Flora of Assam

Vol. I. Part II

V.N. Kanjilal + P.C. Kanjilal + A. Das & C. Purkayastha

1162 45268

FLORA OF ASSAM

ВУ

U. N. KANJILAL, F. L. S.

Late Extra Deputy Conservator of Forests, Assam.

P. C. KANJILAL, I. F. S.

Deputy Conservator of Forests, U. P.

A. DAS, I. F. S.

Retired Deputy Conservator of Forests, Assam.

AND

C. PURKAYASTHA,

Bofanical Officer, Assam.

VOL. I. (PART II). LINACEÆ TO MORINGACEÆ



Published under the authority of the Government of Assam.

PREFACE

Part II of Vol. I includes the botanical and vernacular names of species described in both Part I and II. The vernacular names alone cannot be used for the identification of the species, as these vary from district to district and even within the limits of one district. In many cases several species are known locally by the same vernacular name. It is therefore necessary to issue a warning and to point out the necessity for checking the plants in detail with the description given in the Flora.

Since sending the materials of the Parts I and II of Vol. I to the press, the following species have been collected from the province, but it was too late to incorporate the descriptions in their proper places. It is however proposed to publish their descriptions as an

'addendum' later on.

PART I.

	Species.	Natural Orde
1.	Ranunculus lætus Wall.	Ranunculaceæ.
2.	Dillenia parviflora Griff.	Dilleniaceæ.
3.	Magnolia obovata Hast.	Magnoliaceæ.
4.	Polyalthia obliqua Hk. f. & T.	Anonaceæ.
5.	Cocculus villosa DC.	Menispermaceæ.
6.	Gynandropsis speciosa Halter.	Capparidaceæ.
7.	Homalium ciliatum Debb.	Flacourtiaceæ.
8.	Polygala persicariæfolia DC .	Polygalaceæ.
9.	", erioptera DC .	,,
10.	Salomonia cantoniensis Lour.	
11.	Garcinia ovalifolia Hk f.	Guttiferæ.
12.	" Mangostana Linn.	
13.	Gordonia dipterosperma Kurz.	Ternstræmiaceæ.
14.	Sida acuta Burm.	Malvacere.
	Abutilon striatum Dick.	,,
	Hibiscus subdrifa Linn.	,,,
17.	Pterospermum cinnamomum Ku	rz. Sterculiaceæ.

Tiliaceæ.

Echinocarpus murex Benth.

PART II.

	Species.	Natural Order.
1.	Hiptage bengalensis Kurz.	Malpighiaceæ.
1. 2.	Benninghausenia albiflora Rchb.	Rutaceæ.
3. 4. 5.	Canarium sikkimensis. King.	Burseraceæ.
4.	Walsura piscidia Roxb.	Meliaceæ.
5.	Amoora spectabilis Miq.	,,,
6.	Dysoxylum khasianum Brace.	,,
7. 8.	Platea latifolia Blume.	Olacaceæ.
8.	Euonymus glaber Roxb.	Celastraceæ.
9.	" echinatus Wall.	"
10.	" Griffithii Kurz.	,,
11.	,, pendulus Wall.	**
12.	Kokoona littoralis Laws.	"
13.	Celastrus Championii Benth.	**
14.	Hookerii Prain.	,,
15.	Salacia membranacea Laws.	· · · · · · ·
16.	Vitis himalayana Brand	Vitaceæ.
17.	,, tuberculata Laws.	"
18.	,, bifurcata Wall.	,,
19.	Leea sundaica Miq.	g " 1
20.	Cupania khasiana R.	Sapindaceæ.

Shillong,

10th October, 1936.

C. PURKAYASTHA

FLORA OF ASSAM

DISCIFLORÆ.

FAM. 27. LINACEÆ.

Herbs, shrubs or infrequently trees. Leaves alternate, simple; stipules lateral, intrapetiolar or 0. Flowers regular, bisexual, often 2 or more-morphic. Sepals 5 (or 4), free or connate at the base, imbricate. Petals 5 or (4), hypogynous or slightly perigynous, imbricate, often contorted, usually fugacious. Stamens 1-2 (or sometimes 3) times as many as the petals, occasionally with staminodes united at the base into a ring or short tube; filaments inserted on or near the apex of the tube; anthers versatile. Disk of 5 glands-sometimes two-lobed, united to the staminal tube or 0. Ovary free, 3-5 celled; ovules 1-2 in each cell, pendulous; styles 3-5, free or connate; stigmas usually terminal. Fruit a septicidal capsule, often splitting into cocci or a drupe.

Fruit capsular :--Calyx•glabrous :--

Undershrub; Stamens 5; staminodes 5. Small tree; stamens 10. Calyx wfth gland tipped bristles. Fruit a drupe; stamens 10.

.. 1. Reinwardtia. .. 2. Ixonanthes. .. Anisadenia.

.. 3. Erythroxylon.

1. REINWARDTIA Dumort.

Reinwardtia trigyna Planch (incl. R. tetragyna Planch). Vern. Puinli-phul, Beng., Nep.; Tin-wa-lei, Syntew-lang-ksir, Kh.

A glabrous undershrub about 3-4 ft. high often with rooting branches. Leaves 1-5 by 4-1.5 in., oblanceolate or narrow oblong-lanceolate, usually mucronate, entire or with few minute teeth; lateral nerves fine, variable, usually 5-9 on either half, uppermost pair converging to the apex, membranous; base narrowed and decurrent into slender or ordinary short petiole; stipules minute, caducous. Flowers 1-2 in. across, bright golden yellow, solitary, often on short branchlets or in axillary or terminal cymes; pedicels up to 1 in. long. Sepals 5, persistent, lanceolate, 4-5 in. long. Petals 5, 1-1.5 in. long, obovate, somewhat abruptly narrowed towards the base; stamens 5, included, alternating with as many staminodes, longer than the styles in some flowers and shorter than them in others. Disk glands 2-3.

Styles 3, sometimes 4-5 (R. tetragyna), more or less connate at the base. Capsule globose with thin papery walls, 25 in, across,

Foot of NAGA HILLS in LAKHIMPUR & SIBSAGAR and probably in similar localities elsewhere; KHASI & JAINTIA HILLS ascending to about 6000 ft., sometimes cultivated in gardens. Sometimes gregarious and very showy with its golden yellow flowers.

Firs. Autumn and winter.

2. IXONANTHES Jack

Ixonanthes khasiana Hk. f. Vern. Theibar, Tipp.; Selbal,

Garo; _hing-buphai, Kuki. A moderate to fairly large glabrous tree attaining 120 ft. in height and over 30 in. in diameter in favourable localities, fluted at the base. Bark thin, greyish, rough outside; dark red inside with very fine lines of lighter tissue. Leaves 3-6 by 12-24 in., elliptic-lanceolate to oblong, obtusely acuminate, entire, membranous; secondary nerves about 6-9 on either half with many intermediate nerves of equal thickness, lower oblique, upper arcuate; base narrowed and decurrent into a short petiole. Flowers about 2 in. across, in. long peduncled, axillary, cyme bearing panicles; peduncles 1.5-3.5 in. long, more or less flattened and obscurely winged; bracts and bracteoles minute, acute; pedicels 08-15 in. long. Sepals usually 5, shortly connate at the base; persistent, oblong-ovate. Petals 5, perigynous, suborbicular-contorted, persistent, enlarged and hardened round the fruit. Stamens 10, inserted outside the perigynous annular disk. Ovary free, 5-celled; style simple. Capsule 5 valved, oblong, pointed at the apex, about 1.5 in. long. Seeds winged at the top. about 1 in. long including the wing; wing 15-2 in. broad, obliquely oblong.

SYLHET, GARO HILLS, and CACHAR.

Wood light brown, even grained, traversed by numerous wavy concentric but discontinuous bands of soft tissue, medullary rays very fine. Takes a fine polish and ornamental in appearance, should prove suitable for cabinet work. Leaves dry reddish brown. Flrs. 4. Fr. 12?

ANISADENIA Wall.

Perennial herbs or undershrubs. Leaves alternate or somewhat whorled at the top of the stem; stipules intrapetiolar, striate. Flowers in terminal spicate racemes; bracts minute, concave, caducous; pedicels short, ultimately reflexed. Sepals 5, lanceolate with gland tipped bristles outside. Petals 5, contorted, fugacious. Stamens 5, hypogynous, connate below, alternating with interposed staminodes. Glands 3, one very large. Ovary 3 celled; styles 3. Capsule oblong, membranous, 1 seeded.

A. saxatilis Wall.-An undershrub or perennial herb, with weak ascending stems upto 18 in. high; lower part often creeping and rooting. Leaves 2-4 by 8-1'2 in., lanceolate to oblanceolate or elliptic lanceolate, shortly acuminate, or acute, entire or nearly so, glabrous above, sparingly pubescent and pale beneath; petiole upto '7 in. Racemes 2-5 in. long. Flowers '3-'25 in. across, pink; pedicels minute.

KHASI HILLS, 4-6000 ft. Flrs. 7-8. Fr. 10-11.

A. pubescens Griff.—A perennial herb often gregarious in patches, more slender in habit than the preceding. Leaves 1-1.5 by '5-'8 in. long, elliptic to lanceolate, acute or shortly acuminate; base acute to cuneate, undersurface pubescent or villous with adpressed silky hairs. Flowers about '5 in. long, white, much larger than in A. sexatilis.

KHASI HILLS, 5-6000 ft.

Firs. 7-8. Fr. 10-11.

Flrs. 7-8. Fr. 10-11.

ERYTHROXYLON Linn.

Erythroxylon Kunthianum Wall, Vern. Dieng-pyllengtham, Dieng-pain-khar, Kh.; Dieng-juwat, Dieng-sugsi, Synt.

A shrub or a small tree; branchlets lenticellate, younger shoots reddish. Bark greyish; rough, thin, inside reddish with white streaks which turn brown on exposure. Leaves 1.3-3 by 6-1 in., oblong to elliptic lanceolate or obovate-lanceolate, subacute or bluntly acuminate, rarely rounded at the apex, entire, chartaceous, glabrous above, glaucous beneath, red when young; midrib prominent; lateral nevers fine and rather indistinct, similar to intermediate nerves, looping at a short distance from the margin; base narrowed; petiole 1-15 in. long, usually red; stipules intrapetiolar, subulate, setulose on the margin. Flowers white, 15 in. across, solitary, axillary, often 1-sexual; pedicels slender, thickened upwards, about .3 in.long. Sepals 5, ovate acuminate, free nearly to the base. Petals 5, up to 15 in.long, elliptic-oblong with a 2-fid white ligulate appendage near the base. Stamens 10, unequal, usually alternately short; filaments dilated towards the base and united into a tube half way down, free end puberulous. Ovary 3-celled; styles 3. Fruit a ventrally curved, 3-gonous, more or less erect, glabrous, shining, drupe '5 by '25 in., seated on the persistent calvx, red when ripe.

KHASI and JAINTIA HILIS 3000-5500 ft.

The bark is said to be used for chewing with pan. Wood light brown, hard, takes a beautiful polish, pores mostly in radial strings joined by numerous very fiine transverse lines.

Firs. 4. Fr. 9.

FAM. 28. MALPIGHIACEÆ.

(Indian genera).

Usually scandent shrubs. Leaves opposite, simple, entire, usually exstipulate. Flowers regular or irregular, bisexual, 5-merous, white or yellow in axillary or terminal panicles; pedicels articulate, bracteate. Calyx deeply 5-partite, in some genera with a gland outside. Petals 5, free. Disk obscure. Stamens 10, hypogynous, equal or unequal; filaments free or connate below. Ovary free, 3-celled, 3-lobed; cells 1-ovuled; styles 1-3. Fruit of 1-3-samaras. Seeds exalbuminous.

Flowers irregular; calyx glandular; style 1; carpels winged only at the apex.
Flowers regular; calyx glandular; styles 3; carpels surrounded by a continuous wing.

.. 1. Hiptage.

.. 2. Aspidopterys.

HIPTAGE Gærtn.

Climbing shrubs or rarely small trees. Leaves opposite, coriaceous, entire, sometimes with intramarginal glands, exstipulate. Flowers in simple racemes or leafy panicles, irregular. Calyx 5-partite with one large gland outside, partly on the pedicel. Petals 5, one differently coloured, unequal, clawed, silky. Stamens 10, declinate, one much larger than the others; filaments connate at the base. Ovary 3-lobed; styles 1-2, at first coiled; stigma capitate. Fruit of 1-3, 3-winged samaras. Seeds globose, cotyledons unequal.

Leaves usually acute; shortly acuminate.
Terminal racemes panicled and usually exceeding the leaves.
Leaves usually caudate acuminate.
Racemes much smaller than the leaves

.. 1. H. Madablota.

.. 2. H. acuminata.

1. Hiptage Madablota Gærtn. Vern. Madhabilata, Sans., Beng. and Manip.; Basanti, Beng.; Kerek-lata, Ass.; Dim-trirang-rikang, Mik.; Dugrak, Dugrak-budu, Garo.; Meishein, Khasi.

A large evergreen scandent shrub; young shoots more or less pubescent; branches dark brown or black, covered with numerous round lenticels. Leaves 4-6 by 1.5-2.5 in., oblong or ovatelanceolate, acuminate, coriaceous, glabrous, dark-green, shining above, reddish-brown when very young, turning yellow before falling; main lateral nerves 4-6 on either half, arcuate; base acute, rarely rounded; petiole 2-5 in. long, channelled above. Flowers 6-8 in. diam., more or less scented, in large terminal and smaller axillary leafy panicles or racemes; pedicels 5-7 in. long, bracteate at the base and with 2 setaceous bracteoles about the middle where they are joined. Calya with a large oblong gland outside; segments 25 in. long, imbricate, silky pubescent. Petals 4-6 in. long, unequal, obovate. clawed, fimbriate, 4 white, the 5th wholly or partly pale-yellow. Stamens 10, declinate, one much larger than the rest; filaments shortly connate at the base. Style 5, filiform. Carpels pubescent; wings 3, oblong-obovate or oblanceolate, sometimes deeply notched at the broad apex, the largest up to 2 by 4 in. Seeds globose.

Throughout ASSAM ascending to 2500 ft. in K. & J. HILLS. Flrs. 1-3. sometimes 11? Fr. 4.

2. Hiptage acuminata Wall. Vern. Jeremai-soh-pad-purao, Kh. A spreading bush or a strong climber (?), branchlets pubescent when young, very rugose. Leaves 3-7.5 by 1.2-2.5 in., lanceolate, usually caudate-acuminate: lateral nerves 4-7 on either half, oblique to arcuate, tertiaries subparallel, strong, sometimes with remote. deeply impressed glands or points or finely reticulate intramarginal nervules; base narrowed obtuse or rounded; petiole '2-'3 in. long, stout, pubescent when young. Racemes rusty tomentose, axillary, about 1-2 in. long; pedicels '7-1 in. long, bracteate, with a pair of subulate bracteoles half way up. Flowers about '7 in. across; stamens much shorter than the style; samaras generally 3-winged, wings unequal 1-2.5 by 3-6 in., rather membranous, faintly longitudinally nerved.

MANIPUR, Watt! NAGA HILLS, KHASI HILLS up to 4500 ft.-Lyngkerdem, Cherra-Collet! ASSAM-Jenkins. Flrs. 3-5. Fr. 5-7.

The habit is generally said to be that of a spreading bush but one of my specimens sheet 6198 is from a strong climber.

2. ASPIDOPTERYS A. Juss.

Climbing shrubs. Leaves entire; stipules small or 0. Flowers small, inodorous, in panicles or fascicles; peduncles bracteate; pedicels slender, articulate, often 2 bracteolate. Sepals 5, short, eglandular. Petals 5, entire. Stamens 10; filaments free or connate at the base; anthers ovate. Ovary 3-locular; styles 3. Fruit of 1-3 samaras, with a shield-like membranous wing round the nucleus. Seeds oblong, cotyledons straight, equal.

I. Leaves nearly glabrous or glabrous, samara hairless :-

Samaras narrowly ovate or oblong, more or less narrowed at the apex, nucleus not crested between the wings. Samaras orbicular, often broader than long, nucleus crested in the concavity of the wings. II. Leaves silky pubescent or tomentose beneath; wings of samara more or less hairy, elliptic ovate.

.. 1. A. glabriuscula.

.. 2. A. elliptica.

.. 3. A. nutans.

1. Aspidopterys glabriuscula (Wall) A. Juss. Incl. A. Roxburghiana F. B. I. Vern. Mei-thit, Khasi.

A woody climber; young parts pubescent but soon glabrescent; stem grey-brown. Leaves 2-4 by 1·2-2 in.., elliptic or ellipticlanceolate to ovate, shortly and somewhat abruptly acuminate, rounded or cordate at the base, quite entire, membranous or thinly chartaceous, glabrous above, sparsely pubescent along the midrib and nerves beneath; lateral nerves 4-7 on either half, arcuate, the lowest pair subbasal; petiole 3-7 in. long, channelled. Flowers in terminal and axillary, lax, rusty pubescent panicles, panicle branches usually verticellate; pedicels subumbellately crowded or racemed on the ultimate branches of the panicles filiform, jointed below the middle, pubescent througout or glabrescent. Calyx-loles 5, up to 1 in. long, obovate oblong to elliptic, pubescent or glabrescent. Petals 5, 15-25 in. long, obovate-oblong, oblong-elliptic or ovate, rounded at the apex, ultimately reflexed. Stamens 10, all fertile; filaments filiform, jointed a little below . the middle. Ovary 3-celled, pilose or glabrescent. Samaras 1-3, nucleus not crested, wing 1-1.5 by 4-6 in., continuous, peltate. ovate-oblong to ovate-lanceolate or oblong, narrowed upwards and rounded or sometimes truncate at the apex, membranous, finely veined, translucent, glabrous.

SIBSAGAR, LAKHIMPUR, DARRANG, GOALPARA. N. CACHAR HILLS. SYLHET, KHASI & JAINTIA HILLS up to 1000 ft., chiefly in scrub forests and old village sites, probably all over the province.

old village sites, probably all over the province.

Firs. 5-7. Fr. 11-1.

Niendenzu in Das Pflanzenreich distinguishes the following varieties:—
Var. 1. subrotunda; A. Henryi Hutchinson. Leaves broadly ovate to orbicular ovate, shortly but sharply acuminate, sometimes tomentose beneath; style glabrous. Samara elongate oblong.

ASSAM—Masters! Jenkins!

Var. 2. brevicuspis; A. floribunda subtrous or samara oblong to oblong lanceolate.

Tharia—KHASI HILLS. Simmons! Clarke! CACHAR, Keenan!

Var. 3. longicuspis.—Leaves ovate-lanceolate to lanceolate, rather long acuminate. Ovary glabrous to more or less puberulous.

KHASI HILLS, up to 5000 ft.

2. Aspidopterys elliptica A. Juss? Vern. Ka-chali Kh.

A large woody climber with greysih lenticellate branches: young parts and inflorescence thinly adpressed pubescent but soon becoming glabrous. Leaves 4-6 in. by 2-3.5 in., broadly elliptic or ovate-lanceolate, shortly and often somewhat abruptly blunt acuminate, chartaceous; lateral nerves 5-6 on either side, arcuate; petiole 4-8 in. long. Flowers white, panicles lax, terminal and axillary, usually with corymbose or subumbellate branches; pedicels filiform, up to 8 in. long, umbelled or subumbellately corymbose on slender peduncles, jointed below the middle. Sepals up to about 1 in. long, ovate to oblong, margins ciliolate, thin. Petals 2-25 in. long, ovate oblong, rounded at the apex; ovary glabrous. Samaras 1.5-2.5 in. across, orbicular, sometimes broader than long, often emarginate at the apex with a crest 9-12 in. long and up to about 3 in. broad on the nucleus, nerves prominent ending in submarginal loops.

KHASI HILLS-Nongpoh about 2000 ft., N. CACHAR HILLS-Borail Reserve, about 700 ft.

The bark is said to be chewed with pan in the Khasi Hills.
Flrs. 5-6. Fr. 12.

The description applies to Assam Herbarium Sheets Nos. 9783,4005 and 5695. These agree with the sheets identified as A. elliptica at Kew with the exception of the fruit which is larger in our specimens.

3. Aspidopterys nutans Hk. f., non A. nutans (Wall) A. Juss; A. lanuginosa Wall (A. Juss). Vern. Dusismmak, Garo; Jarmaitodong-khnai, Khasi.

A woody climber; young shoots and inflorescence adpressed grey or brownish silky tomentose. Leaves 4-10 in. long, broad ovate or suborbicular, shortly acuminate; lateral nerves about 6 pairs, arcuate, adpressed-pubescent on the nerves beneath, rather thinly in the intermediate spaces and on the upper surface; petiole '75 to 2 in. long, puberulous. Panieles lax; pedicels '5-'7 in. long, jointed about or below the middle, glabrous above the articulation. Sepals obtuse, 05 in., glabrous or glabrescent. Petals oblong to elliptic. Ovary villous. Wings of samara elliptic ovate, reticulate, somewhat narrowed and often with a shallow notch towards the apex, adpressed pubescent on both sides round the nucleus, sparsely elsewhere, reticulate, membranous, translucent. 1.2-1.5 by .7-1.2 in.

DARRANG, GOALPARA, GARO HILLS, KAMRUP. KHASI & JAINTIA HILLS ascending to 2000 ft.

Firs. rainy season. Fr. 10.

A. lanuginosa (Wall) A. Juss should probably take priority over Hooker's name, but I have retained it on account of its being better known to Foresters. Aspidopterys oxyphylla A. Juss.—A rather imperfectly known woody climber. Leaves 3-4 in. long, ovate or elliptic ovate, acuminate, pubescent beneath. Panicles tomentose. Flowers small, white. Samara with orbicular wings not crested above the nucleus.

KHASI HILLS up to 3000 ft. Mahadeo, Clarke! Tharia, Wallich etc.,

SYLHET Wallich-No. 7264.

These sheets are in flower and had been included by Hooker under A. Roxburghiana A. Juss., the fruit not being known to him. Hutchinson in his revision of the Indian species of the genus (Kew Bulletin, 1917) has shown that the plant has orbicular fruits—quite different to that of the plant grouped by

Hooker under this name.

Hooker under this name.

Aspidopterys sp. near A. oxyphylla A. Juss.—A climber with glabrous or nearly glabrous branchlets. Leaves 4-7 by 1-2.2 in., lanceolate, acuminate, chartaceous, glabrous or slightly puberulous on the nerves beneath: lateral nerves 4-5 on either half, tertiaries subparallel; base narrowed. Panicles terminal or axillary, pubescent, the latter shorter than the leaves. Bracts leafy, upper small, grading into leaves; bracteoles minute, concave, acute; panicle branches opposite or whorled. Panicles racemed: pedicels articulated about the middle, glabrous in fruit, up to .6 in. long. Flowers not seen. Samara about 1 by .5-.6 in., ovate-elliptic to suborbicular elliptic, membranous, larger nerves ending in submarginal loops, nucleus not crested.

Kanjilal sheet No. 4622, KHASI HILLS—Mahadeo, 3000 ft., does not match with any named sheets at Calcutta or Dehra. The leaves match with sheets of A. oxyphylla in Wallich's Catalogue in Kew Merbarium. But as the Wallichian sheet is not in fruit, the plant has been tentatively separated till it can be studied with more complete material.

studied with more complete material. Fr. 10.