitary 

27b. Racemes digitate:

28a. Spikeless awnless 

28b. Spikelets awned:

29a. Imperfect florets present

29b. Imperfect florets absent:

30a. Rachis terminating in a sharp point

30b. Rachis and branches of the inflorescence terminating in a spikelet, not in a sharp point

26b. Inflorescence a panicle:

31a. Leaves elliptic-oblong

31b. Leaves other type:

32a. Leaves 30-80 cm long, 10-80 mm broad. Panicle never stiff:

33a. Spikelets several flowered; lowest floret male or abortive; others hermaphrodite. Ligules hairy:

34a. Rachilla long hairy; lemma entire, glabrous.

34b. Rachilla glabrous; lemma bifid, pilose at the back

... ... ... ... ... ... Phragmites (P. karka)

... ... ... ... ... ... Arundo (A. donax)
33b. Spikelets 2-flowered; lower abortive; upper fertile.

Ligule truncate. .. .. *Thysanolaena (T. maxima)*

32b. Leaves ca 20 cm long, ca 8 mm broad, rarely up to 80 \times 1.5 cm and then panicle stiff:

35a. Ligule 15-45 mm long, mostly cultivated .. *Oryza*

35b. Ligule less than 10 mm or absent. Wild:

36a. Spikelets 1-2-flowered:

37a. Spikelets 2-flowered ... .. *Arundinella*

37b. Spikelets 1-flowered:

38a. Glumes reduced to a membranous rim; lemma ciliately keeled .. *Leersia*

38b. Glumes well developed; lemma not keeled .. .. .. .. *Sporobolus*

36b. Spikelets many-flowered .. .. *Eragrostris*

*Apluda* L., Sp. Pl. ed. 1. 82. 1753.

Perennial grasses. *Culms* decumbent or erect. leaves usually petiolate, flat; blade linear-lanceolate, narrowed at base. *Panicle* compound, leafy, consisting of 1 sessile and 2-pedicelled spikelets, enclosed in a many-nerved, boat-shaped, shortly awned spathe; rachis short, swollen. Sessile *spikelets* bisexual, 2-flowered. florets 2; lower male, upper hermaphrodite. lemma hyaline, of the upper florets 2-fid and awned from the sinus or nearly entire or muticous. palea hyaline. *Lodicules* 2. *Stamens* 3. Grain oblong.

Culms ca 2.0 m. Leaves 10-30 ×0.3-0.5 cm, scabrulous at margins. Lower glume convolute, obtuse, ca 4mm; upper glume boat shaped, 2 mucronate, keeled, ca 4 mm, 5-7-nerved. Flr. & Frt.: August- November.

In open grasslands.


Tufted annuals or perennials. Culms simple or branched. Blades linear to lanceolate, flat; ligule hairy or membranous. Inflorescence contracted panicle, usually stiff. Spikelets solitary or in unequally pedicelled pairs., 2-flowered. Glumes persistent, 3-5-nerved, lower smaller, upper as long as the spikelet. Lower floret male or barren, rarely hermaphrodite; lemma ovate to ovate-oblong, 3-7-nerved; palea narrow, 2-keeled. Lodicules 2. Stamens 3. Styles 2. Stigmas 2, plumose. Grain oblong or ellipsoid.

Culms 0.5-1.5 m tall. Lamina narrowly linear to linear lanceolate, long, flat, sessile; sheaths tight; ligules very short and truncate, ciliate or stiff hairy. Panicles stiff, lax or congested erect or effuse, terminal. Spikelets 2 flowered.

On hill slope associated with Saccharum spontaneum, rare in the study area.


Arundo L., Sp. PI. 81. 1753; Beauv., Agrost. 60. t. 13. f. 2. 1812.


Culms robust, ca 4 m, erect, reed like. Leaf-sheaths to 15 cm; ligule ca 2.5 mm; blades distichous, linear-lanceolate, upper ones 15-30×2.5-3.0 cm, rounded or cordate at base, glabrous. Panicles to 30×10 cm, silky-hairy. Spikelets oblong, 1-1.3 cm, ca 3-flowered; rachilla jointed below each floret, glabrous. Glumes subequal, oblong-lanceolate, 3-nerved; lower glume to 1.3 cm; upper one 1 cm; lemmas lanceolate, ca 1 cm, long pilose without at base, ca 6 mm, 3-nerved, aristate; palea 2-keeled, densely ciliate. Anthers 3. Flr. & Frt.: Autumn- Winter.

In plains, especially along river beds. Occurrence: Locally rare.

Vern. Name: Nol (As.)

Observed in Aie river bed, Khagrabari.
**Bambusa** Schreber, gen. 236. 1789; 828. 1791 (nom. cons.)

*Spikelets* usually many flowered, with imperfect florets at the base or apex. *Glumes* 1-3. *Lemmas* ovate-lanceolate, usually mucronate, many nerved; *paleas* 2-keeled, ciliate or not, tips mostly entire. *Lodicules* 3, membranous, obtuse, ciliate. *Stamens* 6; filaments free, often exserted. *Ovary* oblong or obovate, hairy at the apex. *Caryopsis* oblong or linear-oblong, acute or obtuse, furrowed on one side; pericarp thin, embryo conspicuous.

Key to the species:

1a. Spines absent in culms:

  2a. Spikelets flattened .............................................................. *B. vulgaris*

2b. Spikelets cylindric:

   3a. Spikelets in dense heads ...................................................... *B. balcooa*

   3b. Spikelets in loose heads:

      4a. Culm-sheath with small auricles .................................... *B. pallida*

      4b. Culm-sheaths with large auricles:

         5a. Anthers obtuse ............................................................... *B. tulda*

         5b. Anthers apiculate ......................................................... *B. nutans*

1b. Spines present in culms ........................................................... *B. arundinacea*


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Arundo bambos L., Sp. pi. 81.1753, nom. conf.

Culms thick erect; culm-sheaths scattered-hairy without, glabrescent latter, broad; imperfect blade broad, triangular. Leaf-sheaths linear, to 12 1.2 cm, glabrous; ligule short, entire; petiole short. Panicels compound, leafy or leafless, with spikelets clustered in heads on spicate branchlets. Spikelets oblong, terete, ca 2 cm long to 4 mm wide, 3-6-flowered. Bracts glume-like. Glumes broadly ovate, to 5.5 mm, mucronate; lemmas coriaceous, lanceolate, to 6.5 mm, glabrous mucronate; paleas to 7 mm, 2-keeled, ciliate. Stamens 6. Style 1; stigmas 3. Flr. & Frt: rare.

Rarely found in hillocks.

Vern. Name: Kotoha banh, Kota banh (As.)


Bambusa balcooa Roxb., Bort. Beng. 25; Fl. ind. 2.196.1832; Bor, FA. 5. 33.1940; Chowdhury et al., Ass. Fl. 303. 2005.

Tall, stout, densely caespitose bamboo, culms up to 24 m. long and 7-15 cm in diam., internodes 20-45 cm long. Culm-sheaths two kinds- the lower short and broad, upper surface densely adpressed hairy, ciliate on the edges, top rounded, imperfect blade short, triangular, decurrent into short, fringed auricles; the upper one 20-35 cm long and 20-25 cm broad, almost glabrous, truncate, top acuminate, closely hairy below. Leaves lanceolate, attenuate or subcordate at the base petioled, sometimes long ciliate. Leaf-sheaths striate, adpressed, white hairy, truncate above with a narrow callus and few briastles. Spikelets ovoid, lanceolate, flattened ca 14 mm long, 6-8-flowered, the upper and lower florets sterile, others hermaphrodite,

Commonly cultivated and wild along hill slopes.

Vern. Name: Bhaluka banh (As.)

Coll. No.: Borah A. 145. 12-8-2001 Locality: Kakoijana RF.

*Bambusa nutans* Wall. ex Munro, Trans. Linn. Soc. 26. 92. 1868; Bor, FA. 5. 28. 1940; Chowdhury et al., Ass. Fl. 304. 2005.

A tufted bamboo, app. 7-14 m tall and 4-8 cm in diam. *Culms* smooth, white ringed below the nodes. *Internodes* 30-45 cm long. *Culm-sheaths* 15-22 cm long, covered on back with adpressed black hairs; imperfect blade of the lower and upper sheaths 15-22 cm long, very broad, that of the central nodes shorter, acute, margins recurved, clothed with adpressed black hairs, decurrent into large waved auricles bearing long curved bristles. *Leaves* linear-lanceolate, 15-30 cm long, 2.5-3.8 cm broad; leaf-sheaths striate, hairy when young, with a falcate auricle with bristles; ligule long, obtuse, hairy. *Spikelets* 2-6.5 cm long with a few fertile florets. *Rachilla* long, visible, auriculate. *Sterile* spikelets many. *Glume* 2-3, hermaphrodite florets 3-5, imperfect florets 2-3 at the top. *Lemma* of the hermaphrodite florets ca 2.7 cm long, acute or mucronate; *palea* flattened, ovate, 2-keeled. *Lodicules* 3, long fimbriate. *Stamens* 6. *Caryopsis* oblong, obtuse, hairy on the top. Flr. & Frt: rare.

Rarely found on hill slopes, also cultivated.

Vern. Name: Jatia Mokal banh., Deo banh (As.)

**Bambusa pallida** Munro, Trans. Linn. Soc. 26. 97. 1868; Bor, FA. 5. 30. 1940; Chowdhury *et al.*, Ass. Fl. 304. 2005.

*Culms* thick, caespitose, smooth, fistular, 12-20 m tall, 5.4-7.5 cm in diameter, generally olive green; internodes 50-80 cm long. *Culm-sheaths* 17-30 cm long, ca 25 cm broad, straight, top truncate, glabrous or hairy; imperfect blade longer than the sheath, triangular, acuminate from a broad base, auricled, with bristles. *Leaves* linear-lanceolate, rounded at the base into a short petiole; shortly ligulate. Spikelets in panicles, with sterile and fertile ones. *Glumes* 2, ovate-acute. *Hermaphrodite florets* 3-8, incomplete florets 3-5 or more. *Rachilla* short, ciliate. *Lemmas* ovate-acute, mucronate, many-nerved, glabrous, pubescent within; palea acute, 2-keeled. *Lodicules* 3. *Stigmas* plumose. *Flr.* & *Frt.*: rare.

Common in villages in cultivation, also wild.

Vern. Name: Makal Banh (As.)


**Bambusa tulda** Roxb., Fl. ind. 2:193. 1832; Bor, FA. 5. 27. 1940; Chowdhury *et al.*, Ass. Fl. 304. 2005.

A tufted bamboo, app. 22 m tall and 5-10 cm in diam. *Culms* smooth, green, sometimes striped with yellow. Lower branches leafless, rigid, horizontal. *Culm-sheaths* 15-22 cm long, 15-25 cm broad, smooth or covered with adpressed brownish hairs; imperfect blade broadly triangular, reniform or cordate, hairy; ligule narrow. *Leaves* linear-lanceolate, 11-32 cm long, 1.5- 3.7 cm broad; leaf-sheaths striate, hairy when young, with a falcate auricle with bristles. *Spikelets* 2-7.5 cm long with 7-10-12 florets, often hirsute at the top, 1-2 empty bracts at the base and several glumes.
Central florets hermaphrodite with few imperfect florets on both side. Lemma of the hermaphrodite florets ca 2.5 cm long, acute or mucronate; palea flattened, ovate, 2-keeled. Lodicules 3, long fimbriate. Stamens 6. Stigmas 3, plumose. Caryopsis oblong, obtuse, hirsute on the top. Flr. & Frt: rare.

Commonly found on hill slopes, also cultivated.

Vern. Name: Bijli Banh, Nol Banh Deo-banh (As.)

*Bambusa vulgaris* Schard. In Wendl. Coll. Pl. ii. 26. t. 47; Bor, FA. 5. 27. 1940; Chowdhury *et al.*, Ass. Fl. 304. 2005.

Culms moderate sized, distantly placed, 6-15 m tall, smooth, 5-10 cm in diam., green or striped with yellow lines, shining. Nodes often with a ring of brown hairs; internodes 25-45 cm. Culm-sheaths 15-25 cm long and 17-23 cm broad, concave at the top, rounded, hairy, often streaked with yellow, ciliate at their margin; limb 5-15 cm long, 10 cm broad, sub-triangular, acute, hairy; base decurrent forming two rounded auricles with fringed stiff bristles. Leaves membranous, linear, lanceolate, acuminate or subulate. Inflorescence large panicles bearing spicate branches with spikelets in clusters of 3-10. Spikelets pedicelled, compressed. Glumes 1-2, 6-9 mm. Long, ovate-acute, many-nerved, ciliate. Lemmas 8-15 mm, acuminate-cuspidate, attenuate at base; paleas 2-keeled, long ciliate. Lodicules 3, hyaline. Stamens exserted, purple. Stigmas 3, plumose. Flr. & Frt: rare.

Commonly cultivated in the area.

Vern. Name: Jati banh (As.)
et in Journ. De Bot. 1:70. 1813 (Centotheca)

Perennial grass. Leaf-blades flat. Panicles terminal. Spikelets laterally compressed, linear, oblong or obovate-oblong; awnless. Florets 2- many. Glumes persistent, 3-5-nerved, unequal. Lemmas lanceolate to ovate or oblong, 7-9-nerved. Palea as long as or slightly shorter than the lemmas, 2-keeled. Lodicules generally 2 or absent. Stamens 2-3. Caryopsis free.


Culms simple or branched, ascending, erect, 10-100 cm tall. Leaves elliptic-lanceolate to linear-lanceolate, 4-20×1-2 cm; ligules truncate, ca 2 mm. panicles loose, 10-20×8-15 cm long; branches many; pedicels capillary. Spikelets oblong or ovate-oblong, 4-6 mm long, loosely 2-4-flowered. Glumes narrowly-lanceolate to oblong, acute, 3-4 mm longh, 3-4-nerved. Lemmas oblong-acute, apiculate, 5-7-nerved. Paleas shorter, narrow. Lodicules absent. Flr. Frt.: August- November.

In moist and shady places of forests edges.

Chloris O. Swartz, Prodr. 1. 25. 1788.

Rhizomatous perennials. Culms tufted, ascending. Leaf-sheaths keeled, flabellate; ligule membranous, ciliate; blades linear, flat or folded. Spikes digitate,
slender. *Spikelets* subsessile, unilateral, 2-seriate, each with one fertile floret and one or more sterile florets; *rachilla* articulated above glumes, produced above fertile floret into 1-3 or more sterile lemmas. *Glumes* unequal, membranous, lanceolate, 10-nerved, acute or acuminate, with a mucro or short arista. *Fertile lemma* 3-nerved, apex obtuse or 2-fid, densely ciliate, usually with an awn; *palea* 2-nerved, 2-keeled. *Anthers* 3. *Caryopsis* ellipsoid or fusiform.

Key to the species:

1a. Spikelets 2-awned; leaf sheaths densely ciliate on collar .................... *C. gayana*
1b. Spikelets 3-awned; leaf sheaths not densely ciliate ................................ *C. inflata*


*Culms* ca 1.5 m, geniculate. *Leaf* sheaths 5-8 cm, ligule 2-3 mm; blades 15-20 ×0.5-0.7 cm, scabrid. *Spikes* ca 4, drooping, ca 15 cm long. *Spikelets* oblong, narrow, ca 6 mm, 2-flowered, 2-awned. *Glumes* aristate; upper glume slightly longer than lower one; fertile *lemma* oblong-lanceolate, ca 6 mm, ciliate on the back and margins, 3-nerved; *palea* ca 5 mm, scaberulous. *Anthers* ca 2mm. *Caryopsis* 2.5-3 mm long. Flr. Frt.: August- December.

Usually on slopes of foot hills, edges of forests.


Culms ca 1m, sparsely tufted. Leaf sheaths 4.5-8.5 cm, flat, densely ciliate on collar; ligule ca 1 mm, blades oblong, ca 5-20 cm long, flat, plicate, ca 4 mm wide, densely scabrid within. Spikes 8-20, purplish, 3-6 cm long. Spikelets ca 2.5 mm, 3-flowered. Lower glumes slightly shorter than upper one; fertile lemma obovate, densely stiff-ciliate on margins and on keel, awn ca 5 mm; palea ca 2-3 mm. Anthers ca 1 mm. Caryopsis ca 2 mm long. Flr. Frt.: August-December.

Usually on slopes of foot hills, edges of forests.


Perennials, erect or prostrate. Culms slender, decumbent, finally ascending. Leaf blades narrow. Panicles usually lax. Spikelets in threes, one sessile, the other two pedicelled; florets 2; lower reduced to an empty lemma, upper hermaphrodite. Sessile spikelets awned. Glumes subequal, upper boat-shaped. Lemma hyaline; of lower floret 2-nerved, upper entire or 2-dentate. Palea absent or small. Lodicules 2. Stamens 3. Caryopsis linear.

Culms 15-50 cm. Leaves linear, rounded at base, obtuse or acute at apex, 1-12 × 0.2-0.5 cm. Panicle erect; branches slender, filiform. Sessile spikelets linear, 2-5 mm, dorsally aristate. Lower glumes linear-subulate, 2-5 mm, 2-3-nerved; upper glumes lanceolate, 2-5 mm long, shortly aristate; keels scabrid. Lemma of lower floret 1-3 mm long, upper floret awned, awn ca 4-8 mm long. Flr. & Frt.: April-February.

Very common along roadsides and in waste lands.

Vern. Name: Karsola bon, Sagun-kanta (As.)


Culms tufted, usually tall, glabrous herb. Leaf-sheaths loose, ligules membranous. Inflorescence terminal and axillary; female with 1-sessile and 2 sterile pedicelled; male raceme exserted from the mouth of the cupule, spikelets imbricate and in pairs or threes. Caryopsis subglobose.


Culms about 3 m tall, ca 1 cm wide, robust, glabrous at nodes. Leaf-sheaths about 7 cm; ligule membranous, 0.5 mm; blades 15-55 cm long, flat, midnerv prominent below, scaberulous on margins. Female spikelet ca 1 cm. glumes orbicular, beaked; lemma lanceolate, subglobose, 6-8 mm, furrowed in the middle. Male spikelet oblanceolate, ca 1 cm.; lower glume flat on the back, 2-keeled, winged;
upper glume narrowly lanceolate; lower lemma and palea nearly as long as spikelets; upper lemma slightly shorter. Anthers 3, ca 8 mm. Caryopsis subglobose, 6-8 mm, furrowed in the middle. Flr. & Frt.: Winter.

Forest edges, usually in moist places.

Vern. Name: Kauri-moni (As.)


Tufted perennials, often aromatic. Culms erect, sometimes basally decumbent, nodes swollen. Leaf-sheaths glabrous, sometimes tomentose; ligule membranous; blades linear. Inflorescence a large complex panicles, spatheate; pair of racemes with a spatheole beneath. Spikelets binate, lowest pair homogenous, male or empty. Sessile spikelet: dorsally compressed; lower floret empty, upper one bisexual; lower glume equal to spikelet, 2-keeled, winged; upper glume boat-shaped, 1-keeled; lower lemma glabrous, upper lemma hyaline, often ciliate. Anthers 3. Caryopsis oblong. Pedicelled spikelet: lower glume as long as spikelets, flat; upper glume boat-shaped, 1-keeled; lower lemma hyaline, epaleate. Anthers 3.

Two species are sporadically cultivated in the area:


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Perennial, glabrous, creeping grasses. *Leaves* narrow, flat. *Spikelets* minute, 1-flowered, sessile, unilateral, 2-seriate in slender, digitate spikes. *Glumes* 3, awnless; 1st and 2nd *glume* empty, ovate; 3rd articulate at base, membranous, 3-nerved; *palea* as long as glume, 2-nerved; *lodicules* 2; *stamens* 3. *Caryopsis* oblong.


*Culms* 15-25 cm tall, glabrous at nodes. *Leaf* blades softly scaberulus, 2-10 cm long, narrowly linear, almost distichous; sheaths 0.5 to 3.0 cm long, glabrous; *ligules* membranous, shortly ciliate. *Spikes* 3 or 4, digitate on slender culm, sub erect to spreading, ca 3 cm long. *Spikelets* 1-sided on the rachis, awnless. *Glumes* lancelate, acute to subacute mucronate at apex. *Lemma* oblong-ovate. *Anthers* oblong, ca 1 mm long. Flr. & Frt.: January- September (almost all round the year).

Grows on open fields as well as in grass lands of plain and hills.

Vern. Name: Dubori bon (As.).

Note: Leaf extracts are used as remedy for vomiting.


Perennials. *Culms* slender, ascending. *Leaf*-blades linear-lanceolate; ligule membranous. *Inflorescence* an open, contracted panicle. *Spikelets* long or short-
pedicelled, obliquely obovate to semi-obovate, gibbos, awnless, laterally compressed, 2-flowered, deciduous. Glumes unequal, membranous, 3-5-nerved. Florets 2; lower barren, upper hermaphrodite. Lemma of lower floret barren and of upper floret narrowly boat-shaped, 3-5-nerved; involute at margins; palea of lower and upper floret narrow. Lodicules 2. Stamens 3.


_Culms_ 10-40 cm long, decumbent, creeping and branching at base. Leaf blades oblong-lanceolate, acuminate at apex, 2-10 × 0.2-0.6 cm; sheaths glabrous or with ciliate margins. Panicles short, lax; branches 2-3 cm long, pilose. Spikelets gibbos, laterally compressed, 1-2 cm long. Lower glumes ovate-acute or cuspidate, 5-nerved; upper glumes obtuse, 3-nerved, pubescent. Flr. & Frt.: June- August.

In marshy places and forests.

Coll. No.: Borah A 565. Date: 12-7-2006. Locality: Kakoijana RF.


Auuals or perennials. _Culms_ ca 60 cm tall, matty, geniculate. Leaf-sheaths tuberculate-hispid. Inflorescence of digitate, whorled of capitate spikes; spikes terminating in a sharp point. Spikelets 2-3-flowered. Upper glume awned or long mucronate.

**Culms** 30-60 cm tall, matty, geniculate. *Leaf-sheaths* 1.5-5 cm, apex tuberculate-hispid; *ligule* membranous, ciliolate, ca 1.5 mm; *blades* flat, margins at base ciliate. *Spikes* 2-7, digitate, oblong, 1-5 cm. *spikelets* 2- or 3-flowered, sessile, broadly ovate, ca 4 mm, laterally compressed, densely imbricate, in 2 rows; *rachis* produced as a sharp point above; *rachilla* continuous between lemmas. *Glumes* subequal, folded; upper glume awned. *Anthers* 3, about 1 cm. Flr. & Frt.: winter.

In forest edges, moist areas.

Coll. No.: Borah A 567. Date: 12-7-2006. Locality: Kakoijana RF.

**Dendrocalamus** Nees. In Linnaea 9. 476. 1834; Benth. & Hook., Gen. Pl. 3. 1212.

*Spikelets* few to many-flowered with concealed rachilla; lower florets imperfect, 1-2, reduced to the lemma, hermaphrodite florets 2-3; terminal florets rudimentary or absent. *Glumes* 2-3, often gemmiparous, membranous or rigid, muticous, the upper often with a ciliate keel; *lemmas* membranous, subulate or mucronate at the apex sometimes spinescent, back glabrous, hirsute or silky; *paleas* narrow, those of lowest florets 2-keeled. *Lodicules* absent. *Stamens* 6, filaments free. *Style* filiform, hairy, stigmas 1-2-3, subulate. *Caryopsis* with a crustaceous pericarp.

**Dendrocalamus hamiltonii** Nees & Arn. Ex Munro in Trans Linn. Soc. 26:151. 1868; Bor in Kanjilal et al., FA 5:239. 1940; Chowdhury et al., Ass. Fl. 305. 2005.
Large bamboo with caespitose culms; tall and erect or stems curved downwards. *Culms* large, ca 12-25 m tall, usually naked below and much branched above; 10-19 cm in dia., grayish-white when young with dense adpressed pubescence, dull-green when old; nodes marked with root scars; internodes 30-50 cm long. *Culm-sheaths* long and stiff, variable in size, lower part of large culms larger, glabrous, shining within, glabrous or with brown hairs at the truncate top; imperfect blade large, narrow, ovate-lanceolate, sides incurved, closely covered with black hairs within at the base; ligule smooth, entire. *Leaves* variable, small on side branches, on new shoots ca 37 cm long and ca 4 cm broad, rounded at the base into a short thick petiole; ligule long, oblique. *Panicles* much branched with many whorls of branches bearing half-verticillate heads of purple flowers supported by round scarious bracts. *Spikelets* purple, ovoid, depressoed, ca 10 mm long. *Glumes* usually 2, short, rounded. *Lemmas* broad, orbicular, recurved, ciliate on the edges; *paleas* of lower florets 2-keeled, ciliate and bifid. *Stamens* exserted, pendulous, anthers purple. *Stigmas* 3, plumose. *Caryopsis* broadly ovoid, beaked. Flr. & Frt: rare.

On hill slopes of moist areas, also cultivated.

Vern. Name: Kako banh, Kekoa banh (As.)


*Desmostachya* (Stapf) Stapf in Thiselton-Dyer

Fl. Cap. 7:316. 1898; 632. 1900

flowered, falling entire at maturity. Glumes unequal, acute or obtuse, muticous or shortly mucronulate. Lemmas lanceolate, entire.


*Culms* stout, ca 1 m; nodes glabrous. Leaf-sheaths densely flabellate, leathery; ligule membranous, 0.5 mm; blades flat or folded. Inflorescence spike-like panicles; *spikes* clustered. *Spikelets* ca 10-flowered, linear-oblong, 7-9 mm, laterally compressed, subsessile, falling entire. Glumes unequal, lanceolate, 1-nerved *lemmas* lanceolate, rigid, 3-nerved, keeled; *palea* slightly shorter, 2-keeled. *Stamens* 3.

In forest edges, moist areas.

Coll. No.: Borah A 585. Date: 19-9-2006. Locality: Kakoijana RF.


Rhizomatous perennials; *culms* tufted, sometimes densely branched at base. *Ligule* membranous; *leaf-blades* narrow, flat or rolled. *Raceme(s)* single or subdigitate, spike-like with 1-3 pairs of homogenous *spikelets* at base. *Sessile spikelets*: Glumes subequal; lower glume broadly convex to concave on back, rounded at apex, 2-keeled; upper glume boat-shaped, 1-keeled. *Lemmas* usually epaleate; lower *lemma* hyaline; upper one stipitiform, apex entire or 2-dentate, awned. *Stamens* 3. *Caryopsis* oblong, dorsally compressed. Pedicelled spikelets awnless.

Culms ca 50-90 cm, geniculate; nodes hairy. Leaf-sheaths 5-10 cm, densely ciliate; ligule 1mm; blades linear, 8-20 ×0.2- 0.5 cm, sparsely tuberculate-pubescent, apex tapering. Racemes 2-5, oblong, ca 6 cm. Sessile spikelet ca 4 mm; lower glume about 3 mm, 7-nerved, cartilaginous, tumberculed-pubescent, margin setose; upper glume ca 3mm, 3-nerved, scabrid without; lower lemma ca 2mm; uper lemma stipitiform, awned. Pedicelled spikelets ca 4mm long. Flr. & Frt.: August- February.

Grows in open areas as well as forest edges.

Coll. No.: Borah A 569. Date: 19-7-2006. Locality: Khagarpur.

**Digitaria** Heist ex Fabricius, Enum. ed. 1:207. 1759.

Annuals or perennials. Culms erect, ascending or creeping. Leaf-blades flat, linear or linear-lanceolate; leaf-sheath usually separating from culm. Inflorescence of 2-many, digitate, spaced and alternate or whorled spiciform racemes. Spikelets narrowly appressed and imbricate, 2-flowered. Lower glume minute or absent; upper glume muticous, membranous, 3-nerved. Lower floret neuter; lemma 3-9-nerved; palea minute. Upper floret hermaphrodite; lemma 1-3-nerved, palea 2-nerved. Lodicles 2. Stamens 3. Styles 2.

Annuals. **Culms** creeping below, ca 1 m tall. **Leaf-blades** linear to lanceolate; sheath loose, striate; ligule membranous, truncate. R**acemes** subdigitate, 10-15 cm long. **Spikelets** elliptic, acute, ca 3 mm long. Lower **glumes** hyaline; upper glume narrow, lanceolate, ciliate on margins 3-nerved. **Lemma** 5-7-nerved, palea absent. Flr. & Frt.: April- November.

In shady places near forest edges.


**Eleusine** J. Gaertn., Fruet. 1: 7. 1788

Tufted annuals or perennials. **Leaf-blades** usually linear. **Inflorescence** of digitate or whorled secund **spikes**. **Spikelets** laterally compressed; sessile, densely overlapping, in two rows on one side, of the flattened rachis. **Florets** 3-12, hermaphrodite or the uppermost reduced. **Glumes** persistent; lower glume 1-nerved; upper glume 1-7-nerved. **Lemmas** similar to the glumes, 3-nerved. **Palea** 2-keeled. **Stamens** 3. **Styles** 2; **stigmas** plumose.


Annuals, **culms** 10-60 cm high, compressed, 2-3 noded. **Lamina** linear, flat; sheaths keeled; **ligules** minute or 0. **Spikes** 2-6 digitate or lower more or less spaced
on a common axis; rachis 4.0-9.5 cm long. Spikelets 3-8 flowered, awnless. Caryopsis oblong, transversely rugose; pericarp loose. Flr. & Frt.: Round the year.

Grows in open places of plains.

Vern. Name: Bor keyan bon, Bobosa bon (As.).


_Eragrostis_ P. Beauv., ESS. Agrost. 70. 1812 emend. Reichb. 1828.


Key to the species:

1a. Leaf-sheaths 2.5-10 cm. Panicles oblong-ovate. Spikelets oblong, grey-green to pale yellow; opposite florets not overlapping. Anthers 2. .. ... .. _E. gangetica_

1b. Leaf-sheaths 1-4.5 cm. Panicles narrowly oblong to broadly ovate. Spikelets ovoid to oblong, straw coloured tinged with purple; opposite florets slightly overlapping and diverging nearly 90° from the rachilla. Anthers 3. .. _E. unioloides_


_Poa gangetica_ Roxb., Fl. ind. 1:341. 1820.
Culms ca 1 m. leaf-sheaths 2.5-10 cm; blade 8-20 × 0.2-0.4 cm, flat. Panicles oblong-ovate, 10-20 × 2-8 cm. Spikelets oblong, ca 3-8 mm long, 1-2 mm wide, 2-8-20-flowered, grey-green to pale-yellow, breaking up from the base; rachilla persistent, much flexuous, opposite florets not overlapping. Lower glume shorter than upper one; lemma broadly ovate, smooth on the back. Anthers 2. Caryopsis globose.

On slopes of foot hills.


Glabrous annuals; solitary or loosely tufted, 15-80 cm high. Leaf-sheaths 1-4.5 cm; blades 5-10 cm long, flat or inrolled, usually glabrous. Panicles 5-15 cm long, narrowly oblong to broadly ovate, 6-30× 1-8 cm. Spikelets ovoid to oblong, 0.5-1 cm long, straw coloured tinged with purple, sometimes turning violet, reddish purple or pale brown, 10-35-flowered; opposite florets slightly overlapping and diverging nearly nearly 90° from the rachilla; rachilla persistent. Lower glume shorter than upper one. Anthers 3. Flr. & Frt.: April- December.

In open plains and grass lands.


Reed-like perennials. *Racemes* subdigitate, spikelets binate; internodes of rachis and pedicels slender, long ciliate. *Upper lemma* awned from the sinus of 2-toothed tip.


Grow on hill slope grassland.


**Heteropogon** Pers., Syn. 2. 533. 1807.

*Spikelets* 2-nate, lower homogamous, upper heterogamous; the spikelets of the heterogamous pairs falling separately. *Florets* 2, lower reduced to an empty lemma, upper female or hermaphrodite in the sessile spikelets of heterogamous pairs, male or neuter in all other spikelets. *Fertile spikelets* subterete and awned. *Glumes* equal. *Lemma* of the lower florets hyaline, of the upper florets stipitiform from a hyaline, very stout geniculate awn. *Palea* small or absent. *Lodicules* minute. *Stamens* 3, often rudimentary or absent. *Stigmas* exerted terminally or laterally. *Male spikelets* dorsally flattened, somewhat twisted; lower glume herbaceous, many nerved; upper membranous, 3-nerved; lemma hyaline; stamens 3 or absent.


Common in grasslands.


**Hygroryza** Nees in Edinb. New Phil. J. 15.:380. 1833.


*Culms* 25-50 cm long, branched with whorled roots at nodes. *Leaves* ovate-lanceolate to linear-oblong, obtuse at apex, rounded or cordate at base, 2-6 × 0.5-1.5 cm; sheaths inflated, compressed, ligule absent. *Panicle* 5-8 cm long. *Spikelets* few, solitary, articulate, narrowly lanceolate, ca 7 mm long, 1-flowered. *Glumes* absent. *Lemma* 5-nerved, often hairy, awned, awn as long as lemma. *Palea* 30-nerved, keels scabrid or ciliate. Flr. & Frt.: August-October.

Aquatic, common.

Vern. Name: Petuli dol, Koronga Dol (As.)

Uses: Good fodder for buffalo and cows, also eaten by Rhino (Hajra, 1978)

Coll. No.: Borah A. 245. Date: 12-5-2003. Locality: Konora beel. (Plate No. 67)


Fig. *Hygroryza aristata* (Retz.) Nees. Wight & Arn.

*Culms* erect, ca 1 m tall. *Leaf-blades* linear, 10-40 cm long, rounded or cordate at base; sheaths smooth, glabrous; *ligule* a membranous ring. *Inflorescence* a thyrsoid *panicle*, ca 20 cm long. *Spikelets* narrowly lanceolate, acuminate, ca 5 mm long. *Glumes* membranous; lower 1-nerved; upper 5-nerved; lower floret barren. Flr. & Frt.: April- November.

In marshy places.

Vern. Name: Dol ghah (As.)

Uses: A good fodder, usually collected for domesticated animals especially during flood when other grasses are not available.


Rootstock creeping. Culms 30-90 cm long; nodes densely hairy. Leaves linear, lanceolate, dorsally silky. Panicles spiciform, cylindric, 10-30 cm; pedicels covered with long white hairs; spikelets lanceolate, ca 3 mm; lower glumes lanceolate, 3-9 nerved; upper glume keeled, lemma hyaline, ciliate. Flr. & Frt.: May-November.

Common in grasslands along roadsides and river banks.

Vern. Name: Ulu-kher (As.)


Aquatic or marshy. Culms ca 1 m; nodes hairy. Leaves erect, linear, 6-18 ×0.5-1.0 cm. Panicles 8-10 cm; branches ca 3 cm, erect or spreading; spikelets closely imbricate ca 4 mm, 5-nerved, laterally compressed, ciliate at keels;Lemma
boat-shaped, compressed and keeled, awnless, 5-nerved; *palea* linear-oblong, 3-nerved, ciliate on keels. Flr. & Frt.: August-December.

Commonly growing in *beels*.

Vern. Name: Arali (As.)

Coll. No.: Borah A. 300. Date: 23-12-2003. Locality: Doloni beel. (Plate No. 68)


_Rhizomatous_ bamboo; _culms_ erect. _Spikelets_ 2-3, fasciculate in bracts in the axils of the spikes, acuminate, with fertile and one or more sterile florets. Empty glumes indefinite. *Lemma* and *palea* similar to empty glumes, convolute, not keeled. 
_Lodicules_ 2, narrow. _Stamens_ 5-7. _Caryopsis_ large, pear shaped, long beaked.


Arborescent bamboo, unarmed. _Culms_ erect, diatant, single from the ramifications of an underground rhizome. _Culm-sheaths_ often persistent, brittle, short with short auricles; imperfect blade very long. _Leaves_ broad, petioled, smooth. _Inflorescence_ a large compound panicle of spikate, secund spikelets. _Caryopsis_ large, beaked, pear shaped.

In hill slopes.

Vern. Name: Torai Banh, Torza banh (As.)

Fig. Leersia hexandra Sw.
**Microstegium** Nees ex Lindl., Nat. Syst. Bot. ed. 2. 447. 1836.

Annuals or perennials. *Leaves* conspicuously contracted at the base or petioled. *Spikelets* 2-nate, one sessile, one pedicelled or both pedicelled in fragile digitate racemes. *Lower glumes* membranous or criaceous, deeply channelled or concave; upper usually laterally compressed, keeled, acute. *Lower floret* empty or male. *Upper floret* hermaphrodite; lemma very short, hyaline, entire, 2-fid or 2-auriculate or awned; palea small or absent. *Stamens* 3, rarely 2.


Annual or perennial grass. *Culms* 60-120 cm tall, branchy, decumbent at base, then erect, nodes glabrous. *Leaf-blades* soft, thin, very variable, flat, spreading, linear-lanceolate. *Inflorescence* a panicle made up of 2-10 false spikes, fasciculate. 4-12 cm long. Sessile *spikelets* 2.5-3.5 mm long. *Lower glume* papyraceous, margins strongly keeled; upper glume membranous. *Lower floret* neuter or male; lemma hyaline, narrowly oblanceolate; upper floret hermaphrodite, lemma 0.5 mm long.

Common in grasslands.

Vern. Name: Kharika (As.)


*Culms* erect, striate, very glabrous. *Leaf* with sheaths glabrous at the nodes. *False spikes* solitary or fascicled at the summit of the branches of the stem, cylindrical; rachis very fragile, intimately fused to the pedicelled joints; articulation
straight or somewhat concave. Sessile spikelets 2-flowered, accompanied at each node by a pedicelled spikelet. Lower florets male, upper hermaphrodite. Stamens 3. Caryopsis oblong.

**Ophiurus megaphylus** Stapf ex Haines, Bot. Bihar & Orissa 1058. 1924; Bor in Kanjilal et al. FA 5:449. 1940; Chowdhury et al., Ass. Fl. 307. 2005.

Perennial stout grass, about 1-2 m tall. Leaf-blades narrowly ensiform, tapering from the base to apex. Racemes 5-15, fascicled in the axils of the spathes or leaf-sheaths at the upper nodes. Pedicelled spikelets suppressed, sessile spikelets sunk in the rachis joints and quite flush with them.

Common in plains and hills.


Annuals or perennials. Culms creeping at base. Leaf-blades usually ovate, often slightly asymmetrical. Inflorescence of spiciform, second racemes with triquetrous rachis; main axis hairy at joints. Spikelets paired or solitary, 2-flowered, shortly pedicelled. Glumes 5-7-nerved, ovate-acute, awned; lower glume with longest awn. Lower lemma exceeding glumes, 5-9-nerved; palea 2-nerved; upper lemma oblong, chartaceous to sub-coriaceous; palea 2-nerved. Lodicules 2. Stamens 3. Style 2, short, distinct; stigmas plumose.


*Lamina* rounded or broadly acute at base, 3-12 × 0.6-2.0 cm, scabrid or hispid. *Awns* usually purple. Flr. & Frt.: September-February.

Grow along road side associated with *Eulalin* sp.

Vern. Name: Bah-patia bon (As.).


*Oryza* L., Syst. ed. 1. 1735; Benth. & Hook.f., Gen. Pl. iii. 1116.


Widely cultivated cereal, both as wet and dry crops.

Vern. Name: Dhan (As.).

Many variations mainly in grain size, shape and taste exist among the cultivar varieties which are named differently in vernacular languages.

*Ottochloa* Dandy in J. Bot. 69:54. 1931.

Perennials. *Culms* gweniculate, ascending from creeping base. *Leaf-blades* linear-lanceolate, flat; ligule membranous. *Inflorescence* a more or less scattered raceme. *Spikelets* awnless, dorsally compressed, falling entire from pedicels. *Florets* 2; lower barren, reduced to lemma.

Culms 30-70 cm tall, branched at base. Leaf-blades lanceolate-linear, acute at tip, rounded or abruptly contracted at base, 5-15×0.4-1.0 cm; leaf-sheaths shorter than the internodes; ligule truncate. Panicle loose, 8-20 cm long; branches filiform, angular. Spikelets oblong or narrowly elliptic-oblong, 2-flowered. Lower glume lanceolate, acute, 3-nerved; upper glume ovate to ovate oblong, obtuse. Lemma elliptic-oblong. Flr. & Frt.: May- November.

Common in grasslands.


Annuals or perennials. **Leaf-blades** linear to lanceolate or ovate. **Inflorescence** contracted or effuse panicle. **Spikelets** loosely scattered, glabrous or hairy, lanceolate to oblong, elliptic or orbicular, subacute or muticous, 2-flowered, long or short pedicelled, falling entire from pedicel. **Glumes** usually unequal; lower usually with one or more nerves or nerveless; upper 5-9-nerved. **Lemma** of lower floret 5-9, rarely 3 or 11 nerved; of upper floret faintly nerved. **Lodicules** 2. **Stamens** 3. **Styles** 2; stigmas plumose.

Key to the species:

1a. Lemma of the upper florets finely transversely rugose... .. .. .. P. maximum

1b. Lemma of the upper floret quite smooth. .. .. .. .. .. .. .. P. repens.

Erect or procumbent annual or perennial grasses. *Culms* sometimes woody, often densely clustered. *Lamina* linear or lanceolate, rarely ovate; ligules membranous fimbriate or tusted pilose. *Panicles* open, often spreading. *Spikelets* falling entire, awnless, 2-flowered; lower male or baren, upper harmaphordite. *Glumes* 2, membranous, upper glume longer than the lower. *Lemmas* dissimilar; lower lemma peleate or not, as long as the upper glume; upper lemma peleate. *Lodicules* 2. stamens 3. *Caryopsis* more or less dorsally compressed, embraced by hardened lemma and palea. Flr. & Frt.: May- August

Grow in the hill side grass lands.


Perennial. *Rhizomes* robust, elongated. *Culms* 0.5- 1.2 m tall, stoloniferous at base, erect or ascending, simple or branched at base, striate, with numerous nodes. leaf-blades distichous, erect, stiff, rigid, coriaceous, linear-lanceolate, rounded or cordate at base; ligule a narrow coriaceous ring. *Inflorescence* an erect panicle bearing spikelets. Spikelets solitary or in pairs, 2.5- 3.5 mm. *Lower glume* membranous, clasping, broad; upper ovate-acute, convex. Lower floret male or neuter, upper hermaphrodite. *Stamens* long.

In hill slopes. Occurrence: rare.

Coll. No.: Borah A. 635. date; 14- 7- 2007. Locality: Kakoijana.
**Paspalidium** Staf in Prain, Fl. Trop. Africa 9:582. 1920

Perennials or annuals, sometimes aquatic. *Leaf-sheaths* compressed, glabrous; ligule usually a ciliate rim blades linear, flat or inrolled, setaceous-acuminate or blunt at tips. *Inflorescence* of several racemes on a common axis; rachis narrowly winged or triquetrous. *Spikelets* imbricate, several, ovoid, dorsally compressed or gibbous. *Glumes* dissimilar or unequal; lower glume smaller, upper as long as spikelet; lower florets male or sterile; *lemma* similar to upper glume, with or without palea; upper lemma crustaceous, firm; *palea* crustaceous, equal to lemma. Anthers 3. Caryopsis ellipsoid, dorsally compressed.


*Culms* tufted, ca 80 cm high, decumbent, branched, 3-4.5 mm wide, glabrous at nodes. *Leaf-sheaths* ca 10 cm, ligule 0.7 mm; blades linear, ca 7-20 cm long and 0.3-1 cm broad, flat, prominently nerved below. *Inflorescence* 15-30 cm long; racemes 5-8, narrowly winged, glabrous or minutely ciliate. *Spikelets* 15-25 per raceme, globose. Lower glume obovate, 5-nerved, truncate; upper broadly obovate-suborbicular, 7-nerved. Caryopsis ovoid, to 1.5 mm.

In plain and grasslands.


Perennials annuals. Culms creeping and ascending. Leaf-blades narrow, lanceolate. Inflorescence of spiciform racemes, 2-nate, digitate or panicled. Spikelets orbicular to oblong, solitary, sometimes in pairs, alternate or crowded, 2-flowered, shortly pedicelled, deciduous. Lower glume absent or minute; upper glume with 1-2 submarginal side nerves. Lemmas equal or not; lower usually 3-5 nervèd; upper faintly 5-7-nerved; palea 2-nerved. Lodicules 2. Stamens 3. Styles 2 free; stigmas plumose.

Key to the species:
1a. Spikelets glabrous, orbicular ........................................................ P. scorbiculatum
1b. Spikelets ciliate ............................................................................... P. conjugatum


Culms 20-40 cm, stoloniferous. Leaf-blades linear-lanceolate, acuminate at apex, 5-20 × 0.5-1.0 cm, densely ciliate at margins; sheaths lax, striate, open to the base; ligule reduced to pubescent ridge. Inflorescence of 4-5 false spikes, spreading. Spikelets 2-seriate, deciduous, ca 1.5 mm long, ovate-orbicular, marginal nerves long-ciliate. Lower florets barren; upper hermaphrodite. Flr. & Frt.: April-November.

Common in open fields.

Coll. No.: Borah A. 621. Date: 12-4-2007. Locality: Kakoijana. (Plate No. 69)

Perennials. **Culms** 20-70 cm tall, spongy below. **Leaf blades** sub-lanceolate-linear, 20-30 × 0.5-1.0 cm; sheaths scarious. **Inflorescence** of 2-5 or 6 false spikes, usually erect, often horizontal and drooping. **Spikelets** many in two rows, overlapping, ovate-elliptic ca 2.0 mm long. **Lower glume** absent; upper glume 5-nerved, convex, glabrous. **Lower floret** sterile; lemma 3-nerved. **Upper floret** hermaphrodite; lemma yellow or brown in colour. Flr. & Frt.: round the year.

Common in open fields.

Coll. No.: Borah A. 404. Date: 16-1-2005. Locality: Gossaipara. (Plate No. 69)

**Phragmites** Trin., Agrost. 134. 1820.

Perennials. **Culms** creeping at base. **Leaf-blades** flat, narrow; ligule narrow, ciliate, membranous. **Inflorescence** a compound panicle. **Spikelets** 3-10 flowered; rachilla white ciliate. Lowest floret abortive or male; succeeding one bisexual; uppermost sometimes reduced. **Glumes** unequal or subequal, 3-5-nerved. **Lemmas** heteromorphous, lower empty, abortive or male, persistent, 3-nerved. **Palea** 2-keeled, linear oblong. **Lodicules** 2. **Stamens** 3 or 2 in the lowest floret. **Styles** 2, free; stigmas 2, plumose.

Fig. (A) *Paspalum conjugatum* Berg., (B) *P. scorbiculatum* L.
Culms 3-4 m. or more tall, hollow, spreading by stolons. Leaves distichous, linear to broadly lanceolate, subulate at tip; ligule a ridge of stiff hairs. Inflorescence 15-50 cm long, very silky hairy at base; branches filiform. Spikelets 1-2 cm long.

Lower glume 3-5-nerved; upper glume 3-nerved, ca 5 mm long. Lowest lemma ca 1.2 cm long. Palea ca 1 m long, 2-nerved. Flr. & Frt.: June- November.

In marshy places. Occurrence: rare.

Vern. Name: Nol-Khagori (As.)


Saccharum L., Sp. Pl. 54. 1753.

Perennials. Culms robust, tall, erect. Leaves narrow, flat. Inflorescence a large silky and densely branched panicle. Spikelets minute, awnless, all alike, surrounded by hairs, one sessile, the other pedicelled. Florets 2; the lower reduced to an empty lemma; upper hermaphrodite. Glumes equal. Lemma hyaline. Lodicules 2. Stamens 3. Stigmas laterally exserted.

Key to the species:

1a. Glumes coriaceous or chartaceous throughout. Panicles vilous to tomentose...

1b. Glumes membranous or chartaceous only at base. Panicles silky hairy:  

2a. Stem silky hairy below the panicle; lower glume glabrous:

3a. Leaf blades 4 cm broad. Cultivated .... ...

3b. Leaf blades less than 4 mm broad. Wild...

2b. Stem glabrous below the panicle; lower glume glabrous ...

S. narenga

S. officinarum

S. spontaneum

S. arundinaceum

*Culms* ca 5 cm, glabrous below the panicle. *Leaves* lanceolate, tapering at apex, 120× 4 cm, villous at basal portion, upper leaves small. *Inflorescence* silky; panicles ca 50 cm, branched. Sessile *spikelets* ca 3 mm; pedicles ca 2 mm; lower glumes with few hairs at tips; upper glume glabrous; pedicelled spikelets dorsally villous. Lower floret male or neuter; lemma hyaline, epaleate; upper floret hermaphrodite; palea quadrangular. *Flr. & Frt.*: October-February.

In open grasslands.


*Culms* 2-3 m. *Leaves* 25-50 ×0.4-0.6 cm. *Panicles* 25-45 cm, purplish; branches 2-4-nate, filiform; *spikelets* oblong, brown, 2.0-3.0 mm. *Glumes* 2.0-3.0 mm; lower glumes hairy at margins; upper glumes ciliate at margins, 3-nerved; *lemma* of lower throat oblong; obtuse, ciliate; *lemma* of upper floret linear-oblong, emerginate, ciliate. *Flr. & Frt.*: July–December.

In open grasslands.


Cultivated as sugar yielding plant, in household as well as commercially.

Vern. Name: Kuhiar (As.)


Culms 1-5 m tall, thickly rhizomatous below. Lamina ca 150- 4.5 cm, glabrous, margins scabrid. Panicles dense; branches 4-5-nate below. Spikelets lanceolate, 3-6 mm, muticous. Lower glume 3-6 mm, toothed; upper oblong-ovate or broadly lanceolate. Lower floret empty; upper hermaphrodite. Flr. & Frt.: September- February.

A common grass in forest based marsh lands.

Vern name: Khogra, khagri (As.).


Sclerostachya A. Camus. in Lecomte, Fl. gen. Indo-Chine vii. 243. 1922.

Perennial grasses with moderately tall, fistular stems and long rigid leaves. Inflorescence a linear-oblong panicle, erect, dense. Spikelets in pairs, one long and the other short pedicelled on tough, secondary filiform branches of a terminal panicle. Florets 2, lower male or empty; upper hermaphrodite.
Selerostachya fusca (Roxb.) A. Camus in Lecomte, Fl. gen. Indo-Chine vii. 243. 1922; Bor in Kanjilal et al., FA 5: 313. 1940; Chowdhury et al., Ass. Fl. 309. 2005.

Saccharum fuscum Roxb., Fl. ind. 1:236. 1832.

Culms 1.5-3 m tall, robust, reed-like, fistular, adpressed-pubescent near the top. Leaf blades with a contracted base, sublanceolate, linear, setaceous-acuminate, 1 m long or more, 2-4 cm wide, flat, rigid; base erect, glabrous; margins scabrid; median nerve prominent, sheaths longer than the internodes. Ligules rounded, 3 m long, brown, membranous, ciliate. Flr. & Frt.: October-February.

Rarely found in open places, along rivers.

Vern. Name: Ekora (As.)

Uses: Culms are used to make walls of hut, durable if come in contact with water.


Annuals or perennials. Leaves flat, linear-lanceolate. Inflorescence an open or contracted cylindrical, terminal panicle. Spikelets elliptic-oblong, acute, convex on the back, 2-flowered, subtended by 1-many persistent bristles. Glumes herbaceous; lower 1-5-nerved; upper 5-9-nerved. Lower floret male or barren; upper hermaphrodite. Lemma of the lower floret paleate, as long as spikelet; lemma of the upper floret 5-nerved; palea of similar size. Lodicules 2. Stamens 3. Styles 2, free, stigma plumose.

Key to the species:

1a. Leaves plicately folded. Panicles lax with elongate branches... S. palmifolia

1b. Leaves flat, not plicately folded. Panicles spiciform with short contracted

Culms ca 1 m, stout, 3-6 mm wide, smooth; nodes glabrous. Leaf sheaths 3-10 cm; ligule membranous, to 2.5 mm; blades linear-lanceolate, 20-35×1-2 cm, flat. Inflorescence pseudospike, contracted, rachis tuberculate, pilose. Spikelets ovoid, compressed, to 2 mm.

Cultivated sporadically.


Culms stout, 50-200 cm tall. Leaves 25-70 × 2-7 cm sparsely hairy; ligulae long hairy. Panicles open, 20-70 cm long; branches distant, usually alternate. Spikelets acute or apiculate, sessile or shortly pedicelled. Flr. & Frt.: June-December.

Common in forest fringes.

Coll. No.: Borah A. 549. Date: 30-3-2006. Locality: Dhaligaon.

branches:
2a. Upper glume as long as upper lemma .. .. .. .. .. .. .. .. .. .. .. .. .. S. italica
2b. Upper glume shorter than upper lemma .. .. .. .. .. .. .. .. .. .. .. .. .. S. pumila

*Culms* 10-90 cm, geniculate, glabrous; nodes glabrescent. *Leaf-sheaths* 2.5-4.5 cm, glabrous; ligule 1.5 mm; blades lanceolate, flaccid, flat. *Inflorescence* of spikes or spiciform panicles, compact; rachis pilose. *Spikelets* 3 in a cluster or solitary, ovoid, 2 mm. lower glume ovate, 1-3-nerved; upper glume 5-7-nerved. Upper *lemma* boat-shaped. *Caryopsis* ellipsoid. Flr. & Frt.: November-February.

Common in rice fields and forest fringes.

Vern. Name: Siyal-nejia bon (As.)

Coll. No.: Borah A.564. Date: 26-10-2006. Locality: Dhaligaon.

**Sporobolus** R. Br., Prodr. 169. 1810.


Perennial grasses, 30-45 cm tall. Culms glabrous, slender. Leaf-blades flat, ca 2-0.2 cm glabrous; sheaths ribbed; ligule a line of hairs. Inflorescence a panicle, with spreading, somewhat flexous branches, often without spikelets at base. Spikelets minute. Flr. & Frt.: February- November.

Common in upland grass land.


Culms 1-3 m. Leaves lanceolate, 25-55× 5-8 cm. sub-emplexical at base, acuminate at apex, sheaths shining; ligules truncate. Panicles 3-5 cm or more long; branches filiform. Spikelets ovate-lanceolate, acuminate, 1-2 mm. glumes subequal, ovate, 1-nerved. Flr. & Frt.: October- April.

In hill slopes and also cultivated.
Vern. Name: Phul-jharu (As.)

Uses: The inflorescences are used to make brooms.


Annuals. *Spikelets* solitary, distichous, few flowered. *Glumes* 2, persistent. *Lemmas* oblong or ventricose, 5-9-nerved, muticous or 1-3-awned; *palea* 2-keeled; keels ciliate. Lower floret hermaphrodite, upper male or barren.


Cultivated as cereal.

Vern. Name: Ghehu (As.)


*Grain* oblong.


_Andropogon squarrosus_ Hook. f., FBI 7:186. 1897.
Culms robust, 1-2 m high. Leaves linear, 50-80 x 0.5-1.5 cm erect. Ligules reduced to a scarious rim. Panicles oblong, ca 30 cm long, usually contracted. Racemes 5-6 cm long, very slender. Sessile spikelets linear-lanceolate, ca 4 mm long, yellowish. Glumes acute, coriaceous. Pedicelled spikelets sparingly acute or almost smooth. Flr. & Frt.; April- November.

In open places, near wetlands.

Vern. Name: Birina (As.)


Zea L., Sp. Pl. 971. 1753.


Cultivated for fruits.

Vern. Name: Makoi (As.)