

FLORA OF BANGLADESH

NO. 78

ARISTOLOCHIACEAE

EDITOR

December 2020

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MAHBUBA SULTANA

And

AHMED SAQEE

BANGLADESH NATIONAL HERBARIUM

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GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH

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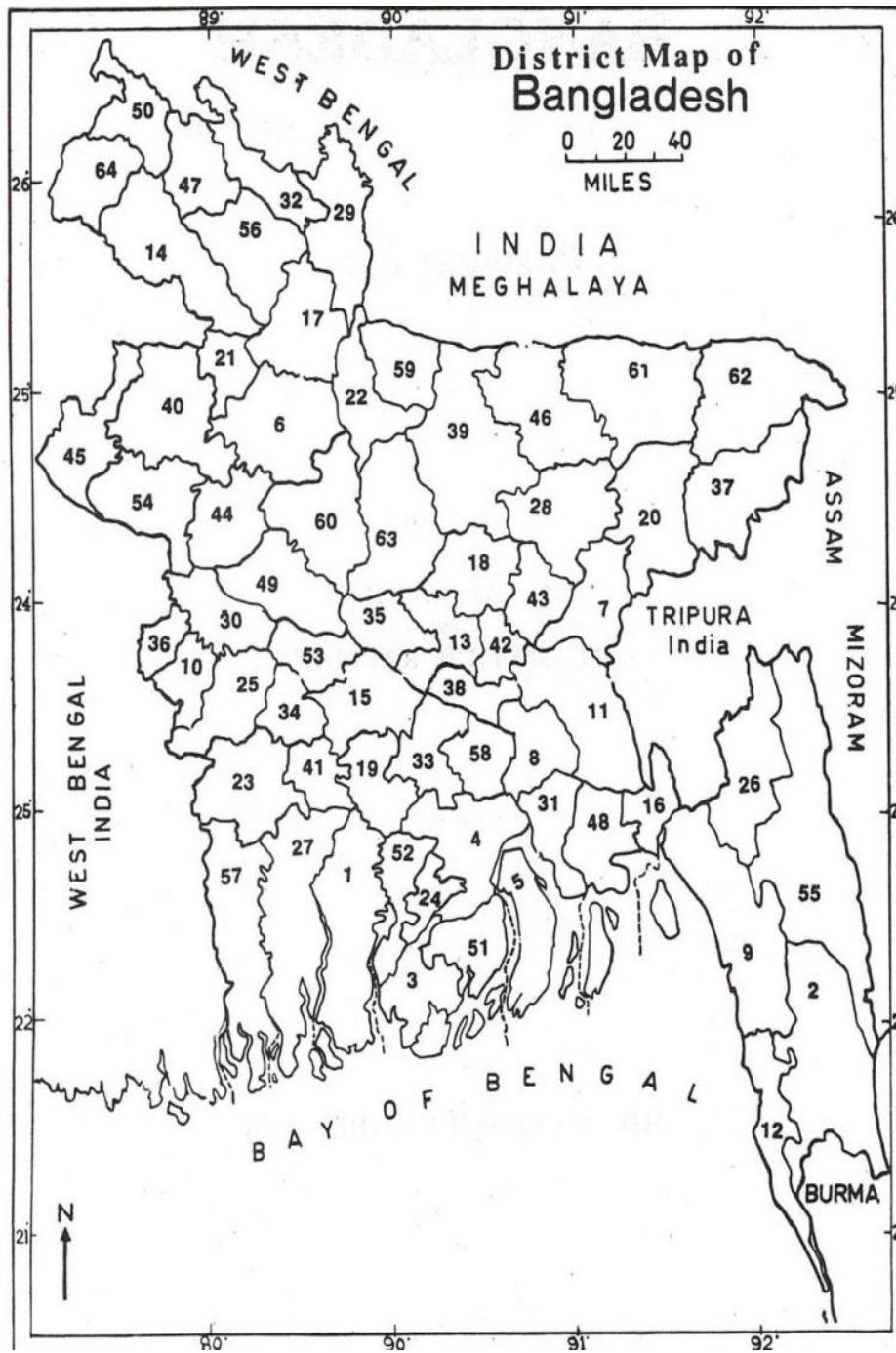
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(Fig. District Map of Bangladesh - 64 districts with Nos. 1, 2, 3.....)



List of Districts

The serial numbers correspond to those given in the map.

1.	Bagerhat	33.	Madaripur
2.	Bandarban	34.	Magura
3.	Barguna	35.	Manikganj
4.	Barishal	36.	Meherpur
5.	Bhola	37.	Maulvi Bazar
6.	Bogura	38.	Munshiganj
7.	Brahamanbaria	39.	Mymensingh
8.	Chandpur	40.	Naogaon
9.	Chattogram	41.	Narail
10.	Chuadanga	42.	Narayanganj
11.	Cumilla	43.	Narsingdi
12.	Cox's Bazar	44.	Natore
13.	Dhaka	45.	Nawabganj
14.	Dinajpur	46.	Netrakona
15.	Faridpur	47.	Nilphamari
16.	Feni	48.	Noakhali
17.	Gaibandha	49.	Pabna
18.	Gazipur	50.	Panchagarh
19.	Gopalganj	51.	Patuakhali
20.	Habiganj	52.	Pirojpur
21.	Jaipurhat	53.	Rajbari
22.	Jamalpur	54.	Rajshahi
23.	Jashore	55.	Rangamati
24.	Jhalakati	56.	Rangpur
25.	Jhenaidaha	57.	Satkhira
26.	Khagrachhari	58.	Shariatpur
27.	Khulna	59.	Sherpur
28.	Kishoreganj	60.	Sirajganj
29.	Kurigram	61.	Sunamganj
30.	Kushtia	62.	Sylhet
31.	Lakshmipur	63.	Tangail
32.	Lalmonirhat	64.	Thakurgaon

LIST OF FAMILIES PUBLISHED

	Fl. No.		Fl. No.		Fl. No.
Acoraceae	67	Dichapetalaceae	23	Periplocaceae	47
Aizoaceae	34	Dilleniaceae	25	Phytolaccaceae	1
Alangiaceae	68	Dipterocarpaceae	39	Plumbaginaceae	42
Annonaceae	52	Elatinaceae	3	Polemoniaceae	2
Araceae	75	Flagellariaceae	3	Pontederiaceae	24
Aristolochiaceae	78	Fumariaceae	65	Potamogetonaceae	40
Asclepiadaceae	48	Gesneriaceae	8	Punicaceae	22
Averrhoaceae	18	Haloragaceae	28	Rhamnaceae	61
Avicenniaceae	31	Hydrocharitaceae	44	Rhizophoraceae	7
Basellaceae	2	Hydrocotylaceae	1	Ruppiaceae	19
Bignoniaceae	70	Hydrophyllaceae	29	Sabiaceae	62
Bixaceae	35	Juncaceae	58	Salicaceae	20
Boraginaceae	77	Lamiaceae	26	Sapindaceae	59
Bromeliaceae	74	Linaceae	60	Solanaceae	53
Buddlejaceae	13	Lecythidaceae	33	Sonneratiaceae	12
Burmanniaceae	38	Loranthaceae	1	Sphenocleaceae	5
Burseraceae	36	Martyniaceae	54	Stemonaceae	41
Butomaceae	2	Malvaceae	76	Stylidiaceae	32
Cannabidaceae	14	Melastomaceae	71	Taccaceae	72
Cannaceae	73	Meliaceae	51	Tiliaceae	64
Capparaceae	57	Menispermaceae	49	Trapaceae	27
Caricaceae	1	Menyanthaceae	17	Tropaeolaceae	3
Cassythaceae	43	Molluginaceae	2	Turneraceae	3
Casuarinaceae	1	Moringaceae	9	Typhaceae	69
Ceratophyllaceae	10	Nymphaeaceae	3	Urticaceae	66
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Convolvulaceae	30	Orobanchaceae	15	Zannichelliaceae	11
Costaceae	45	Oxalidaceae	2	Zygophyllaceae	16
Cuscutaceae	55	Pedaliaceae			

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Ministry of Environment, Forest and Climate Change

ISBN: 978-984-34-1053-5

Illustration: Mahmuda Akhter

Price: Taka 70.00
 US\$ 7.00
 £ 5.00

Published by: Bangladesh National Herbarium

Chiriakhana Road, Mirpur-1, Dhaka-1216, Bangladesh.

Phone: +88029000676, E-mail: bnh_mirpur@yahoo.com

Printed at: Bangladesh Government Press,

Tejgaon, Dhaka-1208, Bangladesh.

ARISTOLOCHIACEAE A. L. de Jussieu (1789)

Mahbuba Sultana and Ahmed Saqee

Herbaceous perennial, often woody at the base, undershrubs or shrublets, erect, prostrate, scrambling or woody climbers. Leaves simple, alternate, mostly entire, sometimes trilobed or pellucid-punctate, exstipulate. Flowers solitary, or in terminal or lateral racemes or cymes, bisexual, regular or irregular, epigynous or sometimes only hemi-epigynous or perigynous. Calyx synsepalous, tubular at least below, regular, 3-lobed to more often distinctly irregular (often S-shaped or pipe-shaped) and then 3-lobed to 1-lobed. Petals wanting or much reduced, well-developed and alternate with the 3 calyx lobes, nectaries consisting of 2 (or more) patches of secretary hairs within the perianth-tube. Stamens 4-many, most commonly 6, in one or less often 2 cycles, occasionally 12, free or with the filaments (or both filaments and anthers) joined to the style to form a gynostemium, anthers tetrasporangiate and dithecal, extrorse, pollen-grain more or less globose, large to medium-sized. Gynoecium of 4-6 carpels, distinct above the base and free from the hypanthium above the middle, superior, ovary half-inferior or inferior, partly or completely partitioned into 4-6 loculi, style short and stout, stigma spreading, as many as the carpels, placentation axile or parietal, ovules numerous in each locule, mostly anatropous, horizontal and pendulous. Fruits usually dehiscent capsule, many-seeded, rarely follicular or indehiscent. Seeds 1-many; endosperm oily rarely starchy, fleshy, sometimes with a thickened or winged raphe; embryo minute.

Species of *Aristolochiaceae* contained within *The Plant List* belong to 8 plant genera. *The Plant List* includes 1,373 scientific plant names of species rank for the family *Aristolochiaceae*. Of these 624 are accepted species names (Web: *The Plant List*, 2013).

In Bangladesh, this family is represented by nine species under two genera.

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Abbreviations used in the text

BAUH = Bangladesh Agriculture University Herbarium

BFRIH = Bangladesh Forest Research Institute Herbarium

BCSIRH = Bangladesh Council of Scientific and Industrial Research Herbarium

DACB = Bangladesh National Herbarium

DUSH = Dhaka University Salar Khan Herbarium

K = The Royal Botanic Gardens Kew Herbarium

KEY TO THE GENERA

- | | | |
|----|---|---------------------|
| 1. | Stems erect; flowers actinomorphic; capsules siliquiform, 4-valved | Thottea |
| + | Stems scandent; flowers zygomorphic; capsules not siliquiform, 6-valved | Aristolochia |

Aristolochia Linn., sp. pl. 2: 960. 1753.

Type species: *Aristolochia rotunda* Linn.

Scandent to scrambling shrubs, herbaceous, perennial climbers or erect, often woody at the base, tuberous or prostrate rhizomes or rootstocks often present, older woody stems usually with a thick corky and fissured bark. Stipule absent. Leaves simple, alternate, entire, sometimes 3 to 7-lobed, often cordate, palmately or pinnately veined, petioles grooved, broadly reniform leaf (pseudostipule); Inflorescence fasciculate, cymose, racemose, spicate, panifulate, or of solitary flower, in the axils of leaves or borne on the stems. Bracts, when present, persistent. Flowers bisexual, usually zygomorphic, rarely actinomorphic, epigynous. Pedicels hardly distinct from the ovary. Perianths consisting of 3 parts with a basal inflated part (utricle), a straight or curved cylindrical tube, and the expanded 3 (rarely up to 6)-lobed limbs with valvate or induplicate lobes or 1-2 lipped. Stamens 6 (-10) in single whorl, adnate to the style column to form a gynostemium, anthers extrorse, 2-celled, dehiscing longitudinally. Ovary inferior, oblong or elongate, 6-locular, style column 6-lobed, ovules numerous in each cell, anatropous. Fruit 6-valved capsule,

dehiscing septicidally. Seed numerous, ovate, deltoid or triangular, flat, often winged, testa crustaceous or hard, finely verrucose or smooth, funicle often thickened and covered the whole seed, the embryo rudimentary in abundant endosperm.

The genus *Aristolochia* Linnaeus consists of about 400 species distributed tropical, subtropical, temperate regions of the Old World, and also in Australia (Shumei *et al.*, 2003).

KEY TO THE SPECIES

- | | |
|--|-----------------------|
| 1. Plants decumbent or prostrate; leaves reniform with wavy margin | A. bracteolata |
| + Plants twiner or climber; leaves not reniform | 2 |
| 2. Plants woody climber; inflorescence villous; leaves villous or densely tomentose underneath | 3 |
| + Plants herbaceous twiner; inflorescence pubescent to nearly glabrous; leaves sparsely hairy or glabrous on both surfaces | 4 |
| 3. Leaf blades broadly ovate; capsule linear oblong | A. saccata |
| + Leaf blades ovate-oblong to lanceolate; capsule fusiform | A. coadunata |
| 4. Inflorescence solitary; perianth lip expanded | 5 |
| + Inflorescence corymb or raceme; perianth lip linear | 6 |
| 5. Leaf base with rounded auricles; limb 2-lipped, upper lip boat like about double as long as the lower lip and terminates in an ovate or reniform blade. | A. ringens |
| + Leaf base without auricles; limb 1-lipped, peltate or orbicular abruptly spreading from tube | A. littoralis |
| 6. Leaves obovate to pandurate; seeds not winged | A. indica |
| + Leaves not obovate to pandurate; seeds winged | 7 |

7. Leaves ovate-oblong; capsule subglobose or slightly pyriform **A. tagala**
- + Leaves triangular, sagitate; capsule obovoid **A. pierrei**

Aristolochia bracteolata Lam. Encycl. Méth., Bot. 1: 258. 1783. *Aristolochia bracteata* Retz. Observ. Bot. 5: 29. 1791; C.B. Clarke in Hook. f., Fl. Brit. India 5: 75. 1886 (reprint 1973); Prain, Beng. Pl. 2: 666. 1903 (Indian reprint 1963). *Aristolochia abyssinica* Klotzsch, Monatsb. Akad. Berl. (1859) 5: 98. *Aristolochia crenata* Ehrenb. ex Duch., Prodr. [A. P. de Candolle] 15(1): 478 (1864). *Aristolochia kotschyi* Hochst. ex A. Rich. Tent. Fl. Abyss. 2: 237. 1850. *Aristolochia mauritiana* Pers., Syn. Pl. [Persoon] 2(2): 527 (1807).

Local name: *Kira-mar*, *Gandati*

English names: Bracteated birthwort

A slender, decumbent or prostrate to suberect perennial with an unpleasant smell, sparsely and minutely pubescent, rarely glabrous, stems terete to angular, woody at the base and numerous brached at the top. Leaves 3-8 x 3-7 cm, reniform or broadly ovate-cordate, usually obtuse to acute at the apex, cordate at the base with a wide shallow sinus, margin wavy, glabrous above, glaucous beneath, finely reticulately veined; petiole 0.5 cm–2.5 cm long. Inflorescence solitary, rarely two, axillary. Bracts large, orbicular, 1-1.3 cm long, glabrous or minutely pubescent. Pedicel 0.3–2. cm long, glabrous. Perianth 2.5-4 cm long, unilabiate, irregular, 0.5–5 cm tubular with a linear trumpet shaped mouth or lip, glabrous externally, hairy within, radish brown to dark purple on the side of the lip, greenish yellow on the other side and in the tubular portion; utricle ± 0.1 cm long, stipitate, globose. Stamens 6, sessile, anthers united with a 6-lobed gynostegium, lobes ± ovate, acute and c. 1 mm long. Ovary inferior, oblong, hexagonal, 0.5 cm long, glabrous; placentation parietal in upper portion, placentae intruded and meeting in the centre, exile below. Capsule ovate to oblong-ellipsoid, 2-3 cm long, mostly 1.3–1.5 cm wide, 12-ribbed, glabrous, glaucous, hexagonal, opens at the base with six valves. Seeds numerous, triangular-cordate, 0.4–0.7 cm long, 0.4–0.6 cm wide, not winged, dark coloured, flat,

irregularly verrucate on both sides. Raphe wedge shaped, 0.5–0.7 cm long, 0.3–0.5 cm wide, winged, dark brown to black, shiny, rising above the top of the seed. *Fl. & fr.*: 6-1. *The plant grows at elevations of 50-740 m above sea level and can be found on the banks of rivers, bushland, sandy grasslands.*

Type: Isle de France, Sonnerat s.n.;

District? Jamuna River Bank, 16 vii 1813 (K 27068); **Khagrachori:** Gomoti, Panchari, 22 iv 2011, Sardar Nasir Uddin, N 4556 (DACB-42266)?

Native to Tropical Africa, Arabia, Sri Lanka, Uganda, Kenya, Tanzania, Nigeria, Ethiopia, India (Daccan Gujrat) and Pakistan.

Aristolochia bracteolata has been used in traditional medicine in Nigeria, India, and Ethiopia as an infusion of dried leaves to treat intestinal worms, skin itch, or insect bites (Udhaya, 2017).

The root leaf is remarkably bitter, and yield a thick yellowish juice, which is mixed with boiled milk and given in syphilis, and combind with opium is used with great success in gonorrhoea (Kirtikar *et al.* 2012).

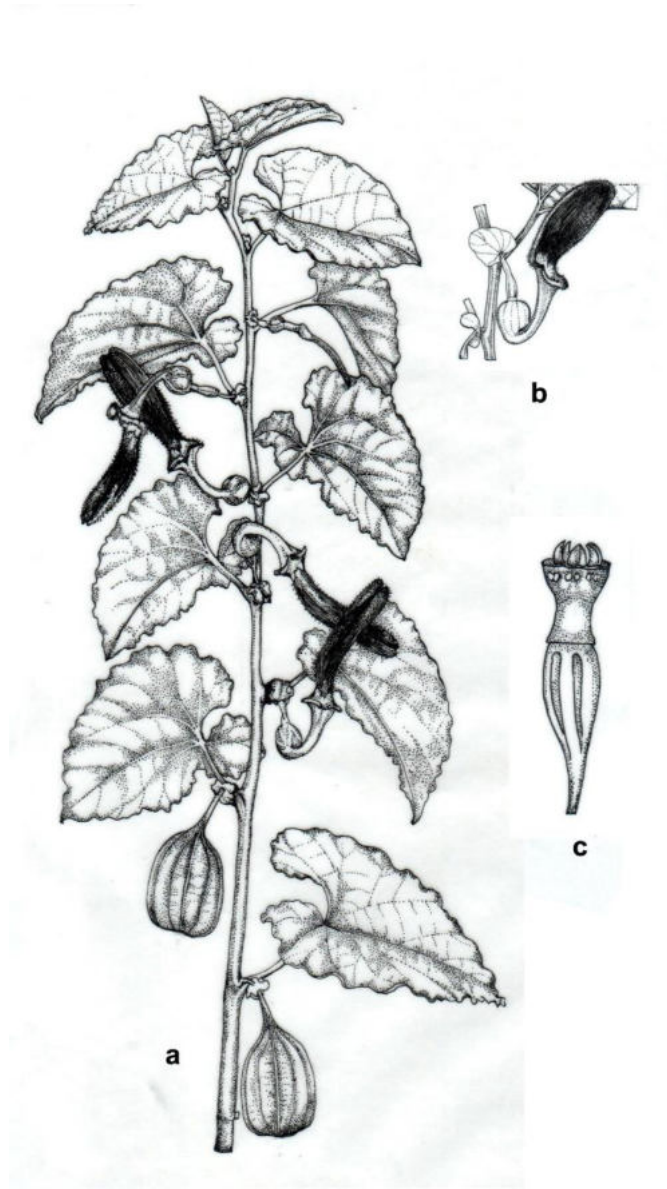


Figure -1. *Aristolochia bracteolata* Lam. a) Flowering shoot b) Flower and c) Carpel with stamen.

Aristolochia coadunata Back., Trop. Natuur 8(10): 154. 1919; Bull. Jard. Bot. Btzg. III, 2: 320.1920-; Ding Hou, in Van Steenis, Flora Malesiana, 10(1): 95-. 1984; BACK. & BAKH. f. Java. 1:164. 1963; Dino Hou, Blumea 29:227. 1983; Uddin *et al*, Bull. Bang. Nat. Herbarium. 4: 67-76. 2015; Uddin & Hassan, Vasc. Fl. Ctg & Ctg. Hill Tracts, 2: 102. 2018. **Fig. 2.**

Local name: *Not known*

English names: Not known

— Extensive, woody liana, 10-30 m long. Stem subterete or slightly flattened, 0.5-1.5 cm diameter, young parts densely pubescent, glabrescent. Leaves coriaceous, ovate-oblong to lanceolate, rarely ovate, 10-40 × 4-12 cm; apex acuminate or acute; base slightly cordate, basal lobes rounded (the sinus 0.5-1.0 cm deep, sometimes obscure); upper surface pubescent especially on midrib and nerves, glabrescent; lower surface vilous or densely tomentose, glabrescent; basal nerves one pair, reaching upward to one third of the blade, lateral nerves 4-7 pairs, pinnate, venis rater closely reticulate; both nerves and veins elevated beneath, distinct or faint; petiole 3-6 cm long, pubescent. Inflorescences in older stem or axils of foliage leaves solitary or fasciculate, racemiform, up to 2 cm long, pubescent; bracts ovate, ca. 1.5 mm long, densely pubescent or tomentose. Pedicel and ovary 4-12 mm long, pilose. Perianth dark purple with yellow stripes; throat yellow, geniculate, sigmoid, pubescent outside, venation obscure; utricle ovoid-tubular, 2.5-3.0 × 0.5-0.8 cm, apical part bent backward, hairy at the lower half inside; tube cylindric, 3.0-4.5 × 0.6 cm, closely laterally in contact with the utricle, the basal part inside slightly projecting into the utricle cavity, almost glab_rous inside; limb rim like, 1.5-3.0 cm diameter, the rim 0.5-1.0 cm wide, very obliquely positioned on the tube, obscurely 3-lobed. Stamens 6; filament short; anthers oblong, 2-2.5 mm long. Ovary inferior, 5-6, connect in a column, column 5-7 mm long; lobes 3, triangular, ca. 1 mm long. Capsule dry, dehiscent, fusiform, 6-ridged, 10-15 x 3-4 cm, apex acute, base attenuate, glabrous. Seeds flattened and rounded, winged, funicle with membranous extension covering the upper surface. Fl. & fr.: 4-11. *In primary and secondary hilly forests; between 300-800 m altitude.*

Khagrachari: Bashkhali Ecopark, 18 x 2016, *Kowser et al.*, KH-1143, (DACB);
Rangamiti: Pharu reserve forest, Bilaichari; 15 x 2008, *S.N. Uddin*, N_3086 (DACB-41825a), 23 vii 2009, *S.N. Uddin* N3798 (DACB-41825b).

Native to Indonesia and Malaysia.

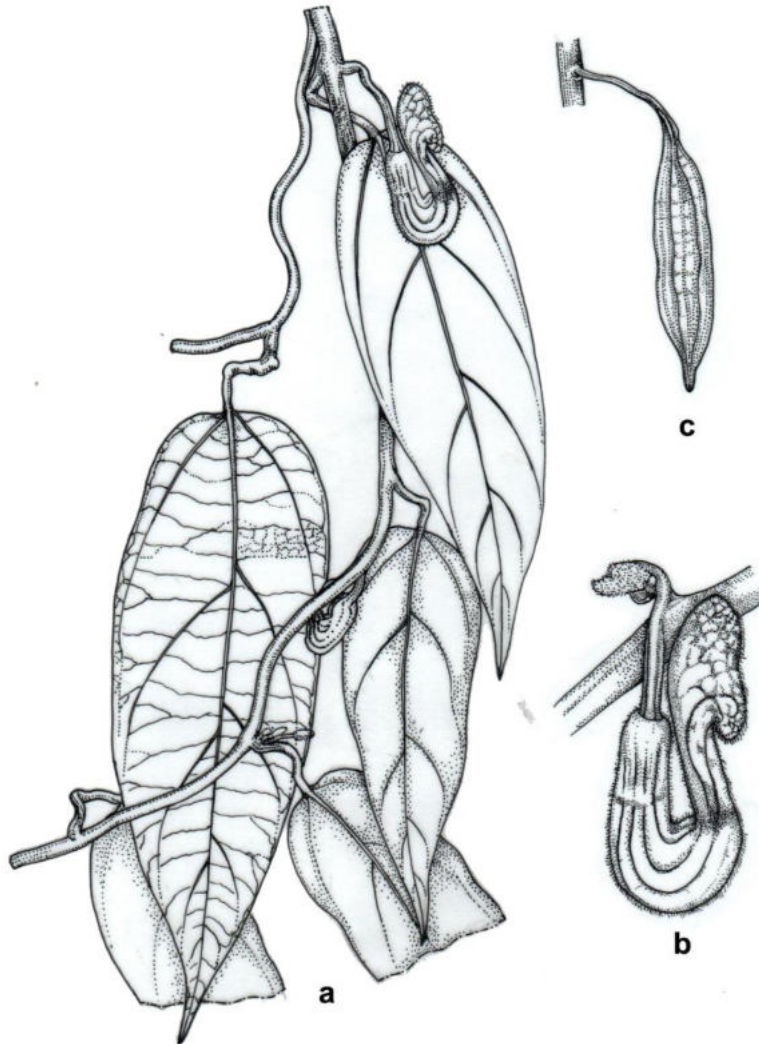


Figure -2. *Aristolochia coadunata* Backer:- a) Flowering shoot; b) Flower and c) Fruit.

Aristolochia indica L., Sp. Pl. 2: 960. 1753. C.B. Clarke in Hook. f., Fl. Brit. India 5: 75. 1886 (Indian reprint 1973); Prain, Beng. Pl. 2: 666. 1903 (Indian reprint 1963); R. L. Heinig, List Chittagong, 55 (1925); Rahman and Ullah in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 6: 214. 2008; Uddin & Hassan, Vasc. Fl. Ctg & Ctg. Hill Tracts, 2: 103. 2018. *Aristolochia lanceolata* Wight, Icon. Pl. Ind. Orient. [Wight] v. t. 1858. *Aristolochia maysorensis* Fisch. ex Duch., Prodr. [A. P. de Candolle] 15(1): 479. 1864. *Aristolochia pandurata* Wall. ex Duch., Prodr. [A. P. de Candolle] 15(1): 479. 1864. *Aristolochia indica* var. *lanceolata* (Wight) Duch. Prodromus Systematis Naturalis Regni Vegetabilis 15(1): 479. 1864. **Fig. 3.**

Local name: *Isharmul*, *Bhed Janeted* (Santal).

English name: Indian Brithwort.

A perennial herbaceous twiner or climber, woody at the base, branches slender. Leaves simple, 5-10 × 2-6 cm, alternate, petiolate, petioles 1-2 cm long, blade ovovate to pandurate, glabrous, base shortly truncate, margin flat to undulate, apex acute to acuminate, basal veins 3. Inflorescence a corymb 4-10 flowered, in the leaf axils. Flowers irregular, actinomorphic, bisexual, pedicels 0.5-1.5 cm long, swollen towards the apex. Bracts sessile, ovate, apex acuminate. Perianth up to 3 cm long, base inflated, ovoid, c 0.5 cm in diameter, tube cylindrical with a funnel-shaped trunk, mouth oblique, trumpet-shaped, gradually passing into a short, oblong, obtuse, glabrous, brownish lip. Stamens 6, filaments absent anthers placed around style. Ovary 6-lobed, lobes short and pointed. Fruit an oblong-ovoid capsule, up to 3 cm long, glabrous, apex rounded-retuse, ribs 12, septicidally dehiscent into 6 valves. Seed deltoid-ovate, long, acute, flat, winged. 2n=12 (Fedorov, 1969). *Fl. & fr.*: 8-11. *Edges of forests and fallow land.*

Chittagong: BCSIR Laboratory Campus, Ctg. sadar, 20 x 1983, *Mohammad Yusuf*, MY- 332 (BCSIRH). Dudhpukuria, Rangonia, 15 i 2018, *Moniruzzaman et al*, MK-7169 (DACB); Chandranath, Sitakundo, 05 xii 2017, *Moniruzzaman et al*, MK-6724, (DACB); **Dhaka:** Monipur, 19 ix 1954, *Md. Mahtaz* 72 (DUSH); Gandaria, 15 viii 1956, *Sadaka Begum* 14 (DUSH); Botanical garden, DU,---, *Sukdeo* (DUSH); Kamalapur, 20 ii 1960, *Faridun Nessa* 2 (DUSH); Hajaribag, 02 ii 1962, *Amjed Ali Khan* 70 (DUSH); Mirpur,

21 1966, *Zeyauddin* 229 (DUSH); Mirpur, 06 x 1973, *M. S. Choudhury* 58 (DUSH); Salna forest, 2 xii 1980, *Huq, Rahaman, Mia, Mahbuba & Mamataz*, H-4896 (DACB-25090); Gulshan Area, 19 viii 1970, *A.M. Huq*, 105 (DACB 7973); Gulshan Area, 19 viii 1970, *A.M. Huq* -105 (DACB 7973); Salna Saal forest, 15 x 1984, *M.M.K. Mia* 1927 (DACB-7967); Dacca Dist, Gulshan area, 19 viii 1970, *A.M. Huq*. 105 (DACB-7970); Salna Shal Forest, 15 x 1984, *M.M.K. Mia* 1127(DACB- 7969); Sripur Forest Area, 8 xi 1977, *Huq & Rahman*, H-3570 (DACB- 7968). JU Campus, Savar, 5 ix 2005, *Abdur Rahim*, 1926 (JUH). **Jamalpur**: Tulsipur, 17 xi 2019, *Kanis Fatema* (DACB 55778). **Khulna**: Sundarban, Mongla- Hiron Point, 3 ii 1987 *A.M. Huq & M.K. Mia* H. 8163 (DACB-7965). **Mymensingh**: High Court, 06 x 1973, *Md. Yusuf* 117 (DUSH). **Noakhali**: Sonapur, 01 xi 1963, Din Mohammad 16 (DUSH). **Patuakhali**: Kuakata, Kalapara, 13 x 2019, *Mahbuba sultana* DMS2891 (DACB); **Rajshahi**: Near Nawhata, 13 xiii 1972, A.M. Huq- 678 (DACB- 7972), Nawhata, 13 xiii 1972 *A.M., Huq* 678 (DACB- 25091). **Rangamati**: Rangamati ** ** 2005, *Sanjida Roy*, R-26 (DACB- 32247); Abt 1 mile west to Swedish Academy, Kaptai, 04 xii 1984, *Mohmd Yusuf*, MY- 593 (BCSIRH). **Thakurgaon**: Birganj, 15 ix 1996, *M.S. Khan & H. Rashid*, K-9502 (DACB-38786).

Type: Rheede Hort. Malabaricus 8. t. 25 (Iconotype, not seen); India (Lectotype by Neinhuis in Jarvis (ed.), BM, not seen).

The juice of fresh leaves is used to treat cough, and the seeds are used to treat inflammations, biliousness and cough. Juice obtained from the leaves is applied to ulcers and mixed with castor oil to eczema. Dried rhizomes and roots constitute an important drug in India, much esteemed as a gastric stimulant and bitter tonic and used to treat intermittent fevers. The drug is prescribed as a tincture, and sometimes administered as powder. Its roots possess antifertility activity (de Padua *et al.*, 1999). In the Philippine Islands, the bitter nauseous root is the most popular remedy for poisonous bites and stings. It is largely used in intermittent fevers as an emmenagogue and tonic, and is given to children for flatulence and in dyspepsia. It is recommended for all kinds of intestinal disorders (Kirtikar *et al.* 2012).

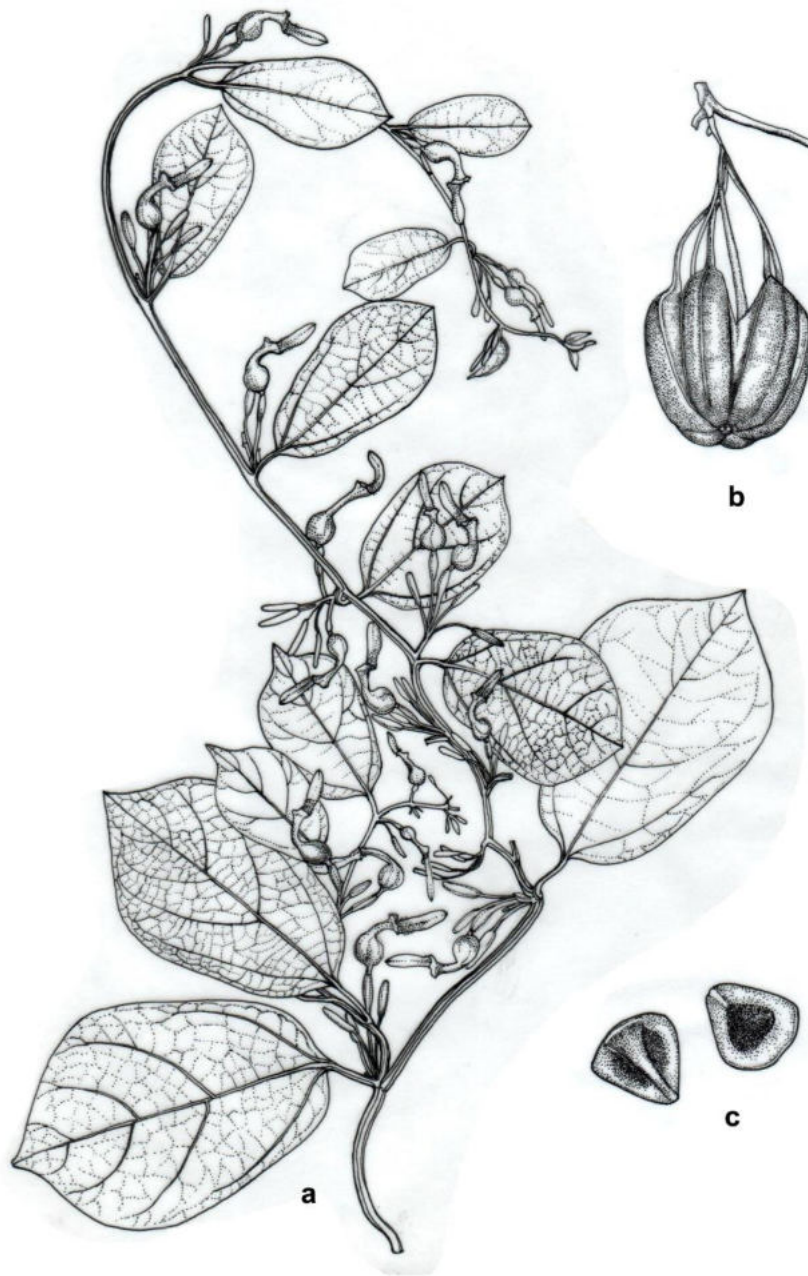


Figure -3. *Aristolochia indica* L.: a) Flowering shoot; b) Fruit and 3) Seed

Aristolochia littoralis D. Parodi, Anales Soc. Ci. Argent. v. 1878.155 (Contrib. 47). *Aristolochia elegans* Mast., Gard. Chron. n.s., 24: 301. 1885; L. Fhuphathanaphong, in: Smit., T. and Kail., Flora of Thailand, 5(1): 13. 1987; Rahman and Afroz in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 6: 213. 2008. *Aristolochia elegans* var. *hassleriana* Hassl., Repert. Spec. Nov. Regni Veg. 11: 177. 1912. *Aristolochia hassleriana* Chodat, Bull. Herb. Boissier 7, App. 1: 61.1899. **Fig. 4.**

Local name: *Hongsa Lata*

English name: Calico Flower.

A woody climber, stem slender, glabrous, branches pendulous. —Leaves pseudostipulate, pseudo-stipules leaf-like, amplexicaul, lamina 3-10 × 4-11 cm, triangular to broadly ovate, apex obtuse to rounded, base cordate, margin entire, membranous, glabrous on both surfaces, but young leaves pubescent, palmately finely 3-nerved, venation reticulate, obscured, petioles 2-6 cm long, slender, glabrous. Inflorescence solitary, axillary. Flowers on long pedicels, up to 7 cm long, bent, more than 6 cm long. Perianth white or greenish with rich purple-black or purple-brown mottling, utricle obliquely ellipsoid, 2.2-2.8 × 1.2-1.6 cm, tube bent upwards, somewhat funnel-shaped at top, 1.2-2.0 × 0.4-0.7 cm, expanding abruptly into a nearly circular shallow cup, limb orbicular, 5-7 cm in diameter. Stamens 6, anthers linear, c4 × 1 mm. Gynostegium about 5.5 × 4.5 mm, cylindrical. Ovary 6-locular, ovules many in each locule, stylar column short, cylindrical, stigmatic lobes 6 flattened, apically pubescent outside, with margin recurved outwards. Fruit a capsule, about 4 cm long and 2 cm across, 6-valved. Seeds numerous, flat, 2-5 mm long. *Fl. & fr.*: 6-10. *Grows in the forests, also cultivated in gardens.*

Type: Paraguay: San Pedro ad littus Jejuí, legi 1867, Parodi s.n. ;

Dhaka: Baldha Garden, Wary, 22 xi 2017, *Mahbuba Sultana*, DMS2038 (DACB 46887); Dhaka University Botanical Garden (Originated from Chittagong & planted), 4 iv 1997, *M.S. Khan*, K9924 (DACB 27808); Dhaka University Botanical Garden (Originated from Chittagong & planted), 23 ix 1997, *A. Hassan*, (DACB 27845). **Mymensing:** Botanical Garden, BAU, 12 ix 2018, *Mahbuba Sultana*, DMS2482 (DACB).

Native to Argentina, Brazil, Caribbean, Costa Rica, Mexico, Honduras, Guatemala etc.

Plant has potential horticultural value.

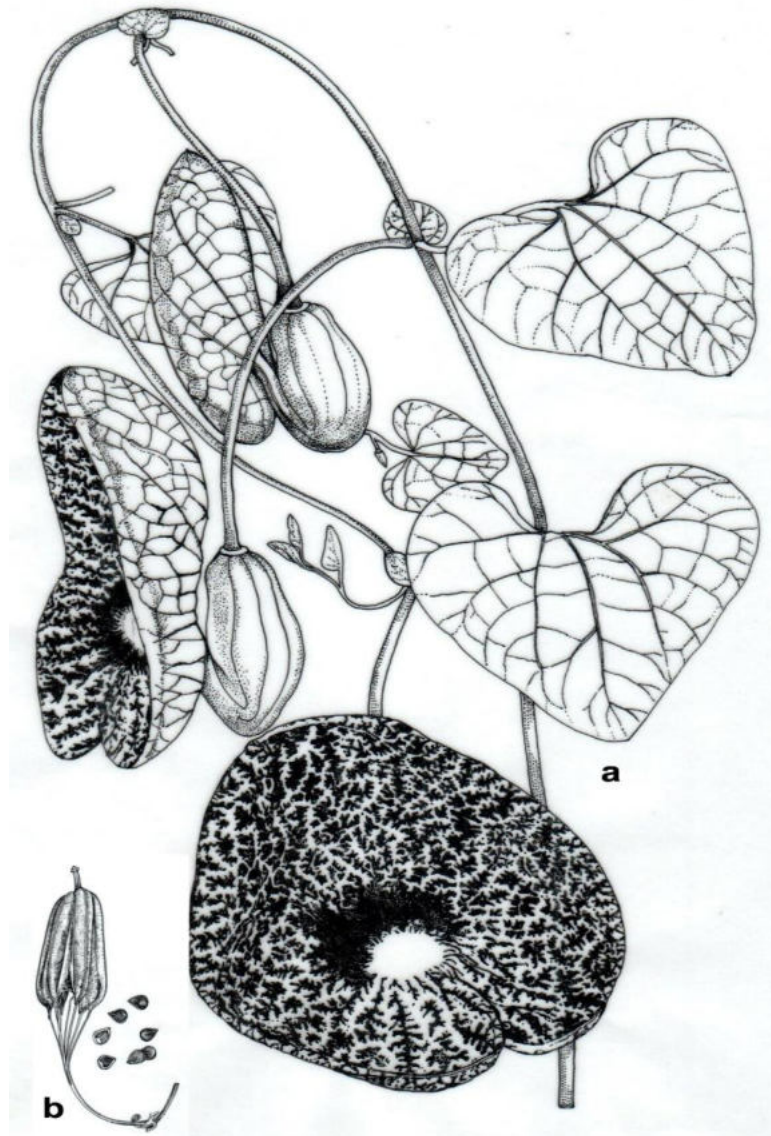


Figure - 4. *Aristolochia littoralis* D. Parodi: a) Flowering shoot; b) Capsule and Seeds

Aristolochia pierrei Lecom., Notul. Syst., Herbarium du Museum de Paris 1: 76. 1909; L. Fhuphathanaphong, in: Smit., T. and Kail., Flora of Thailand, 5(1): 15. 1987. *Aristolochia hookeriana* Craib., Bull. Misc. Inform., Royal Gardens, Kew 450. 1911.

Fig. 5.

Local name: *Not known*

English names: Not known

A long climbing shrub, stem glabrous, slightly furrowed/ grooved branches. Leaves petiole 1-2(-3.5) cm, grooved above, hairy along edges, glabrous beneath; lamina lanceolate to broadly lanceolate, 5-14 × 2.5-5 cm, base cordate, lobes rounded, margin entire, slightly recurved, hairy above, apex acute or tapering acute, upper surface finely pubescent, lower surface puberulous, with scattered gland-dots on both sides, palmately 5-nerved, lateral nerves 3-4, venation reticulate conspicuous above, prominent below. Inflorescence racemose in axils of leafy shoots, many flowered, sparsely pluriform, 3.5-7 cm, tomentose; bracts oppositiflorous, lanceolate or narrowly lanceolate, 0.8-1.2 × 0.35-0.45 cm both sides hairy, outside margin hirsute, apex acute. Perianth 2-3.5 cm, acute, most hairy, urticel spherical or ovoid, 3.5-4.5 × 3-4 mm, purple inside, tube 5-8.5 × 1-1.5 mm, curved, greenish light brown, limb oblong lanceolate, 1-1.5 × 0.45-0.55 cm, sharp, very hairy purplish-brown. Anthers oblong, 0.4 × 0.2 mm. Ovary 3.7-4.5 × 0.5-1 mm, hairy. Gynostemium 1.8-2.1 mm, stigmatic lobes 6, long conical, obtuse. Fruits ovoid to obovoid capsule, blunt, hexagonal, 2-3 × 1.8-2 cm, dehiscent basipetally. Seeds broadly obovate or triangular, flat, thin, smooth, 4.7-5.1 × 5.5-6 mm, verrucose on both sides, winged. *Fl. & fr.*: 4-12. *Clearing in Evergreen forest, at 150-900 m altitude.*

Bandarban: On the way to Mizapara, Chimbuk Hill, 27 xi 1983, *Khan, Huq, Rahman & Mia*, K-6517 (DACB 7964).

Native to range is Indo-China.

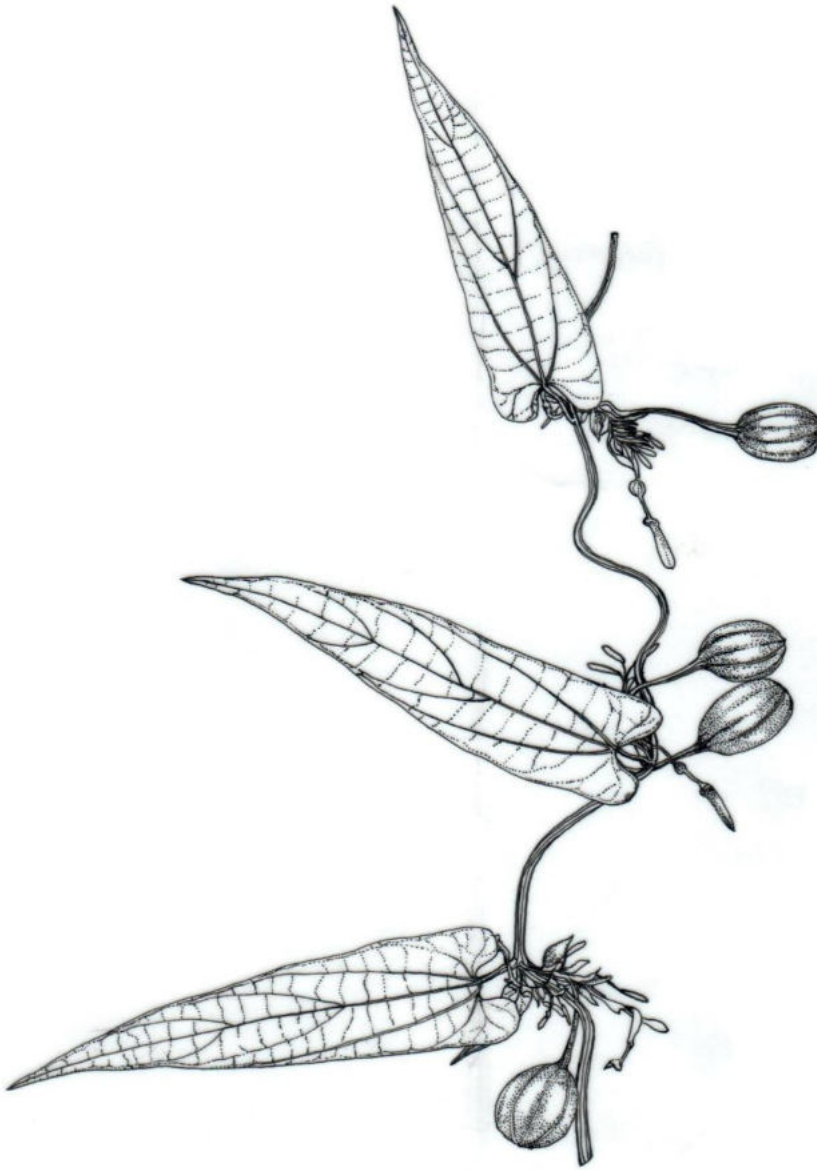


Figure -5. *Aristolochia pierrei* Lecom. : Flowering & fruiting shoot;



Aristolochia ringens Vahl, Symb. Bot. (Vahl) 3: 99. 1794; Wild., Sp. Pl. 4: 155. 1805; L. Fhuphathanaphong, in: Smit., T. and Kail., Flora of Thailand, 5(1): 12. 1987; Hutchinson and Dalziel. Flora of West Tropical Africa 1:1. 1954. *Aristolochia turbacensis* Kunth, Nov. Gen. Sp. 2: 149 (1817); *Howardia cymbifera* Klotzsch, Preuss. Akad. Wiss. Berlin 1859: 609 (1859); *Howardia ringens* (Vahl) Klotzsch, Monatsb. Preuss. Akad. Wiss. Berlin 1859: 607. 1859. **Fig. 6.**

.Local name: *Raj Hongsa Lata*

English name: Gapping Dutchman's Pipe.

A perennial large woody climber, stem slender, glabrous; the whole plant gland-dotted. Leaves pseudo-stipulate, pseudo-stipules leaf-like, amplexicaul, lamina unequal, 3-9 × 4-11 cm, rounded-cordate, apex broadly rounded, deeply cordate at the base with rounded auricles, margin entire, membranous, Pale glaucescent, almost or quite glabrous on both surfaces, but young leaves slightly pubescent, palmately finely 3-nerved, nerves branched near the margin, venation reticulate, obscured, petioles 2-5 cm long, slender, glabrous. Inflorescence solitary, axillary. Flowers on long pedicels, very large, 4 to 7 cm long, Siggar like, showy. Perianth pale green with dense dark purple to violet network all over, especially dense on lobes, woolly inside, utricle obliquely curved ellipsoid, 4-7 × 2.5-3.0 cm, tube bent short, upwards, 2-2.5 × 0.6-1.0 cm, limb 2-lipped, upper lip boat like about double as long as the lower part terminates in an ovate or reniform blade. Stamens 6, anthers linear, ca. 5.5 × 0.8 mm. Gynostegium ca. 7-9 × 5-6 mm, stigmatic lobes 6, long, conical, obtuse. Fruit a capsule, dehiscent, fusiform about 8 cm long and 4 cm across, strongly 6-ribbed. Seeds numerous, flattened, including wing obovate, 9-12 × 6-8 mm, seed proper obcordate, 3-4 × 2.5-3.5 mm, brown with light brown verrucae, other side dark brown, wing light brown. *Fl. & fr.:* 6-10. *On sandy soil at ca 1000 m altitude. Introduced, planted in gardens. Sometimes escaped from cultivation.*

Type: Jamaica, Julius P.B. von Rohr - 124. (BM, not seen)

Mymensingh: Botanical garden, Bangladesh Agriculture University, Sadar, 14 vi 2020, *Mustafizur Rahman*, 370 (BAUH); Botanical garden, Bangladesh Agriculture University, Sadar, 20 xii 2020, Mahbuba Sultana DMS 3507 (DACB).

–Native to Central & S. Tropical America.

These plants are cultivated for their special structured beautiful flowers.

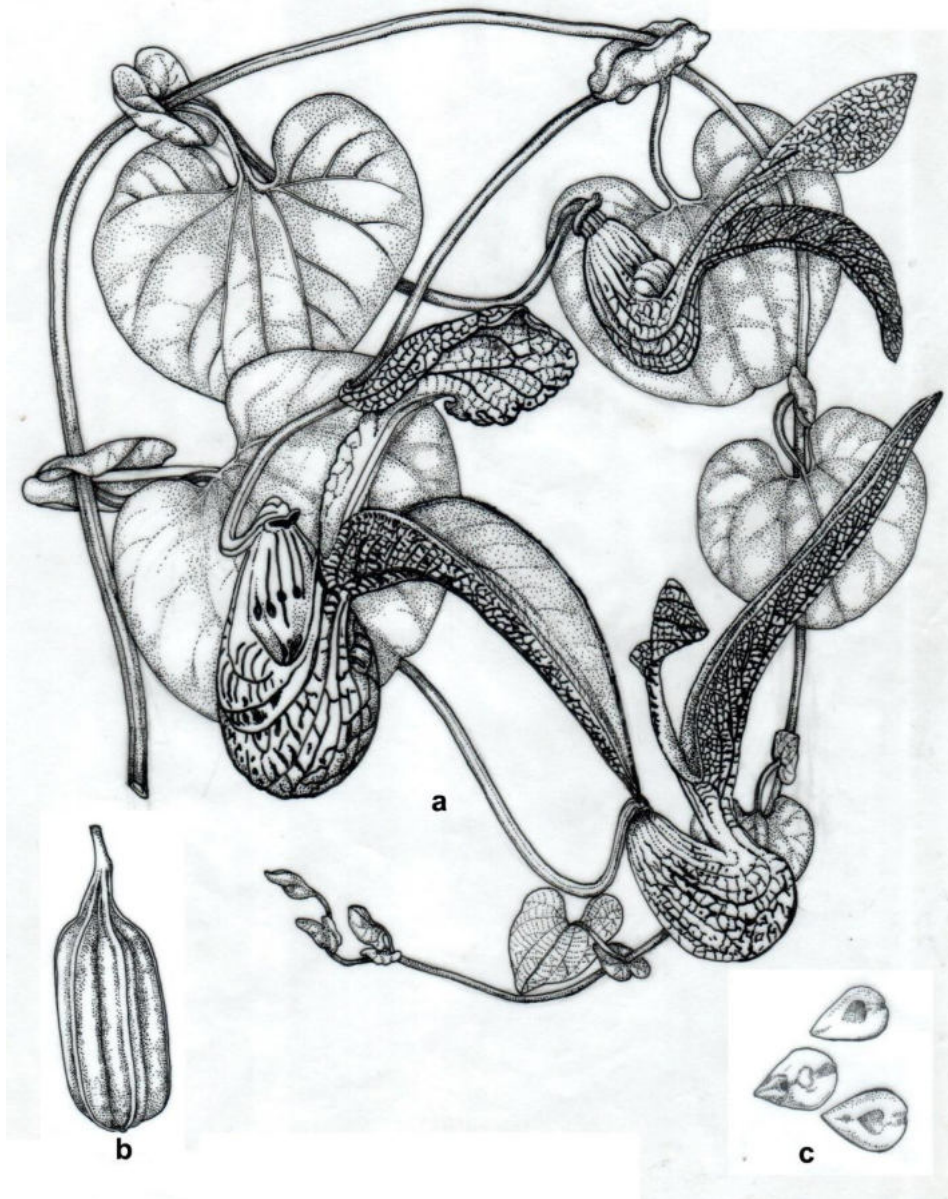


Figure - 6. *Aristolochia ringens* Vahl: a) Flowering shoot; b) Fruit and c) Seed

Aristolochia saccata Wall., Pl. Asiat. Rar. (Wallich). 2: 2, t. 103. 1830; C.B. Clarke in Hook. f., Fl. Brit. India 5: 76. 1886 (reprint 1973); Prain, Beng. Pl. 2: 667. 1903 (Indian reprint 1963); R. L. Heinig, List Chittagong, 55 (1925); Kanjilal *et al* Fl. Assam 4: 29. 1940 (reprint 1982); L. Fhuphathanaphong, in: Smit., T. and Kail., Flora of Thailand, 5(1): 22. 1987; Ullah in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 6: 214. 2008; Uddin & Hassan, Vasc. Fl. Ctg & Ctg. Hill Tracts, 2: 104. 2018. *Aristolochia cathcartii* Hook. f., Fl. Brit. India [J. D. Hooker] 5(13): 77. 1886 (reprint 1973); Kanjilal *et al* Fl. Assam 4: 29. 1940 (reprint 1982). *Siphisia angustifolia* Klotzsch, Monatsb. Akad. Berl. (1859) 603. *Siphisia saccata* (Wall.) Klotzsch, Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin, t. 2, f. 11, 603. 1859. *Aristolochia saccata* var. *angustifolia* (Klotzsch) Duch., Prodrum Systematis Naturalis Regni Vegetabilis 15(1): 436. 1864. **Fig. 7.**

Local name: *Iswarisaka, Krah-lehid*

English names: Not known

A stout, climbing shrub, stems woody, brown-tomentose, bark winged, corky and pubescent. Leaves 12-30 × 3.5-6.5 cm, very variable in forms, petiolate, petioles up to 6 cm long, pubescent, lamina ovate, linear-oblong or linear-lanceolate, base deeply cordate, sinus 1-4 cm deep, margin slightly repand, apex acute to acuminate, leathery, glabrous above (adaxially glabrate), villus below (abaxially densely white tomentose), 3-nerved at the base, pinnately 4-nerved along the midrib, veins transverse, venation reticulate, prominent on both sides. Inflorescence of cymes, 3-5 flowered, vilous with long hairs. Flowers c 5 cm long, yellowish-white with purple veins, clothed with spreading hairs outside, sac curved below the neck, basal portion obscurely ridged, marked off by a slight constriction, neck constricted, c 7.5 mm long, mouth nearly circular and like the lip with a narrowly reflexed, limb obliquely trumpet-shaped, unequally 3-lobed, purple, papillose border. Anthers oblong, 3-4 mm. Gynostemium 3-lobed. Fruit ovoid, linear-oblong capsule, c 16 × 4 cm, bluntly apiculate, softly tomentose, 6-ribbed, grooved between the furrows, dehiscent basipetally. Seeds obovate, c 1 cm long, not winged, acute at the base, margin slightly incurved on the inner face, dorsally more or less truncate and margined.

Fl. & fr.: 8-5. *Edges of evergreen forests.*

Type: Nepal, Wall. List No. 2707 a (K, CAL not seen),

Khagrachuri: Shilachuri para, Lokhichuri, 18 x 2016 *Kowser et al*, KH-1162_(DACB);

Rangamati: Rampahar, Kaptai, 30 ix 2002, *Sarder Nasir Uddin*, N-1627 (DACB).

Native to Bhutan, Burma, China, India, Nepal, Sikkim.

This species is used medicinally in China.

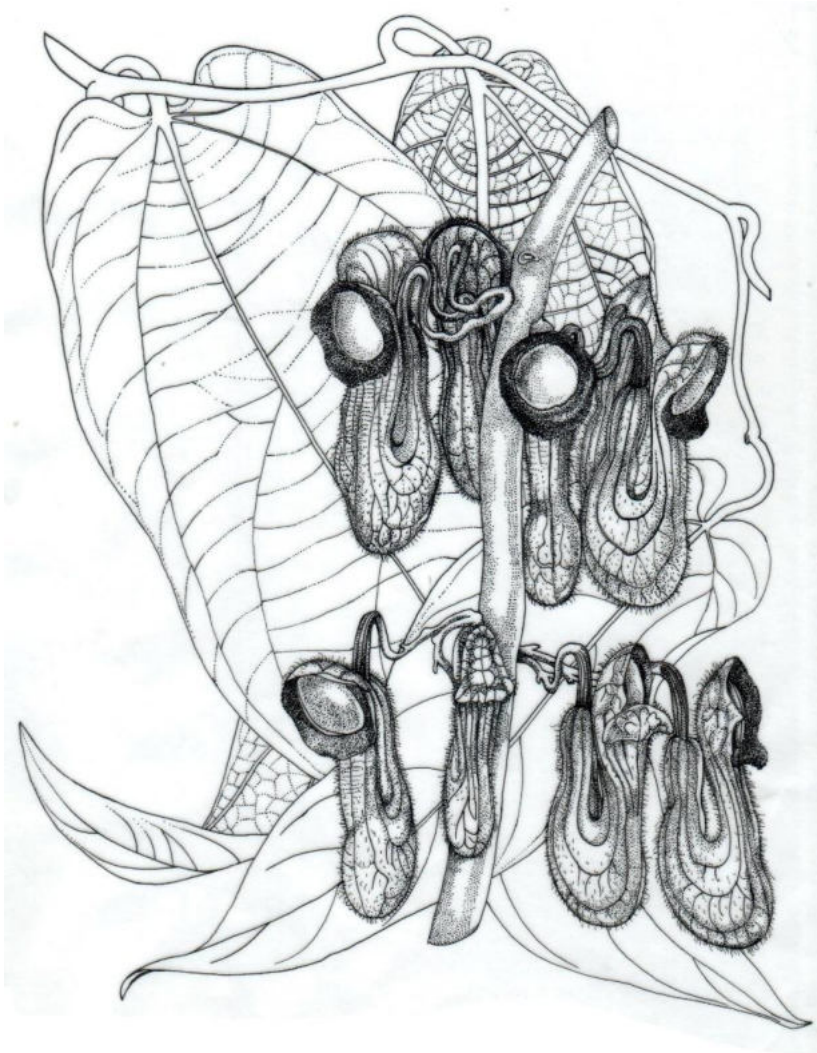


Figure -7. *Aristolochia saccata* Wall.: Flowering shoot

Aristolochia tagala Cham., *Linnaea* 7(2): 207, t. 5, f. 3.1832. Prain, *Beng. Pl.* 2: 667. 1903 (Indian reprint 1963); R. L. Heinig, *List Chittagong*, 55 (1925); Kanjilal *et al.*, *Fl. Assam* 4: 28. 1940 (reprint 1982); Ding Hou, in Van Steenis, *Flora Malesiana*, 10 (1): 94. 1984; Smit., T. and Kail., *Flora of Thailand*, 5(1): 14. 1987; Ullah in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 6: 215. 2008; Uddin & Hassan, *Vasc. Fl. Ctg & Ctg. Hill Tracts*, 2: 105. (2018). *Aristolochia acuminata* Lam. *Encycl. J. Lamarck & al.* 1(1): 254 (1783). *Aristolochia angulosa* Wall. *ex Duch., Prodr.* [A. P. de Candolle] 15(1): 480 (1864). *Aristolochia eschscholtzii* Ledeb. *ex Duch., Prodr.* [A. P. de Candolle] 15(1): 481 (1864). *Aristolochia roxburghiana* Klotzsch, *Monatsb. Akad. Berl.*, 596. 1859; C.B. Clarke in Hook. f., *Fl. Brit. India* 5: 75. 1886 (reprint 1973); *Aristolochia subsagittata* Blanco, *Fl. Filip.* [F.M. Blanco] 283 (1837). **Fig. 8.**

Local name: *Bara Isharmul. Isharilata*

English names: Birthwort, Dutchman's Pipe.

An extensively climbing shrub, up to 20 m long, stems terete, glabrous, branches slightly furrowed. Leaves 8-16 × 5-10 cm, petioles 2-4 cm long, grooved above, pubescent along grooved surface, glabrous below; lamina ovate-cordate or ovate-oblong, cordate at the base with rounded auricles, sparsely short-haired to subglabrous beneath or both surfaces glabrous, with 2 pairs basal veins, 3-5 pairs secondary veins and loosely reticulate or crossbar-like tertiary veins. Inflorescence racemose or paniculate in axils of leafy shoots, 2-3-flowered, 6.0-13.5 cm long, pubescent to nearly glabrous. Bracts ovate-lanceolate, 1.8-3.0 × 1.0-1.5 mm, base cuneate, margin ciliate, apex acute, puberulous on both surfaces, pedicels 5-8 mm long. Perianth 1-lipped, with faint venation, pale yellowish or greenish, throat dark purple to reddish-brown; tube rectilinear or slightly curved; urticel globose, 5-8 mm in diam. With stipe 1-3 mm; limb ligulate, oblong, 2-3 × 0.5-0.6 cm. Anthers ovoid to ellipsoid, ca. 1.0 × 0.8-1.7 mm. Ovary 5.0-9.5 × 1.0-1.5 mm, gynostemium 3.0-4.0 × 3.5-4.0 mm, stigmatic lobes 6, long conical, obtuse. Fruits subglobose, slightly pyriform or oblong, up to 4 cm long, dehiscent acropetally. Seeds 6-10 mm long, broadly obovate, winged, flattened, light brown. 2n=14 (Fedory, 1969). *Fl. & fr.*: 4-12. *Evergreen, mixed deciduous forests and thickets, up to an altitude of 1350 m.*

Type: Philippine Islands, Chamisso s.n. [...](#)

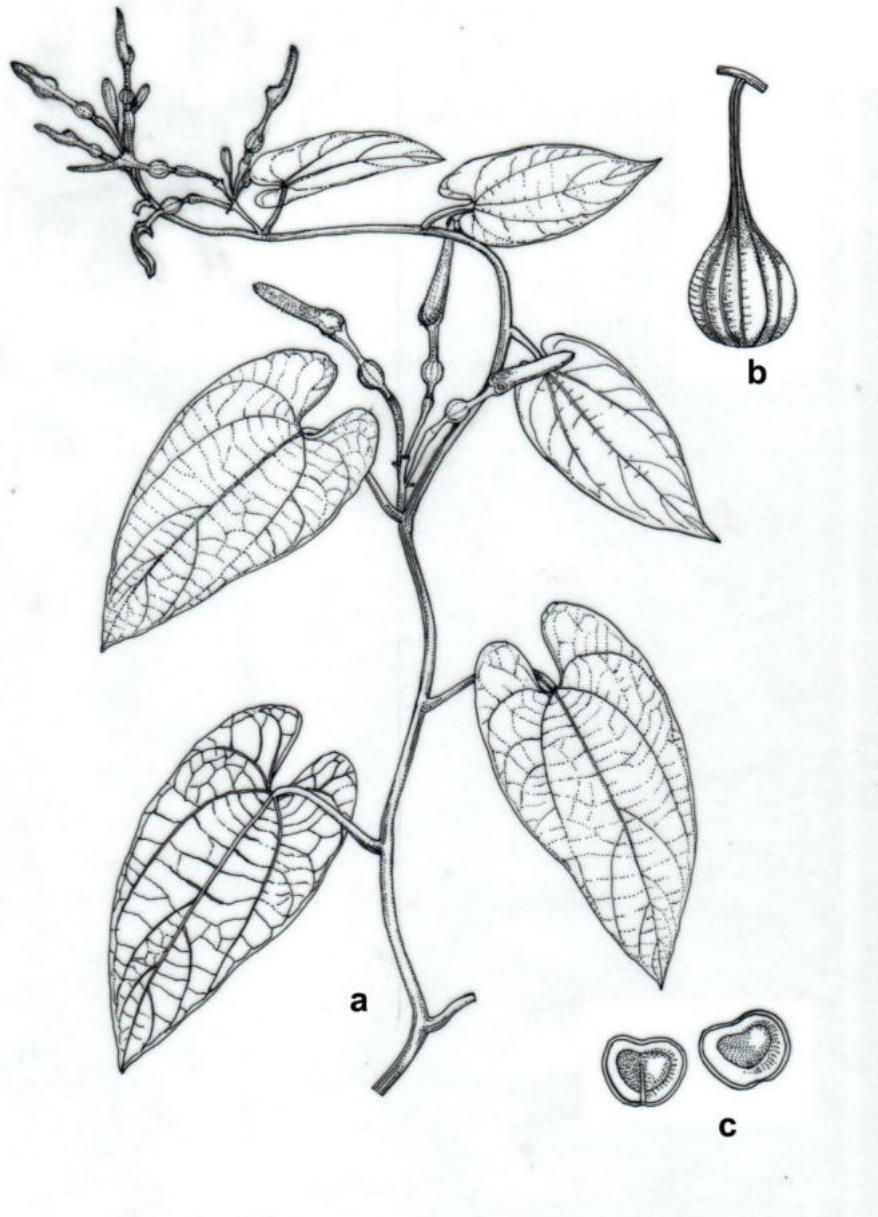


Figure - 8. *Aristolochia tagala* Cham. : a) Flowering shoot; b) Fruit and c) Seeds

Bandarban: Ruma P. C., Ruma Pransa, 25 1965, *M. S. Khan* 1147 (DUSH); Boom para, Ruma, 24 i 2017, *Khandakar Kamrul Islam*, KKI- 853 (DACB 47178); Thana para, Ruma, 11 v 2018, *Khandakar Kamrul Islam*, KKI- 2856 (DACB 47359). **Chittagong:** Bhujpur, Hajarikhil, Fatikchori, 06 xi 2017, *Moniruzzaman, Al-Amin & Kowser*, MAK- 6231 (DACB 54278); Kamalchori, Rangunia, 09 i 2017, Tajul, Owahid & Kowser, TOK- 2958 (DACB 54277); Kalapanichora, Hajarikhil, Fatikchori, TAK-5103 (DACB 54275); Near Baria Dhala Rest House, 25 vi 1979, Mia & Rahman, M-173 (DACB 7974); Baria Dhala Range, Bariadhala Ward to Hazarikhil, Ctg, 23 vi 1993, Mia & Rahman, Rezia & Momtaz M-3247 (DACB 7528); Sitakunda Upazila, Bashnbaria 21 viii 1987, Khan, Haq & Mia, K-7754 (DACB 7977). Andhermanik, Rawjan, 04 iv 2017, *Siraj Mia*, SM- 526 (DACB- 52425), Kumarkhali, Sakerhat, Hathajari, 17 iii 2017, *Elias*, E-466 (DACB- 52426), Chandarnath, Sitakunda, 17 iv 2017, *Tajul, Al Amin, Kowser*, TAK- 4257 (DACB- 52424), Boroghana, Dhopachari, Chandanaish, 18 ix 2017, *Moniruzzaman, Al-Amin & Kowser*, MAK- 5661 (DACB- 52423), Dudhpukuria, Rangunia, 08 i 2017, *Tajul, Wahid & Kowser*, TOK-2808 (DACB 52422), Kalapani, Hajarikhil Wildlife Sanctuary, 20 viii 2014, *Sarder Nasir Uddin*, N-5500 (DACB 42491), Mithachora, Fatehpur, Hathajari, 14 xi 2017, *Md. Moniruzzaman, Al-amin, Kowser*, MAK-6364 (DACB 54279), Mithachora, Fatehpur, Hathajari, 01 iii 2017, *Arfan Arif*, AA-412 (DACB 54276), Chandranath, Sitakunda, 05 xii 2017 *Md. Moniruzzaman, Al Amin & Kowser*, MAK- 6724 (DACB 54274), Chunati, Lohagara, 12 xii 2017, *Moniruzzaman, Al Amin, Kowser*, MAK-6865 (DACB 54281), Jailla-shea Pahar, Chandanaish, 20 ix 2017, *Moniruzzaman, Al Amin., Kowser*, MAK- 5770 (DACB- 54280), Sitakundo Eco Park, 13 ii 2018, *Moniruzzaman, Al-Amnin, Kowser*, MAK- 7600 (DACB 54273), Chunati Forest Range, Harbhanga, 09 vi 1979, *Khan, Huq & Rahman*, K-5484 (DACB 7975). Near Baral Kundo, Ctg Sadar, 21 viii 1987, *Mohammad Yusuf*, MY-706 (BCSIR). **Cox's Bazar:** Whykang Range, 03 vi 2000, *Khan & Mia*, K-10546 (DACB); Rajarkul, Ramu, 18 x 2017, *Niyamul Kabir, Zahid Hasan, Mehedi Hasan*, Nk-6109 (DACB 58329), Fasiakhali, Chakaria, 26 ix 2017, *Niyamul Kabir, Zahid Hasan, Mehedi Hasan*, NK-5832 (dacb 58328), Domdomia Natural Park, Teknaf, 29 iii 2017, *Niyamul Kabir, Zahid Hasan, Mehedi Hasan*, NK- 839 (dacb 58326), Fasiakhali, Chakaria, Cox's Bazar, 10 iv 2017, *Nazim Uddin*, NU- 73 (DACB- 58325), Balukhali, Ukhia, 23 iv 2017, *Mofiz Uddin*, MU- 121 (–DACB- 58323), Bangdeba, Juarinala, Ramu Upazila, *Niyamul Kabir, Zahid Hasan, Md. Moniruzzaman*,

Mehedi Hasan, NK-2324 (DACB 58322), Fasiakhali, Chakaria, 30 i 2017, *Niyamul kabir*, *Jahid Hasan*, *Mehedi Hasan*, NK-202(DACB- 57100), Rajarchaora, C. Bazar, 05 x 1991, *Khan, Huq, Mia & Rahman*, K-8574 (DACB 24738), Shilkhali beat, Jahajpara, Teknaf, 22 iv 1996, *M.S. Khan & M.K. Mia*, K-9279 (DACB 39116), Dulahazra Safari Park, 17 ii 2004, *Sarder Nasir Uddin*, N-2202 (DACB 30368). **Dhaka:** Botanical Garden, DU, 16 viii 1966, *Zeyauddin* 224 (DUSH). **Habiganj:** Rema- Kalenga Wildlife Sanctuary, Rema Beat, 04 iv 1997, *Khan, Islam & Uddin*, K-9813 (DACB 28241). **Khagrachari:** Monju Adam, Panchari, 09 x 2004, *Dr. Mohammed Yusuf*, MY-1631 (BCSIR). **Moulvibazar:** Lawachara, 19 ix 1963, *M. S. Khan*, 470 (DUSH); Lawachara National Park, Kamalganj, 12 v 2009, *s. Nasir Uddin*, N-3667 (DACB- 37453); Adampur, Kamalganj, 19 v 2014, *Sarder Nasir Uddin*, N-5223 (DACB 43471), Lawachara National Park, Kamalganj, 12 v 2009, *Sarder Nasir Uddin*, N- 3667 (DACB 37453); Lawachara National Park, Kamalganj, 19 viii 2009, *Sarder Nasir Uddin*, N- 3950 (DACB 35771). **Mymensingh:** Dhanchira Village, Mymensingh sadar, 04 xi 1983, *Huq, Rahman, Mia & Momtaz* H- 6484 (DACB 7976). **Rangamati:** Karnafuli sadar beat, F.R. Kaptai, 2 viii 2010, *S. Nasir Uddin*, N-4338 (DACB- 44970); Karnafuli Sadar Beat, Karnafuli, FR, Kaptai, 02 viii 2010, *S. Nasir Uddin*, N- 4338 (DACB-44968); Karnafuli Sadar Beat, Kaptai, 11 v 2010, *S. Nasir Uddin*, N- 4256 (2) (DACB- 45555); Karnafuli Sadar Beat, Kaptai, 11 v 2010, N- 4256 (DACB 45557); Molnavi Chara, Farua Reserve Forest, 17 i 2009, *S. Nasir Uddin*, N- 3208 (DACB- 46638), Farua R.F., 14 x 2008, *Bushra, Momtaz & Uddin*, B-1894 (DACB- 33536); Moulvi Chara, Farua R.F., Bilaichori, 14 x 2008, *S. Nasir Uddin*, N-2965 (DACB-33238); Farua R. Forest. Moulvichora, 14 x 2008, *Bushra, Momtaz & Uddin*, B-1094 (DACB 33338); Pathortola Ghat, Sitapahar, Kaptai, 25 ix 2002, *S. Nasir Uddin*, N-1564 (DACB 36305); Opposite to Sitarghat, Rampahar, Kaptai, 29 v 2003, *S. Nasir Uddin*, N-1797 (DACB 33669). Jarultala, Sitapahar, Kaptai, 26 ix 2002, *Sarder Nasir Uddin*, N-1598, (DACB- 36315), Sitarghat, Sitaphar, Kaptai, 31 v 2003, *Sarder Nasir Uddin*, N-1978 (DACB 36811), Moulvichora Farua Reserve Forest, 17 i 2009, *Bushra & Nasir*, B-1229 (DACB 34268), Rampahar, Kaptai, 03 x 2002, *Sarder Nasir Uddin*, N-1797 (DACB 33665). **Sylhet:** Sylhet Cattale Firm Forest, 24 v 1968, *Amlendu* 172 (DUSH); Jaintapur Forest Area, 01 x 1983, *Huq, Rahman, Mia & Mahbuba*, H- 6258 (DACB 7978); Khadimnagar National Park, Sylhet sadar, 14 iii 2019, *Dr. M Sultana & Dr. S Rahman*, DMS- 2732 (DACB 48184). **District?** 1830, Wallich. N. 2705 (K 000978961).

Native to Bhutan, Burma, Combodia, China. Nepal, Japan, India, Thiland, Indonesia, Malaysia, Japan, Philippens and Vietnam.

The plant is used in bowel complaints (Kirtikar *et al.* 2012). In the Philippines, powdered roots are used as a tonic carminative and emmenagogue, and to treat infantile tympanites. Pounded leaves are applied to the head to relieve fever in Malaysia (de Padua *et al.*, 1999).

Thottea Rottb.

Nye Saml Kongel. Danske Vidensk. Selsk. Skr. 2:529. 1783

Type Species: *Thottea grandiflora* Rottb.

Plants erect subshrubs. Leaves alternate, pinnately or palmately 3-5 veined, margin entire, coriaceous, petiolate. Flowers axillary, arranged in racemes or cymes; bracts opposite to flowers. Perianth uniseriate, actinomorphic. Calyx lobes fused; tube campanulate, cupular, throat usually with thickened ring; lobes 3 or 4, valvate. Stamens numerous; filaments short, free or partly connate, adnate to style with anthers remaining free; anthers extrose. Ovary inferior, 4-loculed; carpels fully connate; style short, 5-20 lobed; stigma terminal or lateral. Fruit siliquiform, elongate, septicidally 4-valved. Seeds 3-gonous, rugose or deeply pitted, albumen fleshy, copious embryo minute.

Thottea tomentosa (Blume) Ding Hou, *Blumea* 27:328, f.48, 49. 1981; Smit., T. and Kail., *Flora of Thailand*, 5(1): 26. 1987; Uddin & Hassan, *Vasc. Fl. Ctg & Ctg. Hill Tracts*, 2: 106. 2018; Uddin in Ara *et al* (eds.), *Red Data Book Vasc. Pl. Bangladesh*, 2:256. 2013. *Bragantia tomentosa* Blume, *Enum. Pl. Jav.*, 1: 82. 1827; C.B. Clarke in Hook. f., *Fl. Brit. India* 5: 73. 1886 reprint 1973; *Apama tomentosa* (Blume) Engl. *Kanjilal et al Fl. Assam* 4: 30. 1940 (reprint 1982). **Fig. 9.**

Local name: Not known.

English names: Samu, Chong (Thai).

Erect, partially woody herb, up to 35 cm high; stem simple or branched, densely covered with short, soft hairs, bearing 1-5 (mostly 2 or 3) leaves. Leaves broadly ovate, sometimes elliptic or oblong, 10-25 × 8-20 cm, leathery, apex acute, acuminate or obtuse, base rounded or slightly obliquely cordate, margins entire, glabrous above, densely tomentose or villous beneath, pinnately 7-8 nerved, venation reticulate, smooth above, prominent below; petiole 5-8 mm long, hairy. Inflorescence near the base of the stem, clustered or spiciform racemes, 5-10 cm long, slightly curved downward. Bracts lanceolate, 3.5-5.0 × 0.7-1.2 mm, tomentose, many along the axis. Pedicels 0.6-0.8 mm long. Flowers purplish-brown outside, yellowish-brown to reddish inside, bell-shaped, 12-16 mm in diameter. Perianth 5-8 × 4-7 mm, 3-lobed, lobes broadly ovate, patent, prominent veins at the base. Disk copular, adnate to perianth tube with apical part free and ring like. Stamens 6, arranged in 1-series, another oblong, 1.6-2.0 × 0.5 mm, connective glabrous. Gynoecium 2.0-2.5 × 2.0 mm, column 2 mm long, stigmatic lobes 3. Elongate, apical part hooked hairy. Fruits elongate capsules. With 4-distinct valve, 3.5-5.0 (-15) × 0.5 cm, dark purple; pedicel 0.5-0.7 cm long. Seeds oblong, distinctly trigonous, brown, 3.5-4.0 × 2.0-2.5 mm. *Fl. & fr.*: 8-11. *Shady, moist places in evergreen forests, sometimes in bamboo forests and teak plantation; between 200-1000 m altitudes.*

Type: Blume 1690- (Lectotype, n.v.). ;.

Cox's Bazar: Boro Inani, Ukhia, 20 ii 2018, *Niyamul et al*, NK-7083(DACB); Monkhal, Jaliapalong, Ukhia, 12 iii 2017, *Niyamul et al*, NK-7135 (DACB); Palongkhali, Ukhia, 04 iv 2017, *Mofiz Uddin*, MU-02(DACB); **Rangamati:** Karnaphuli Sadar beat, Kaptai, 12 v

2010, *S. Nasir Uddin*, N-4306 (DACB 40537 & 40538); Sitapahar, Kaptai, 25 ix 2010, *S. Nasir Uddin*, N-4200 (DACB).

Native to India, Myanmar, Thailand, Malaysia, Indonesia, and Vietnam.

It is extremely bitter and used by the Javanese as an emmenagogue (I.M.P.). Flrs. 7 (*Kirtikar et al.* 2012).

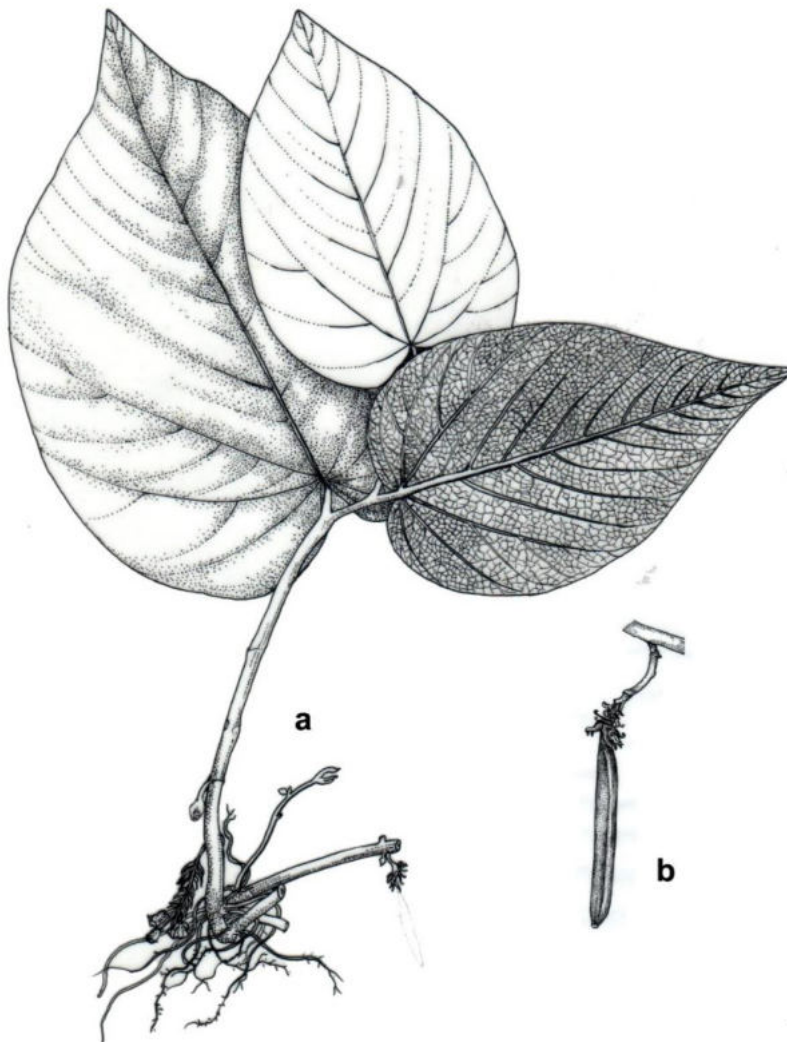


Figure -9. **Thottea tomentosa** (Blume) Ding Hou: a) Flowering shoot and b) Fruit

Acknowledgement:

The authors are grateful to the authorities of the Royal Botanic Gardens, Kew (K), Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh Forest Research Institute, University of Dhaka, Jahangirnagar University for using their herbarium specimen & other facilities.

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